

CLOSER TO PEOPLE & NATURE

The title 'CLOSER TO PEOPLE & NATURE' is rendered in large, white, rounded letters. The word 'PEOPLE' is on the top line, '&' is in the middle, and 'NATURE' is on the bottom line. The letters are integrated with various illustrations: a hand holding a blue recycling symbol, a hand holding a green tree, a hand holding a blue water drop, a hand holding a green car, and a hand holding a group of people.

About this Report

Overview

This is the 7th Sustainability Report of the Korea Environment Corporation (herein "K-eco"). In line with the publication year of this report, we set the title as 2021 K-eco Sustainability Report. Based on the ESG management strategy system newly established by K-eco, this report was prepared to further communicate with various stakeholders. We intend to publish the sustainability report every year in order to share our activities, achievements, and plans for sustainable and healthy growth.

Reporting Period and Scope

This report presents our activities and achievements from January 1 to December 31, 2020. Quantitative data for the last three years (2018~2020) is provided to help identify the time-serial analysis and the period spans up to November 2021 to ensure the timeliness of information for some meaningful results. The reporting scope covers the head office, business units, and regional headquarters. If some reporting boundaries are different, they are indicated in separate notes.

Reporting Criteria

This report was compiled in accordance with Core Option of the GRI (Global Reporting Initiative) Standards. Reporting issues were selected through stakeholder engagement and materiality analysis and then we reported contents and indices based on the results. The UN SDGs (Sustainable Development Goals) and TCFD (Task Force on Climate Related Financial Disclosures) recommendations were also reflected in this report.

Assurance

To ensure the quality and reliability of contents and data, we conducted the third-party assurance process. The assurance statement can be found on page 90~91.

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Please visit "www.keco.or.kr" to receive more detailed information about the Korea Environment Corporation.



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CEO Message

As a member of the UN Global Compact, K-eco supports the 10 principles for labor, environment, and anti-corruption and engages in the implementation of the SDGs (Sustainable Development Goals). We are committed to providing people with better environmental services as a quasi-governmental organization under the Ministry of Environment that aims to become a global comprehensive environmental service organization.



Dear stakeholders,

We are facing an environment where the health and life of the people are threatened by the unprecedented climate crisis and the prolonged Covid-19. In response, K-eco is laying the groundwork for new environmental services along with the declaration of carbon-neutrality and ESG management. By continuously enhancing the carbon-neutral execution system and achieving our goals aimed at climate change response and GHG reductions, K-eco will lead the 2050 Net-Zero Scheme of the nation. Particularly, the year 2020 marked the 10th anniversary of the integration of Korea Environmental Resources Corporation and Environment Management Corporation into Korea Environment Corporation. Having laid a foothold for another leap forward as a public institution specializing in environment for a decade, we are preparing for the next 10 years as follows.

First, we will be proactive in responding to climate crisis and leading the national carbon neutrality policy.

K-eco has led a variety of projects aimed at reducing GHG emissions such as emission trading system and infrastructure expansion for eco-friendly vehicles. Going forward, we will endeavor to build an industrial safety net and anti-disaster network to protect environmental firms and people from climate change. Particularly, we will make further efforts for a fair transition so that no industry is left behind in the process of transitioning to a carbon-neutral society.

Second, we will contribute to the eco-friendly development of the nation by promoting environmental improvement and resource circulation.

Covid-19 has brought many changes to our society, among them, resource circulation of waste including plastics is emerging as a critical social issue today. K-eco is playing a pivotal role in resource circulation in Korea. Particularly in 2020, we won the Presidential Prize for government-led innovation tasks by leading the "Ice Pack Recycling Campaign." Going forward, K-eco will continue to lead the paradigm shift in waste management and virtuous cycle in circular economy.

Third, we will build an organizational culture trusted by employees through communication and consideration.

K-eco has reorganized its corporate culture through innovation faithful to the basics. This effort resulted in improving heterogeneous organizational culture caused by the integration of corporations and reducing the wage and position gap, which was a major conflict factor, contributing to stabilizing our organization. The labor and management of K-eco will continue to work together to improve our organizational culture.

Fourth, we will become a public institution trusted by the people through the practice of integrity.

We have made a concerted effort to raise the awareness of and prevent workplace bullying and sexual harassment issues through continuous trainings. To solidify the culture of integrity, the embedment of gender equality and ethics in the organization has also been promoted. K-eco will become a public institution that ensures fair opportunity and transparency and fulfills its social responsibility.

As a quasi-governmental organization under the Ministry of Environment that aims to become a global comprehensive environmental service organization, K-eco is committed to providing people with better environmental services including environmental pollution prevention, resource circulation, and GHG reductions in response to climate change. We ask for your continued interest and support so that K-eco can live up to the trust and expectations of the public.

November 2021

CEO of Korea Environment Corporation **Jang Jun-young**

ESG Highlights

K-eco has established an ESG management strategy and is carrying out detailed implementation tasks to realize social value through major projects. We also analyzed our sustainability management efforts and performances by connecting the ESG (environmental, social, and governance) factors that have become a hot topic in the global capital market and businesses at home and abroad with our social value creation activities. K-eco will continue to lead sustainable management in the national environment sector by facilitating ESG management system.



ENVIRONMENTAL			
<p>GHG reductions</p> <p>714,000tCO₂eq Participant-centric carbon point system</p> <p>24,000tCO₂eq Expansion of low-emission vehicle infrastructure</p>	<p>Introduction of mobile electronic notices to limit the operation of old cars</p> <p>Saved KRW 1.4 billion compared with paper notice cases</p> <p>Reduced 44% in violation cases</p>	<p>Expansion of a citizen-led plastic-free campaign</p> <p>Won the "Presidential Prize (Grand Prize) for best practices in government innovation"</p>	<p>Rapid support for Covid-19 medical waste treatment</p> <p>Achieved over 95% in daily treatment rate of medical waste</p>
SOCIAL			
<p>Sincere social equity employment</p> <p>Won the "Prime Minister Prize for best practices in HR innovation"</p>	<p>Business-linked public job creation</p> <p>Created 10,553 jobs for resource circulation assistance</p>	<p>Labor-management relations of harmony and coexistence</p> <p>Certification on excellent labor-management culture</p> <p>Zero serious accident in construction worksites</p>	<p>Better co-prosperity with business partners</p> <p>Highest grade "Excellent" in shared growth evaluation</p> <p>KRW 4.4 billion in performance sharing system for SMEs</p>
GOVERNANCE			
<p>Enhanced the role of the BOD</p> <p>Convened the BOD meeting 11 times</p> <p>Relief of corporate tax burden 46% ↓</p>	<p>Increased the ratio of female executives</p> <p>31% (approximately doubled)</p>	<p>Enhanced the level of privacy protection</p> <p>Highest grade (3 years in a row)</p>	<p>Established the culture of ethical management</p> <p>Comprehensive integrity level 5th grade → 4th grade</p> <p>"Excellent Grade" in anti-corruption evaluation (2 years in a row)</p>

Realizing the 2050 Net-Zero Scheme

Expand the basis for responding to climate change, such as monitoring air quality and strengthening the management of air pollutants

Expand the circulation of recyclable resources, enhance safe waste treatment, and activate waste-to-energy projects

Reinforce people safety by responding to water disasters, recover aquatic ecosystem by improving water and soil environment, and promote water business through technological innovation

Create a safe living environment for the people and strengthen chemical substance safety management

Realizing Social Value

Create public and private jobs for sustainable job creation

Provide consulting and supports for capital and sales expansion to strengthen the competitiveness of small and medium-sized partners in the environmental field

Promote the safety and health by supporting the improvement of the working environment of employees and partners

Support of experts nurturing in the environmental field, such as the operation of specialized graduate schools and training for professional manpower

Establishing Sustainability Management System

Enhance the professionalism and diversity of non-executive directors

Put safety management first at the company level and strengthen safety control tower functions

Improve the decision-making process for ESG management, such as introducing the Board-level Employee Representative System

Establish the culture of gender equality and ethical management

Introduction to K-eco

Overview

As a quasi-governmental organization under the Ministry of Environment established in accordance with the Korea Environmental Corporation Act, K-eco was launched in January 2010 by integrating Korea Environment Resources Corporation and Korea Environment Management Corporation. We mainly engage in preventing environmental pollution, promoting resource circulation, and reducing GHG reductions against climate change. K-eco will focus on further promoting environmental improvement and resource circulation, thereby contributing to creating a sustainable society where people and nature can coexist.



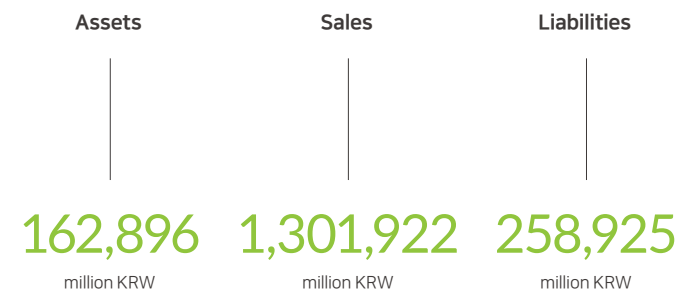
General Information (as of Dec. 31, 2020)

Company name	Korea Environment Corporation
Founded	January 1, 2010
Establishment basis	Korea Environment Corporation Act Article 1 (Act No. 17853)
Type of agency	Quasi-governmental organization (commissioned)
Competent authority	Ministry of Environment
CEO	Jang Jun-young
Head office	42, Hwangyeong-Ro, Seo-gu, Incheon
Employees	3,060 persons

* Including regular jobs and public jobs (table of organization)



Financial Performance (as of Dec. 31, 2020)



Major Functions

- Creation and operation of environmental monitoring network and control center for air and water quality
- GHG reductions and policy support projects in response to climate crisis
- Restoration of aquatic ecosystem and investigation, evaluation, and purification of soil and underground water
- Installation and operation of environmental facilities including wastewater treatment and waste-to-energy plants
- Prevention, circulation, and eco-friendly processing of waste
- Policy supports for pollution prevention, environmental improvement, and resource circulation
- Safety management of chemical elements and inspection and analysis of harmful substances to environment

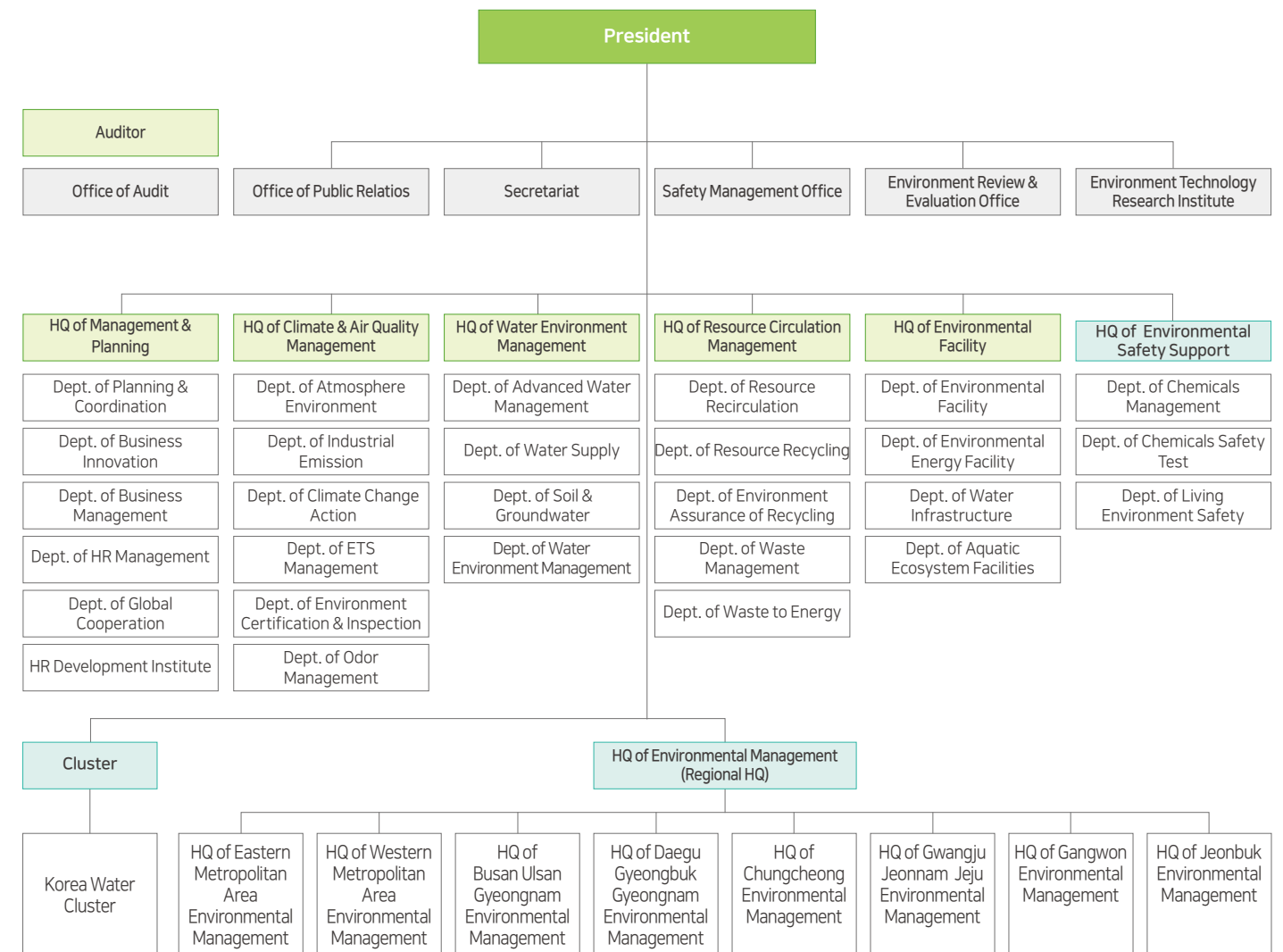


Corporate History

- 1980.09** Established Korea Resource Regeneration Corporation
- 1987.03** Established Environmental Pollution Prevention Business Organization
- 1987.11** Enacted the Environmental Management Corporation Act (changed the name of Environmental Pollution Prevention Business Organization to Korea Environment Management Corp.)
- 2004.07** Enacted the Korea Environmental and Resource Corporations Act (changed the name of Korea Resources Regeneration Corporation to Korea Environment & Resources Corporation)
- 2008.08** Determined integration of the two institutions (2nd Public Institution Advancement Plan)
- 2009.02** Enacted the Korea Environmental Corporation Act
- 2009.03** Launched Korea Environment Corporation Establishment Committee (implementation of integration)
- 2010.01** Established Korea Environment Corporation
- 2012.05** Amended the Korea Environmental Corporation Act (reorganized the purpose of establishment including the addition of climate change response)
- 2019.07** Started the operation of a national water business cluster
- 2021.12** Opened K-eco's HR Development Center



Organization (Head office and 8 environmental headquarters)



Major Facilities of K-eco

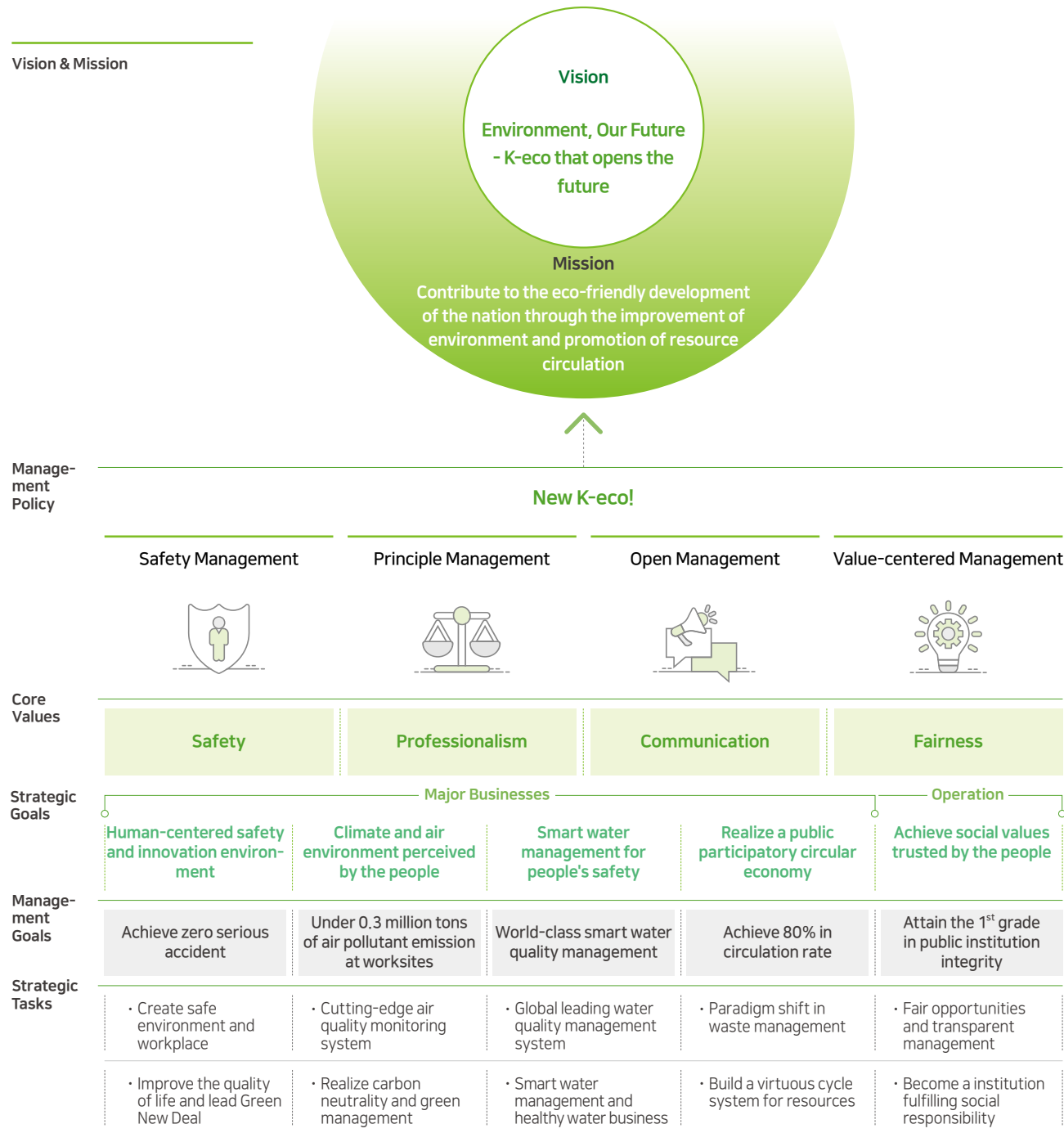


Public Service Channels (Public Data Environmental Portal)

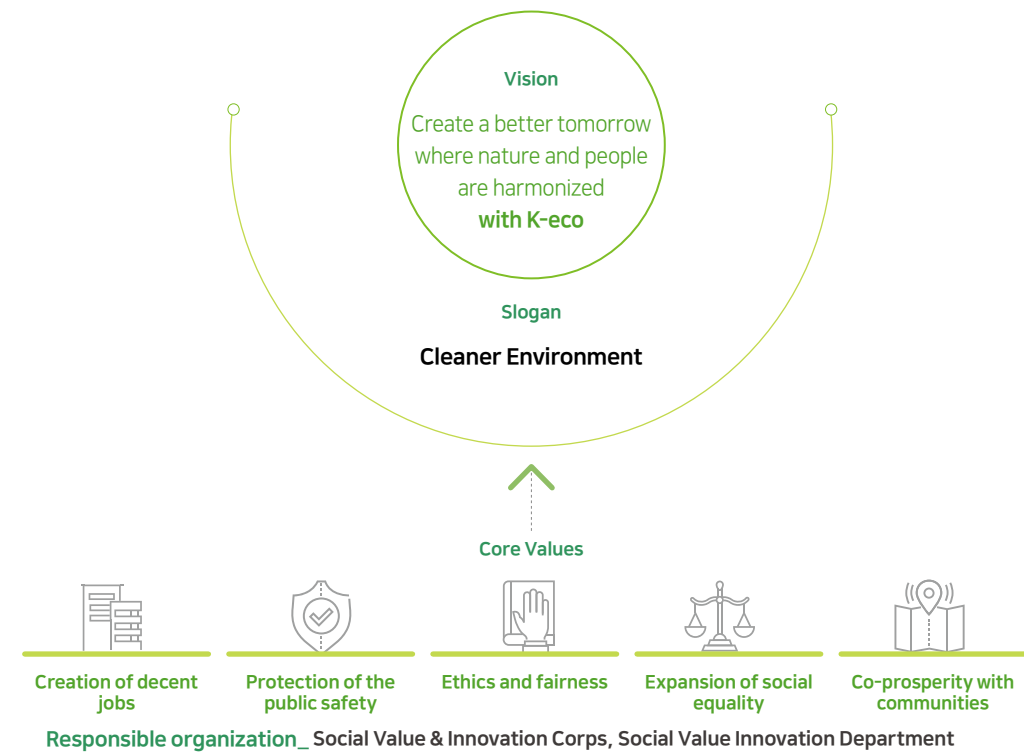
K-eco website	www.keco.or.kr	Agricultural waste management system (after farming)	www.농사후.kr
Livestock manure electronic handover management system	www.lsns.or.kr	Oil vapor recovery facility inspection management system	www.vrs.or.kr
National water industry cluster	www.watercluster.or.kr	Hazardous chemicals handling facility management system	www.safechem.or.kr
National waterworks information system	www.waternow.go.kr	Food waste management system	www.citywaste.or.kr
National noise information system	www.noiseinfo.or.kr	Automotive emission gas rating system	https://emissiongrade.mecar.or.kr
National sewerage information system	www.hasudoinfo.or.kr	Automobile exhaust gas comprehensive computing system	www.mecar.or.kr
Refrigerant information management system	www.rims.or.kr	Automotive carbon point system	https://car.cpoint.or.kr
Road re-scattering dust monitoring system	www.cleanroad.or.kr	Resource circulation information system	www.recycling-info.or.kr
Pollution-free vehicle information website	www.ev.or.kr	Electrical and electronic equipment and vehicle recycling system (EcoAS)	www.ecoas.or.kr
Water love website	www.ilovewater.or.kr	Good light information center	www.goodlight.or.kr
Non-point pollutants reductions facilities management system	www.nonpoint.or.kr	Inter-floor noise counseling management system	https://floor.noiseinfo.or.kr/floornoise
Workplace air pollutant management system	www.stacknsky.or.kr	Carbon point system	www.cpoint.or.kr
Help desk for Industries	www.chemnavi.or.kr	Integrated climate change PR portal	www.gihoo.or.kr
Extended Producer Responsibility (EPR) system	www.iepr.or.kr	Waste charge management system	www.budamgum.or.kr
Ecological river restoration project information system	www.ecorestore.or.kr	Allbaro system	www.allbaro.or.kr
Seoul initiative (SINGG)	www.singg.org	Waste treatment facility operation evaluation system	www.recycling-info.or.kr/opeweb
Comprehensive asbestos management information network	https://asbestos.me.go.kr	Waste disposal charge system	www.budamgum.or.kr
Water pollution control information system	www.waterkorea.or.kr	Comprehensive waste-to-energy information management system	www.srf-info.or.kr
Wastewater telemonitoring system (SOOSIRO)	www.soosiro.or.kr	Chemical information system	https://ncis.nier.go.kr
Electronic handover management system for commissioned wastewater treatment	www.mulbaro.or.kr	Chemical information processing system	https://kreach.me.go.kr
Recycling resources information center	www.re.or.kr	Environment love promotion & training center	www.keco.or.kr:7979/ecolove
Indoor air quality management information network (In-air)	www.inair.or.kr	Environmental measuring equipment test system	www.kedis.or.kr
AirKorea	www.airkorea.or.kr		

Value System of K-eco

In commemoration of its 10th anniversary of foundation in 2020, K-eco launched a new vision and value system to present and lead the future image of our society centered on the environment. The new vision implies that the future of our society depends on the environment and K-eco will play a leading role in shaping the future. The core values contain the attitudes that all executives and employees should always keep in mind when conducting business or serving customers.



Social Value Strategy System



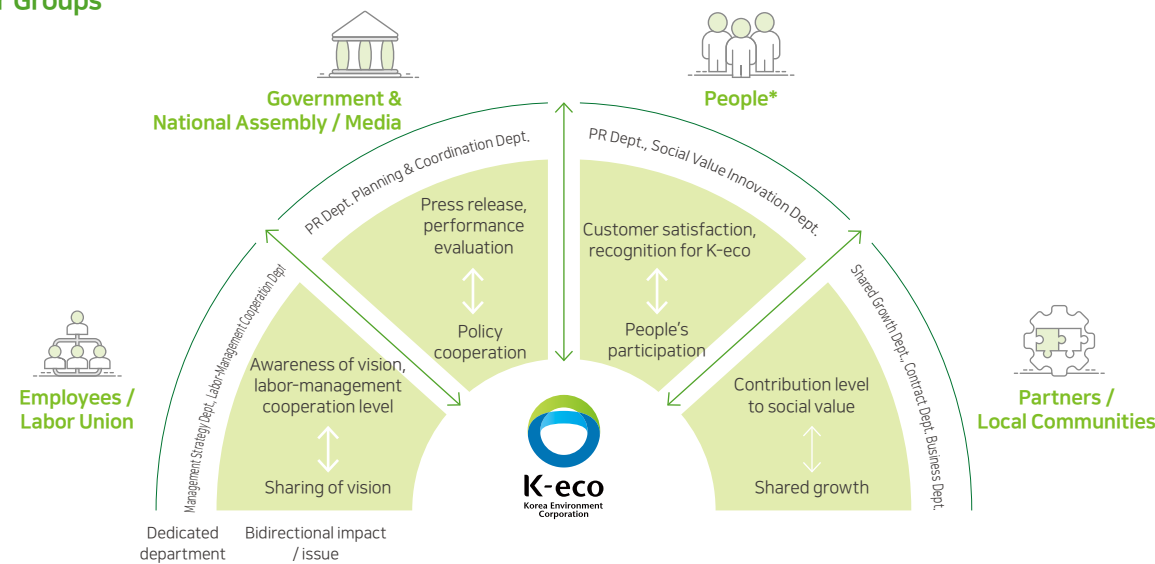
Classification	Performance Creation Strategy	KPIs	Performance Goals ('20~'22)				
Creation of decent jobs	<ul style="list-style-type: none"> 575 public jobs from 2017 to 2022 46,236 private jobs from 2017 to 2022 	Job creation (accumulated)	<table border="1"> <tr> <td>Public</td> <td>575 persons</td> </tr> <tr> <td>Private</td> <td>46,236 persons</td> </tr> </table>	Public	575 persons	Private	46,236 persons
Public	575 persons						
Private	46,236 persons						
Protection of the public safety	<ul style="list-style-type: none"> Introduce systematic safety management and smart safety equipment Introduce VR-based safety training and internalize safety culture Enhance response to prolonged Covid-19 and new infectious disease Reinforce response to accidents and disasters such as heavy rain and chemicals 	Fatal accident	Zero				
		Safety rating	Cap5 (maturity)				
		Safety activity level	S grade				
Ethics and fairness	<ul style="list-style-type: none"> Disseminate the culture of integrity and promote the will of integrity Fight corruption and enhance contract transparency Eliminate sexual harassment and bullying and enhance human rights Prevent overdue wage and strengthen voluntary compliance with fair trade Improve the fairness in employment 	Comprehensive integrity index	8.48				
		Anti-corruption policy evaluation	Excellent				
Expansion of social equality	<ul style="list-style-type: none"> Expand female managers for gender equality Expand the employment of the disabled Expand the employment of high school graduates by developing jobs suitable for them 	Ratio of female executives	25.0%				
		Disabled employment rate	4.3%				
		High school graduate recruitment rate	8.0%				
Co-prosperity with communities	<ul style="list-style-type: none"> Revitalize local economy by supporting local vulnerable companies, etc. Nurture local talents through collaboration with local colleges and youth startup Expand projects participated by local people 	Support for socio-economic enterprises	60 firms				
		Nurturing of innovative talents for water business	115 persons				

Stakeholder Engagement

Stakeholder Communication

K-eco categorizes its stakeholders into four groups including people, local communities, government, and employees. Communication with them is proactively promoted through tailored communication channels and a department dedicated to monitoring. We always listen to their voices and reflect them in our sustainability management.

Stakeholder Groups



Communication Strategy by Stakeholder Group

Stakeholder	Major issue	Communication channel	Performance
Value creation type	Employees	<ul style="list-style-type: none"> Innovative Junior Board Labor-management council, communication bulletin board 	<ul style="list-style-type: none"> Operate labor-management cooperation programs and the Mutual Respect Day Hold an online concert for eliciting public empathy
	Labor union	<ul style="list-style-type: none"> Enhance organizational competitiveness Field communication with the CEO 	
Value cooperation type	Government & National Assembly	<ul style="list-style-type: none"> Enhance publicity Share environmental policy 	<ul style="list-style-type: none"> Press release, interview Support Environmental Press Corps Policy meeting
	Media		<ul style="list-style-type: none"> Press release on best practices (113 items), CEO interview (4 items) Propose reporting coverage to solve the people's concerns (16 items)
Value sharing type	Partners	<ul style="list-style-type: none"> Win-win cooperation culture Realize social value 	<ul style="list-style-type: none"> Open life-friendly public data (122 items) Build an online mall for shared growth, support socioeconomic enterprises (I-SEIF), and improve small purchase contract system Participate in the Good Landlord Movement in the water business cluster (64 firms)
	Local communities	<ul style="list-style-type: none"> Open public data Performance-sharing system Support socioeconomic enterprises Customer meeting 	
Value distribution type	People	<ul style="list-style-type: none"> Participate in management and fulfill the right to know Care for the socially disadvantaged 	<ul style="list-style-type: none"> Identify and supplement innovation tasks centered on the Social Value & Innovation Promotion Corps by collecting opinions from the citizen-participatory innovation group Operate business-tailored Customer Satisfaction Management Corps (57 units) Online environmental campaign (as of YouTube views: 780,000 for climate crisis, 18,000 for separate discharge), online policy meeting (10 times), and chatbot counseling Publish and distribute children's environmental textbook Enhance SNS contents (information sharing on environmental protection in life through college supporters) Publish a magazine for environment for the disabled and elderly Hold a contest to collect the ideas of people

* The value created through our main business is basically enjoyed by the Korean "people." Accordingly, we redefined the existing "customer" as "people" because the name does not differentiate itself from other organizations and does not clearly reflect the destination of the final value.

Reflection of Stakeholders' Opinions

Communication channel	Ideas of people	Reflection in business
Citizen-participatory Innovation Corps	Support socioeconomic job creation to solve environmental issues	<ul style="list-style-type: none"> Promoted "Youth startup support project in environment sector" (collaboration with Incheon Metropolitan City Social Economy Support Center) Support for startup items aimed at solving environmental issues (3 teams) (coffee grounds tumbler, jellyfish ice pack, coffee box upcycling materials and products)
People interested in environmental projects	Promote environmental projects reflecting the ideas of people	<ul style="list-style-type: none"> Held an idea contest for GHG reductions and green campus Held an idea contest for resident-friendly environmental treatment facility design Identification and policy proposal of 32 ideas for environmental improvement including wall greening and carbon-neutral campus
SNS	Solve intensive plastic waste issue including ice pack	<ul style="list-style-type: none"> Promoted a plastic-free pilot project (Busan and Gyeongnam) Plastic-free campaign and a task in terms of innovation, collaboration, and citizen participation in 2021 were selected as the priority task by the Ministry of Economy and Finance (MOEF)
Corporate Growth Response Center	Prepare dedicated channels to improve business difficulties	<ul style="list-style-type: none"> Established a plan to operate the Corporate Growth Response Center and opened on-/off-line counseling centers Selected as best practices in regulation improvement by MOEF and the Ministry of SMEs and Startups (3 items including the improvement of refrigerant collection business registration process)

Information Delivery to Stakeholders

Achieved 250% of the goal (80 items) required for public institutions by announcing 202 items	Increased 28% in request for disclosure using information list 123 items in 2019 → 158 items in 2020 (35 items ↑)	Added disclosure on 41 kinds of file data including the survey on light pollution environmental impact assessment 81 items in 2019 → 122 items in 2020 (41 items ↑)
Distributed the "environmental font" developed by K-eco for free	Increased 165% in utilizing public data from the previous year 16,152 items in 2019 → 42,929 items in 2020 (26,777 items ↑)	Approved the open API for 11,895 items to help develop applications

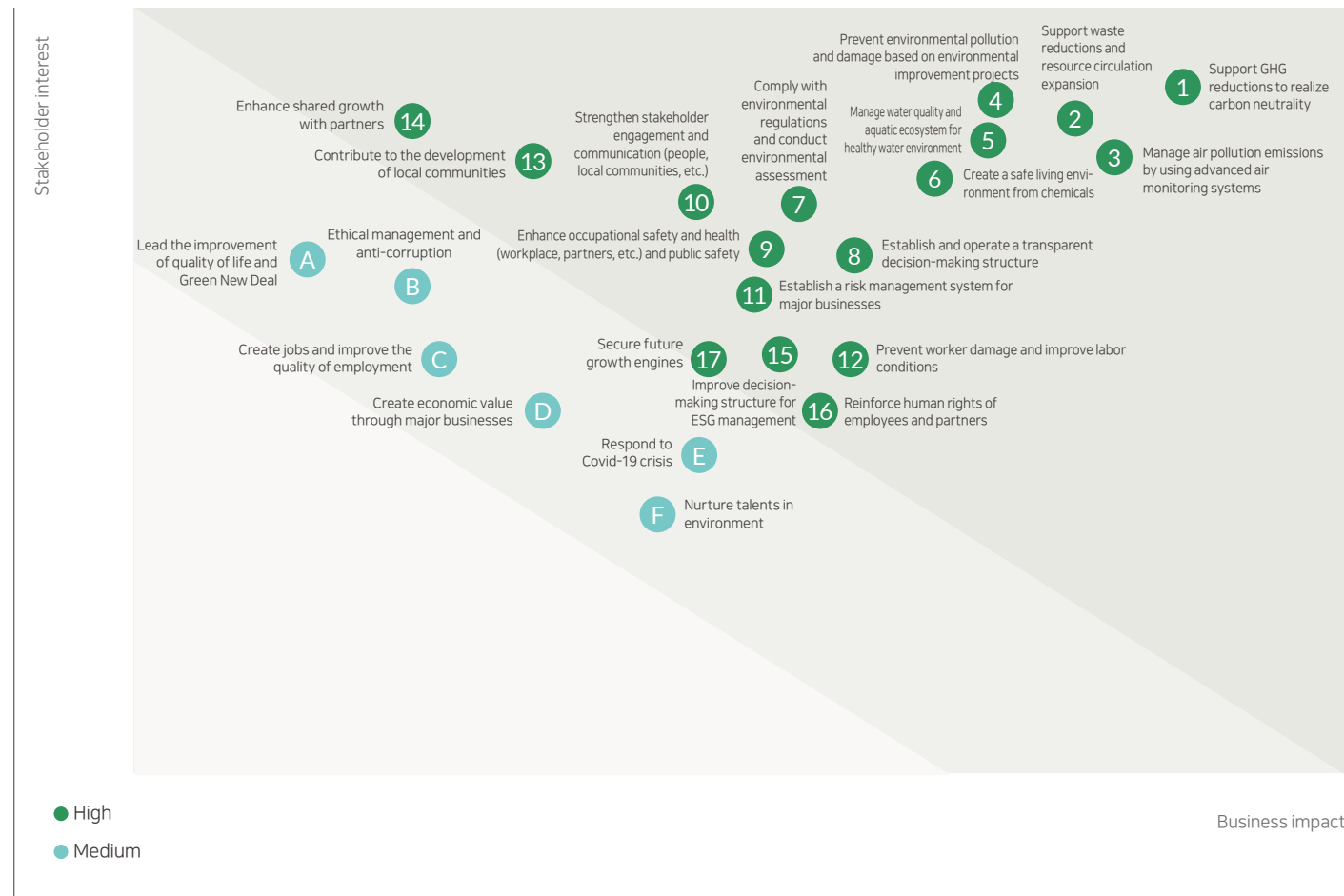
Materiality Analysis

Overview

We conducted a materiality analysis in accordance with the "Materiality" principle presented in GRI Standards 101 (General). A total of 23 major issues (17 core reporting and 6 general reporting issues) were identified through the valuation process on 31 ESG issues with significant impact on our business and high stakeholder interest. This report was compiled based on 23 major issues.

Materiality Analysis Results

Materiality Matrix



Materiality Analysis Process

Stage 1 Organization of an issue pool

- **Analysis of global standards**
Global sustainability and ESG initiatives including GRI Standards, UN SDGs, TCFD, and ISO26000
- **Benchmarking of leading companies**
Understanding of key issues in the industry
- **Analysis of internal situations**
Business report, mid-/long-term management strategies, etc.
- **Media research**
Analysis of 656 news articles with regard to K-eco's sustainability and ESG from Mar. 1, 2019 to Feb. 28, 2021

A pool consisting of **31** issues

Stage 2 Prioritization (analysis process)

- **Business impact**
Internal: Employee survey (n=111), experts (common)
- **Stakeholder interest**
External: Survey of people, partners, government, National Assembly, NGOs, press, experts (common) (n=126)
- **Survey overview**
Purpose: Reporting issue identification and collecting stakeholder opinions
Method: Online survey
Participant: 237 persons

237 participants

Stage 3 Identification of major issues

- **Review of major issues**
Selection of reporting criteria based on business impact and stakeholder interest results (matrix)
- **Validation**
Validation by the focus group
- **Identification of major issues**
23 issues to be reported through the 2021 sustainability report
- High: 17 issues
- Medium: 6 issues (added through validation)

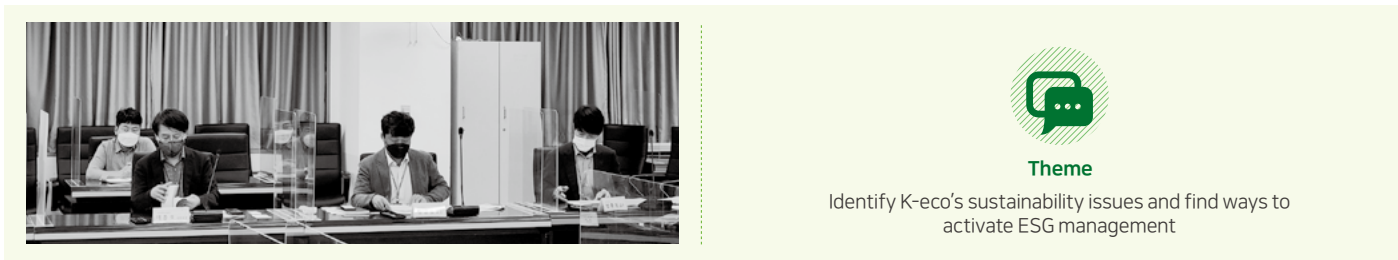
Identification of **23** issues

Reporting topic	Major issue*	UN SDGs	Boundary	Page
Transition to a carbon-neutral society	1, 3, 5	13 CLIMATE ACTION, 6 CLEAN WATER AND SANITATION	External	27~34
	E	3 GOOD HEALTH AND WELL-BEING, 11 SUSTAINABLE CITIES AND COMMUNITIES		
Realize a circular economy	2	12 RESPONSIBLE CONSUMPTION AND PRODUCTION	External	35~39
Public health and environmental protection	4, 6, 7	3 GOOD HEALTH AND WELL-BEING	External	40~41
Lead inclusive growth	C	8 DECENT WORK AND ECONOMIC GROWTH	Internal & external	45~49
Realize safe and happy workplace	9, 12	3 GOOD HEALTH AND WELL-BEING	Internal & external	50~53
Practice human rights management	16	10 REDUCED INEQUALITIES, 16 PEACE, JUSTICE AND STRONG INSTITUTIONS	Internal & external	54~55
Shared growth with partners	14	8 DECENT WORK AND ECONOMIC GROWTH, 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE, 10 REDUCED INEQUALITIES, 11 SUSTAINABLE CITIES AND COMMUNITIES	External	56~58
	A, E	3 GOOD HEALTH AND WELL-BEING, 11 SUSTAINABLE CITIES AND COMMUNITIES		
Contribute to the development of local communities	10, 13	8 DECENT WORK AND ECONOMIC GROWTH, 11 SUSTAINABLE CITIES AND COMMUNITIES	External	59~63
	A, E, F	3 GOOD HEALTH AND WELL-BEING, 11 SUSTAINABLE CITIES AND COMMUNITIES, 4 QUALITY EDUCATION		
Corporate governance	8	10 REDUCED INEQUALITIES, 16 PEACE, JUSTICE AND STRONG INSTITUTIONS	Internal	67~69
Risk management	9, 11, 12, 15	8 DECENT WORK AND ECONOMIC GROWTH	Internal	70~74
	A, D			
Carbon neutral management	17	8 DECENT WORK AND ECONOMIC GROWTH, 13 CLIMATE ACTION	External	75
Ethical management	B	10 REDUCED INEQUALITIES, 16 PEACE, JUSTICE AND STRONG INSTITUTIONS	Internal & external	76~79

* New issues (compared with 2018 Sustainability Report): <Comply with environmental regulations and conduct environmental assessment>, <Establish and operate a transparent decision-making structure>, <Strengthen stakeholder engagement and communication>, <Establish a risk management system for major businesses>, <Enhance shared growth with partners>, <Improve decision-making structure for ESG management>, <Lead the improvement of quality of life and Green New Deal>, <Respond to Covid-19 crisis>, and <Nurture talents in environment>

Expert Advisory Committee

In line with the growing importance of "stakeholder engagement," K-eco promoted communication between ESG experts and internal stakeholders. By holding the advisory committee to receive professional advice on our ESG management, social value creation, and business activities, we intended to reflect the results in our sustainability management strategy and activities.



Expert Advice



Lee Jong-oh, Secretary General, Korea Sustainability Investing Forum

"Active communication is needed to inform the public of the performances against goals in environmental business."

Recently, the demand for ESG management, both internally and externally, is increasing not only in the private but also in public sectors. In particular, environment is becoming an increasingly important issue for K-eco. In response to this trend, it is important for K-eco to effectively inform stakeholders of the importance of various environmental projects currently being promoted. K-eco is required to inform what the corporate should intensively manage and where efforts should be focused more as well as performances against goals. It would also be a good way to communicate through the frameworks such as TCFD recommendation going forward.



Chung Young-il, Professor, College of Business Administration, Soongsil University

"It is necessary to think deeply about the role of K-eco in ESG management with internal employees."

K-eco has been creating social value through ESG management processes including sustainability management and CSR activities. Therefore, rather than recognizing ESG management separately, it is necessary to clarify the priorities of the activities K-eco has been doing. I suggest that K-eco considers its role and responsibility through an in-depth discussion with employees about the way how to internalize ESG and social values.

"Actions to spread ESG to the supply chain are required."

In Europe, primary contractors are required to manage the realization of social values in the supply chain through due diligence. Thus, K-eco is also required to control ESG management of partners. Accordingly, it is essential to think about support activities for disseminating ESG to partners beyond in-house ESG activities.



Chung Jun-hee, Professor, Department of Accounting, Daegu University

"Identifying issues and managing performance should be conducted separately from the perspective of essential business and ESG management."

The major issues of sustainability management at K-eco should be presented separately in the aspects of performance in environmental business and ESG management. Hence, while contemplating the activities of major environmental projects, performance against goals, and future directions, ESG management must also go through the same process to identify and manage important issues.

"K-eco is required to take a role and responsibility to lead the public and industry such as data standardization for measuring environmental performances."

The role of K-eco can be defined as support activities for the creation of national ESG outcomes. As a public institution specializing in the environmental field, K-eco is required to promote diverse activities such as establishing and sharing standards for measuring environmental performances in order to lead the public and industries.

K-eco's Perspective



Park Chan-ho, Head of Management Planning HQ, K-eco

"K-eco is preparing to set the future direction by accurately grasping the current level in terms of environmental business as well as ESG management."

We are preparing for an in-depth discussion to set the strategy and direction for K-eco to promote ESG management. To this end, we are focusing on accurately understanding our current ESG management level. And then, from the perspective of our major businesses and ESG management, K-eco plans to look back on what it has achieved and systematically establish the direction and goals for the future.

"When selecting business partners, ESG management evaluation will be gradually expanded in consideration of their ESG maturity level and progress."

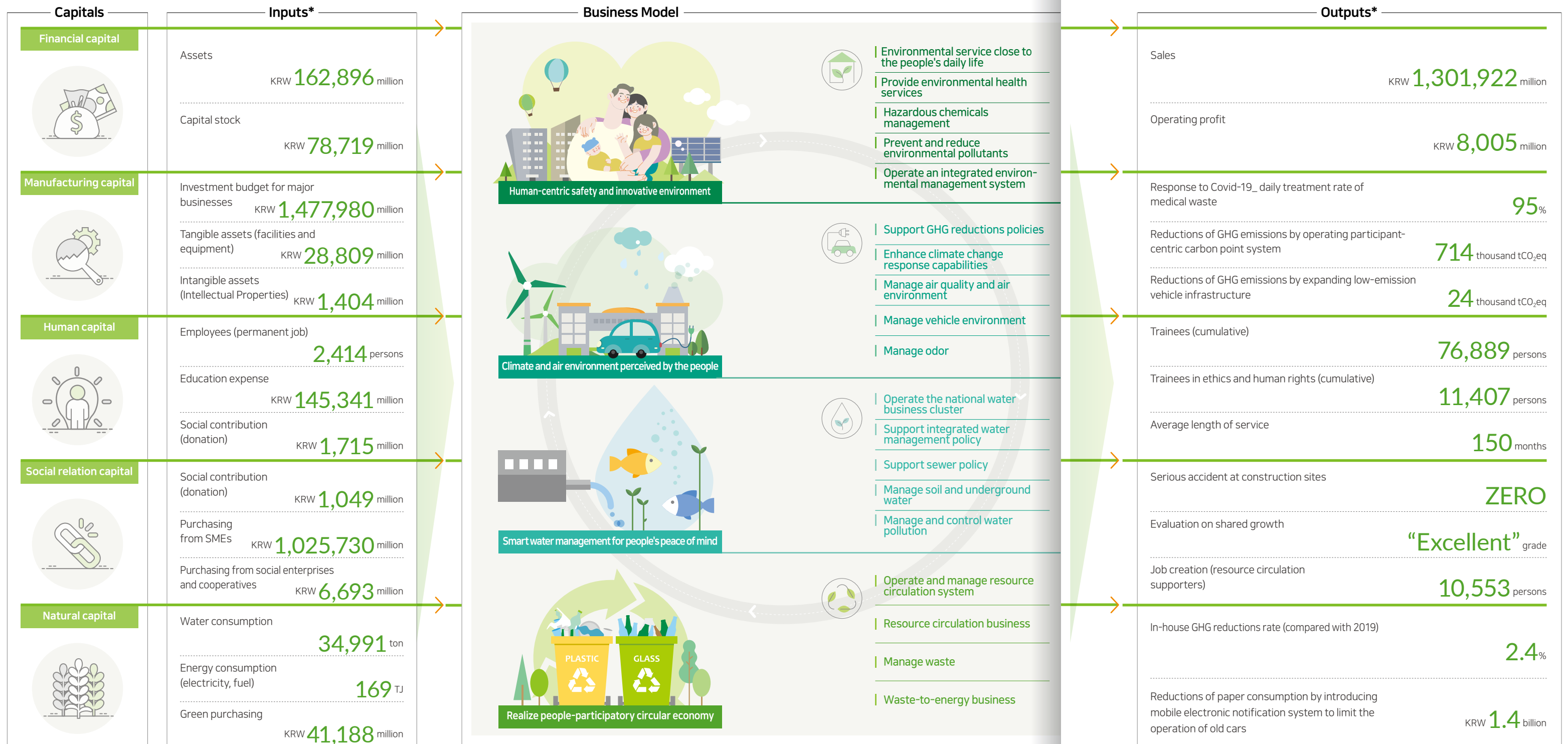
With the aim of expanding ESG to partner firms, K-eco has added an ESG management evaluation item when selecting a principal transaction bank. An additional point system related to ESG management is also being considered in case of ordering SME support projects including construction contract. We will gradually expand this program by reflecting the ESG maturity of SMEs and K-ESG progress.

"We will support the nation's ESG management through standardized environmental indicators for the public sector so that performance management against goals can be promoted."

Even though performance management against goals is very important, no environmental indicators for performance measurement have been developed so far. K-eco has the largest amount of emission and waste-related environmental data in Korea and is scheduled to be designated as an environmental evaluation agency by the Enforcement of the Environmental Technology Industry Act. Therefore, we are currently working on creating environmental evaluation indicators for the public sector. K-eco will continue to fulfill its role with a sense of responsibility in supporting the national ESG management.

Value Creation Process

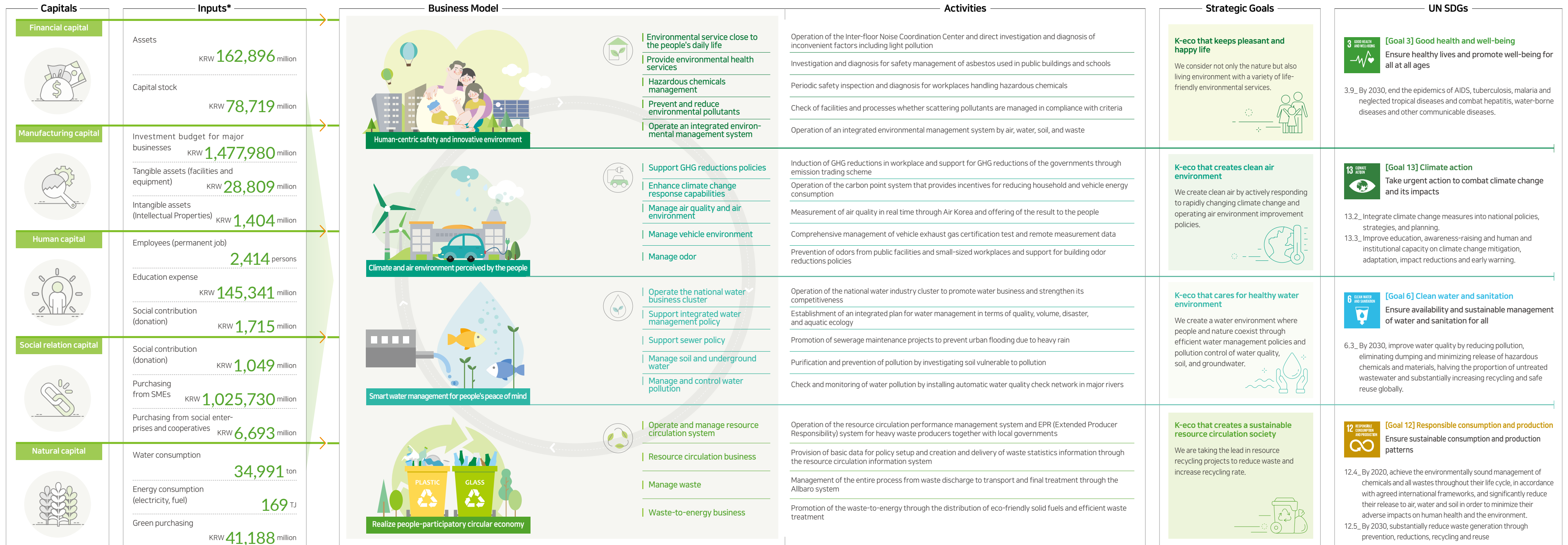
K-eco is contributing to the resolution of domestic environmental issues and achievement of the UN SDGs through its major businesses. The following illustration shows the process how our core capital is converted into social and environmental values through our business model based on the value creation process that constitutes the integrated reporting framework of Value Reporting Foundation.



* As of the end of December 2020

Value Creation Process

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REALIZING A CARBON NEUTRAL SOCIETY BY 2050

E_ Realize the 2050 Carbon Neutral Society

The realization of carbon neutrality has become a global environmental paradigm beyond national boundaries. K-eco is also endeavoring to create a sustainable environment for the next generation by presenting a new environmental paradigm.



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Transition to a Carbon-neutral Society

35

Realize a Circular Economy

40

Public Health and Environmental Protection

Realize the 2050 Carbon Neutral Society



With the declaration of "carbon neutral management," K-eco is leading the paradigm shift of "transition into a circular economic society. Based on this, we will contribute to improving environmental health and the quality of the people's life.

1 Key issues	Issue	Linked with UN SDGs	Linked with UNGC principles
	• Support GHG reductions to realize carbon neutrality • Manage air pollution emissions by using advanced air monitoring systems	Climate action	7. Businesses should support a precautionary approach to environmental challenges.
	• Support waste reductions and resource circulation expansion	Responsible consumption and production	
	• Manage water quality and aquatic ecosystem for healthy water environment	Clean water and sanitation	8. Businesses should undertake initiatives to promote greater environmental responsibility.
	• Prevent environmental pollution and damage based on environmental improvement projects • Create a safe living environment from chemicals • Comply with environmental regulations and assessment • Respond to Covid-19 crisis	Good health and well-being Sustainable cities and communities	9. Businesses should encourage the development and diffusion of environmentally friendly technologies.

2 Major outcomes	714,000 tCO ₂ eq	44%	Presidential Prize	Over 95%
	Reduce GHG emissions through carbon point system	Reduce violations through mobile electronic notice to limit old car operation	Citizen-led plastic-free campaign Governmental innovation best practices in 2020 (grand prize)	Intraday treatment rate of Covid-19 medical waste

3 Goal (by 2024)	GHG reductions through carbon point system (860,000tCO ₂ eq)	GHG reductions by expanding low-pollution vehicle infrastructure (44,400tCO ₂ eq)	Recycle waste (360,000 tons per year)	Automatic recognition rate of medical waste by RFID*: over 82%
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* RFID (Radio-Frequency Identification): As a technology that identifies ID using radio frequency, RFID makes it possible to record medical waste treatment process in the system in minutes and seconds.

Realize a Carbon Neutral Society

Transition to a Carbon-neutral Society

K-eco, established for the purpose of reducing GHG emissions to respond to climate change, is an institution specializing in climate and carbon management. To this end, we are committed to operating the emissions trading scheme and building low-carbon infrastructure, leading the shift into a low-carbon society. We will also promote air pollutants management and air quality monitoring businesses which are fundamentals to climate change response and closely related to the lives of the people, contributing to the safety and health of the people.

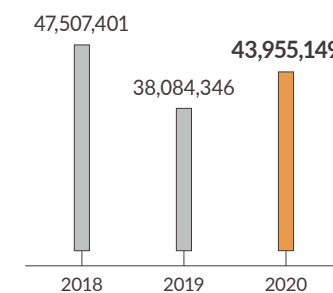
Support GHG Reductions Policies

In order to accelerate the realization of the national carbon neutrality goal, K-eco is focusing on operating the GHG reductions policies and programmes, supporting reduction activities, and enhancing climate change response capabilities. Major projects include expanding companies eligible for emissions allocation, leading GHG reductions in the public sector, building a fluorinebased GHG management system, and promoting people-participating GHG reductions campaigns.

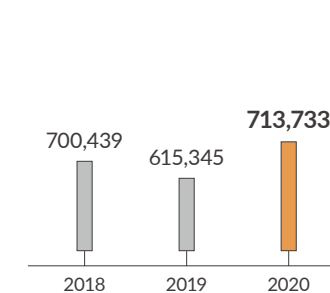
Enhance Emissions Trading Scheme in the Industrial Sector

To ensure successful implementation of the 3rd phase of the K-ETS (2021~2025), we improved the national emissions allocation plan. Paid allocation ratio was raised to regulate heavy pollutant emitters, while more emission rights were given to companies with higher emission efficiency. As a result, GHG emissions reduced 4.7% from the previous phase (2017~2019) and the number of entities under the K-ETS has increased 15% from 589 to 684.

Trading volume of the K-ETS
(Unit: tCO₂eq)



GHG emission reductions by operating carbon point system
(Unit: tCO₂eq)



Key elements when allocating emission allowances to entities under the K-ETS

Equity	Expansion of paid allocation ratio	Fairness	Expansion of allocation based on emission efficiency standard
Accuracy	Advancement of the emission calculation system	Communication	Improvement of system acceptability

GHG and Energy Target Management System in Public Sector

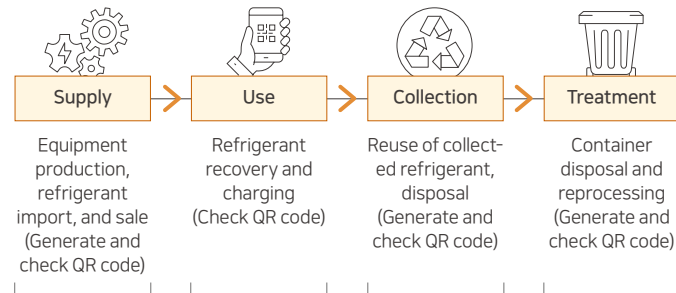
K-eco operates the GHG and energy target management system¹⁾ that manages the setting and practice of GHG targets of state administrative agencies, public organizations and local governments. GHG reductions result in the public sector in 2020 was 30.3% compared to baseline emissions²⁾, fulfilling the government goal. We set the 2030 goal (37.5% compared with 2017 emissions level), higher than the national goal (24.4% compared with 2017), to make the public sector lead GHG reductions. Moreover, we introduced the RE100³⁾ programme and expanded the use of external reductions performance⁴⁾ (10%→20%). In 2021, developing and supporting leading carbon-neutral models by facility type will be promoted to boost GHG reductions at public buildings and facilities.

Establish a Unified Fluorine-based GHG Management System

Our integrated refrigerant management system also contributes to the national GHG reductions. In 2020, around 975 thousand tons of CO₂eq, up 130% year-on-year, were reduced by reinforcing refrigerant management. In response to consistently growing fluorine-based GHG emission⁵⁾ caused by refrigerant-related business and scattered control system, K-eco intends to build the QR code management system that can systematically control entire fluorine-based GHG emissions (2021~2024) by securing budgets.

1) A policy in which companies emitting more than a certain amount of GHGs are allocated GHG reductions under an agreement with the government and strive to achieve them
2) Three-year average from 2007 to 2009. Emissions in 2020 was 3.3 million tons, a decrease of 30.3% from 5.3 million tons of baseline emissions in the public sector.
3) Using 100% of the required electricity with renewable energy and recognizing the result as GHG emissions reductions
4) Recognizing the GHG reductions amount by commissioning private agencies as the same result in the public sector
5) As GHG with a Global Warming Potential (GWP) of 124 to 22,800 times greater than that of CO₂, fluorine-based GHGs including HFCs, PFCs, and SF₆ are emitted from refrigerants, foaming agents, and gases for industrial processes (semiconductors, displays, etc.).

QR Code Process for Fluorine-based GHG Control by Stage



CASE

Support for SMEs with Weak GHG Reductions Basis

It is difficult for SMEs to actively find GHG reductions factors due to limited technologies and financial conditions. To solve this problem, K-eco has been proactive in helping them directly discover GHG emissions reductions factors through financial supports for replacing related facilities, information sharing on the emissions trading market, and diagnosis on their reductions technologies, and tailored consulting. Particularly, by abolishing the existing subsidy upper limit (KRW 300 millions), we were able to improve the effectiveness of GHG reductions and save the budget for purchasing emission permits.

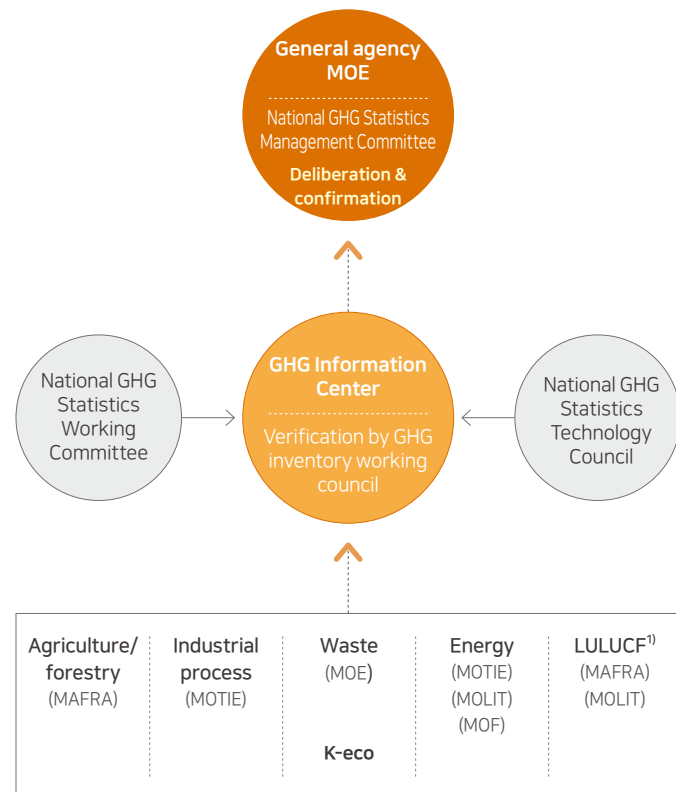
Integrated Reductions Service for SMEs

Classification	Major performance
Subsidies in 2020	Increased 2.6 times from 2019 (KRW 1,293 million)
Effectiveness of GHG reductions compared to subsidy amount	Raised 44% compared with 2019

Establish the National GHG Emission Statistics in Waste Sector

K-eco engages not only in calculating national GHG emissions by source of waste in the waste field (landfill, incineration, sewage and wastewater, and biological treatment of solid waste) but also in performing quality assurance (QA) and quality control (QC) for improving the transparency and accuracy of the calculated emissions. In particular, as the measurement, reporting, and verification systems for national reductions targets have been strengthened and the calculation through country-specific emission factors has become more important since the Paris Agreement in 2015, we are promoting the five-stage development and verification of the country-specific GHG factors through field measurement at GHG emission facilities.

Establishment of the National GHG Statistics System and the Role of K-eco

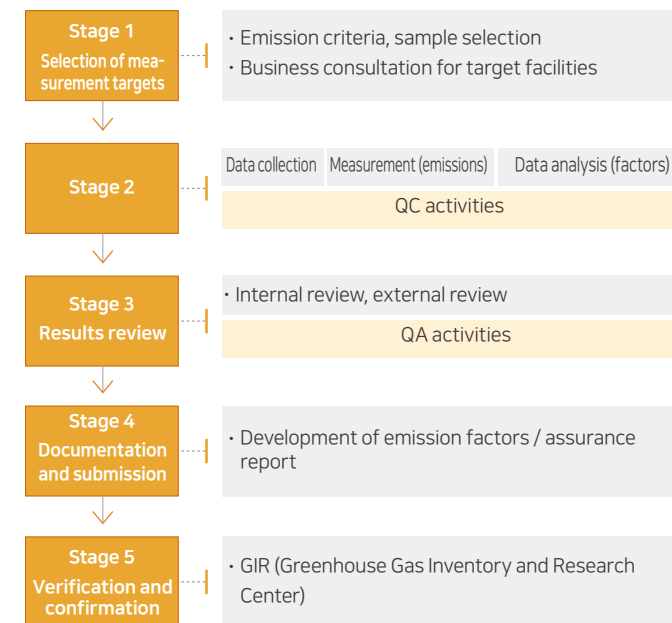


National GHG Emissions in the Waste Sector²⁾ (Unit: Million CO₂eq. %)

Emissions	2018(2016)	2019(2017)	2020(2018)
Landfill	7.6(45.2)	7.9(45.7)	7.8(45.9)
Sewage and wastewater	1.7(10.1)	1.8(10.4)	1.7(10.0)
Incineration	7.1(42.3)	7.2(41.6)	7.1(41.7)
Others	0.4(2.4)	0.4(2.3)	0.4(2.4)
Total	16.8(100.0)	17.2(100.0)	17.1(100.0)

1) LULUCF: Land use, land-use change, and forestry
2) The national GHG emission statistics are being compiled two years later, so the 2018 statistics refer to the 2016 emissions.

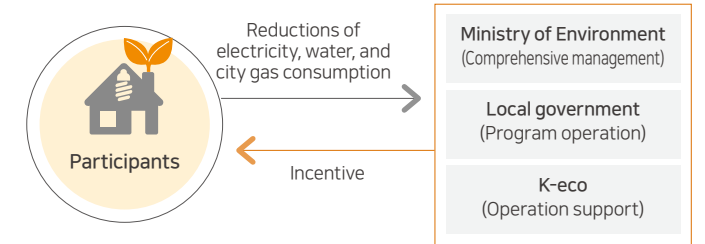
National GHG Emission Factor Development Process in the Waste Sector



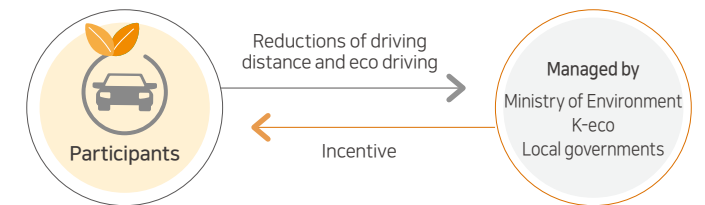
People-participating Response to Climate Crisis

K-eco communicates with the public on climate change response and GHG reductions through trainings and information disclosure. We have informed the public of emission data at workplaces in real time to encourage them to make voluntary efforts for reductions through monitoring of diverse supervisors, which resulted in exceeding the air pollutants reductions goal by 22%. Moreover, as the NDC (Nationally Determined Contribution) was set at 40% reductions by 2030 compared with 2018 (around 727.6 million tCO₂eq), expanding GHG reductions activities in the non-industrial sector including commercial buildings has also become important. In response, K-eco runs the participant-centric carbon point system and vehicle carbon point system to induce GHG reductions in daily life. Trainings on climate change response are conducted through newsletter and an online portal as well.

Carbon Point System



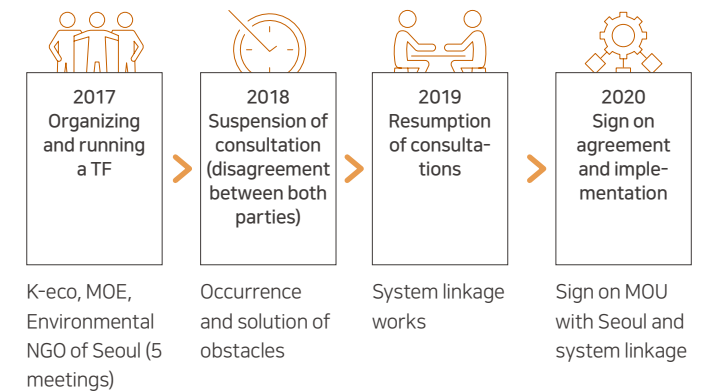
Vehicle Carbon Point System



Carbon Point System Performance

Participants	2018	2019	2020
Household	1,785,452	1,857,647	1,930,857
Complex	4,680	5,207	6,254
Vehicle	1,081	4,440	5,465

Performance in People-participating GHG Reductions System (Carbon Point System, Eco Mileage)



Air Environment Management

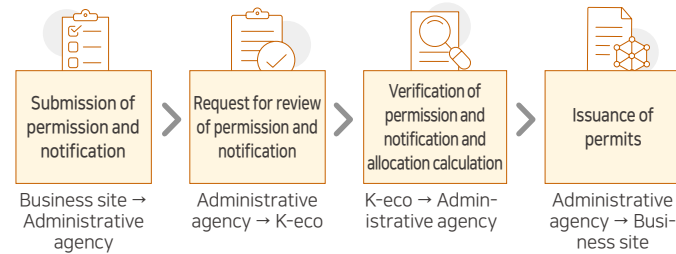
Reinforce Industrial Air Pollutant Monitoring

Based on the comprehensive fine dust control plan by 2024, K-eco is promoting the total air pollutant volume management system and chimney remote monitoring system (CleanSYS) to achieve the goal of reducing ultrafine dust concentration by more than 35% compared to 2016. For large-scale air pollutants emitters, we are seeking cost-effective reduction measures, while making efforts to address emission blind spots by expanding dedicated systems for small-scale emitters. In 2020, our reduction result exceeded the national emission goal by 46% on the strength of expanding the number of chimneys with TMS and management scope of workplaces eligible for total emissions control. Particularly, K-eco verified 799 new workplaces eligible for total emissions control by operating a support center, thereby allocating accurate and reliable emissions amount. These efforts resulted in winning the EBI Award¹⁾.

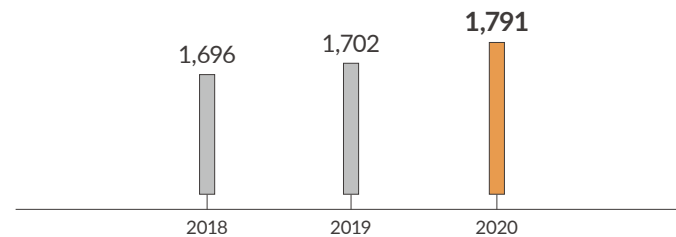


EBI Award

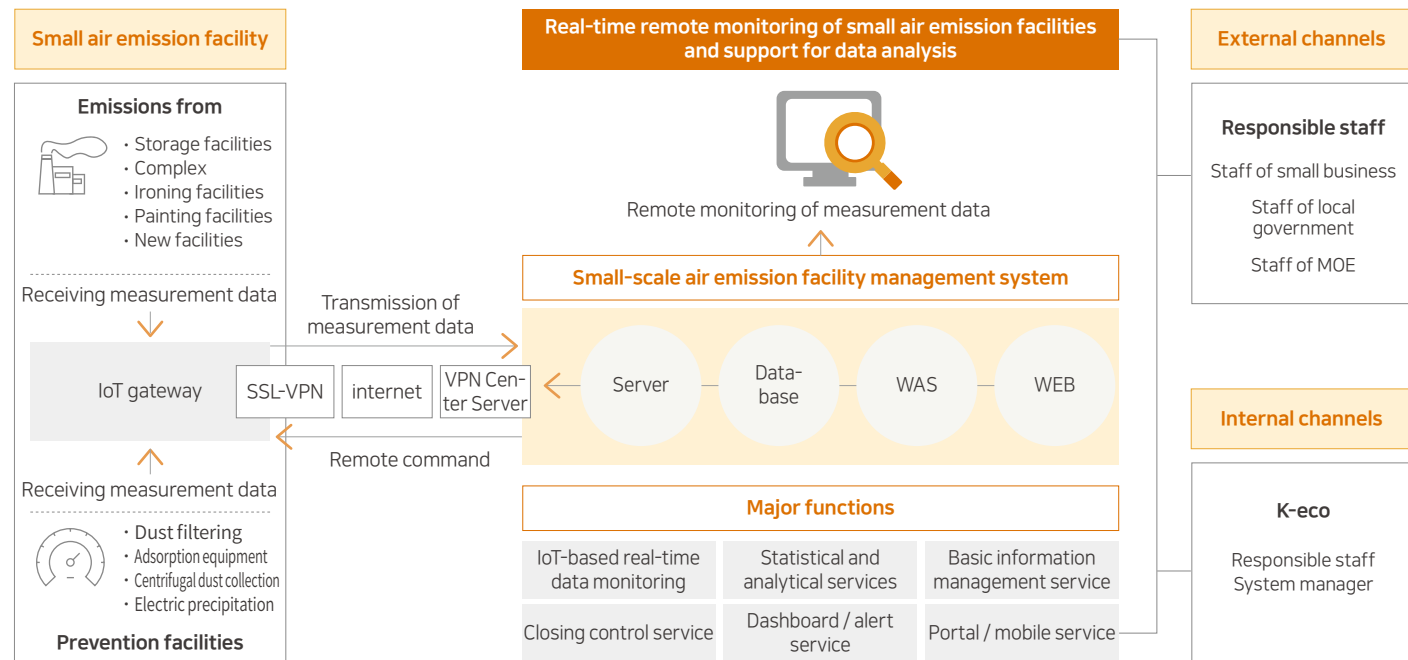
Business Process of the Total Quantity Site Support Center



Number of chimneys with TMS²⁾ (Unit: places)



IoT-based Real-time Pollution Monitoring System



1) EBI (Environmental Business International), established in 1988 in the U.S., is a world-renowned environmental research institute that awards outstanding achievements in the environmental field every year.
2) TMS (Telemetry System): A remote chimney monitoring system that measures the amount of air pollutants attached to the business site

Strengthen Air Quality Monitoring

K-eco has secured basic data for promoting air conservation policies, such as setting environmental standards, by regularly measuring air pollution levels across the country through the national air quality monitoring network. A total of 870 measuring stations are running nationally, 229 of which are managed by K-eco, including national and suburban atmospheric network¹⁾. In response to increasing concerns about ultrafine dust, we began the PM-2.5 measuring network in 2014 and introduced the "foreign fine dust monitoring system" in 2020. We have newly established 63 fine dust measurement networks in the West Sea, East Sea, and South Coast, as well as in the DMZ, to trace the movement path of fine dust and analyze its concentration. The networks will contribute to identifying the fine dust impacts on domestic areas in advance and conducting efficient initial response.

Atmospheric Measurement Network Operated by K-eco

Classification	Total	Metro-politan	Chungc-heong	Yeo-ngnam	Ho-nam	Gang-won
Total	229	37	36	69	57	30
Background station	11	3	2	1	5	-
Suburban air	27	6	4	6	3	8
Vessel (new)	35	4	2	9	15	5
Air-toxic	52	10	11	16	11	4
Port (new)	15	2	3	4	4	2
Acid rain	37	4	7	13	8	5
Photochem-istry	18	8	-	7	3	-
Earth climate	1	-	-	-	-	1
PM-2.5 constituent	33	-	7	13	8	5

1) A natural concentration that is not affected by anthropogenic sources

Nationwide Atmospheric Network



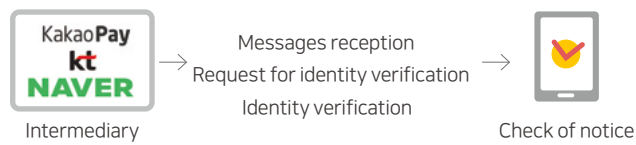
- Background station
- Suburban air
- Vessel
- Air-toxic
- Port
- Acid rain
- Photochemistry
- Earth climate
- PM-2.5 constituent
- Intensive measuring network
- City air
- Roadside air
- Heavy metals in the air

Air pollution level data measured through the air monitoring network is provided to the public through the real-time air pollution disclosure system (AirKorea) beyond just internal analysis and utilization. In particular, the air quality measurement results around schools and industrial complexes are of great help to those who are sensitive to air information. The AirKorea of K-eco has ranked first in the field of data utilization for two consecutive years among 954 public institutions that open public data on the strength of continuous air environment information services.

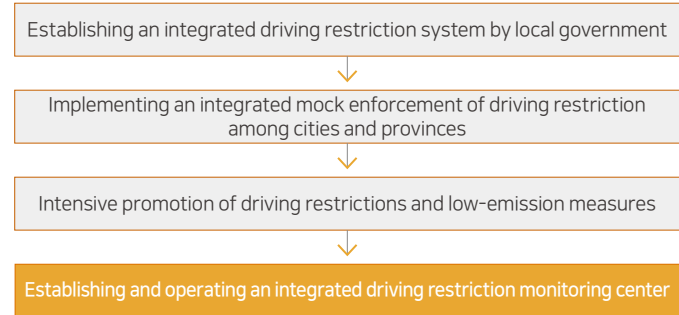
Green Infrastructure Expansion for Transportation

K-eco has been not only promoting a crackdown on heavy air pollutant-emitting cars and policies for reducing pollution from old cars by building an integrated nationwide driving restriction system but also expanding the installation of EV stations, thereby pursuing the improvement of air quality in the transportation sector. As a result, the number of 5th grade old cars decreased 20%, which contributed to reducing around 40.3 million tons of fine dust and 24,000tCO₂eq of carbon emissions. Mobile electronic notification platform also contributed to increasing business efficiency and saving KRW 1.4 billion. Particularly, the number of driving restriction violations decreased 44% during seasonal control period by building Korea's first IT-based integrated old car driving restriction control system in collaboration with local governments and running the "integrated control center linked to enforced network."

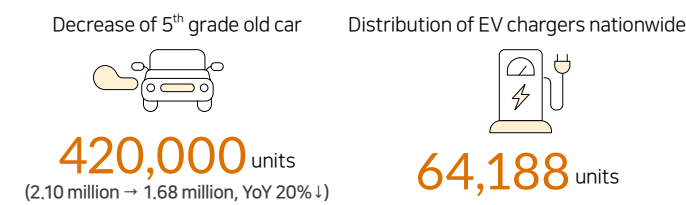
Mobile Electronic Notification Platform



Integrated Nationwide Driving Restriction System Building Process



Performances in Green Infrastructure for Transportation

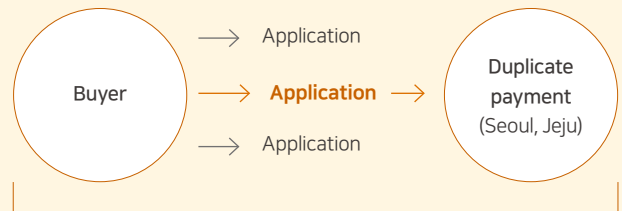


CASE

Payment of Government Subsidies for Low-emission Cars through Collaboration among Ministries

There have been a lot of inconveniences for the people to receive subsidies for low-emission cars because the application could only be made by mail or direct visit and entire process from application to payment was conducted offline only. To address this issue, K-eco has prevented duplicate payment of subsidies in advance and shortened the processing time to one or two days from existing 14 days through collaboration among ministries. We will continue to create an environment where people can purchase eco-friendly vehicles easily and conveniently.

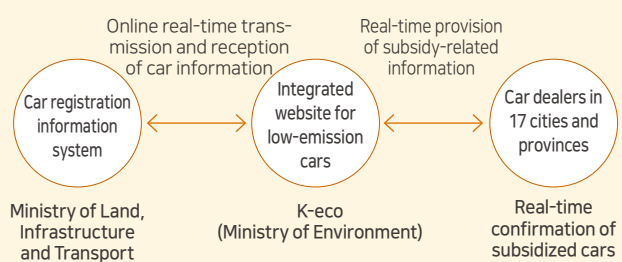
Improve the Government Subsidy Application Process for Low-emission Vehicles



- Online system**
 - Unify local government's electric vehicle subsidy project announcement channels
 - Provide car types eligible for subsidy intuitively
 - Offer information including notice, reception, release, and number of cars by local government
- Linkage with car information**
 - Block the duplicate application fundamentally

I want to check the car information requested by the buyer. What should I do?

Real-time identification and handling in connection with the information system



Respond to Water Environment to Adapt to Climate Change

K-eco promotes projects such as water disaster response and aquatic ecosystem recovery to respond to abnormal climate phenomena such as unusual temperature, drought, and flood due to climate change. Particularly, as flood damage, increasing water pollution due to heat waves, stench of sewerage in urban areas are risks that directly affect local communities and the public, systematic response and control is essential. Accordingly, K-eco aims to alleviate water environment risks and enhance our integrated water pollution monitoring and river pollution sources control functions through sewage and wastewater treatment projects, thereby increasing the resilience of Korea's water environment.

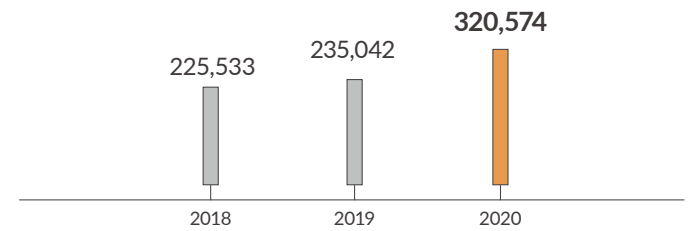
Prevent Urban Flood

Due to unusual weather, the year 2020 recorded the longest rainy season (54 days) since 1973 and the second highest precipitation (national average of 687 mm). K-eco is preparing long-term countermeasures against increasingly unpredictable extreme weather events and repeated flooding in urban areas. We have been proactive in preventing urban flooding by preemptively installing customized flood-response facilities according to the changing rainfall characteristics such as torrential rain, contributing to increasing the number of beneficiaries from this project. While expanding urban areas to be intensively managed against flood, we are also planning to promote the "Smart Urban Flood Response System Construction Project" from a long-term perspective.

Urban Anti-flood Process



Beneficiaries of the Urban Anti-flood Project (Unit: persons (cumulative))

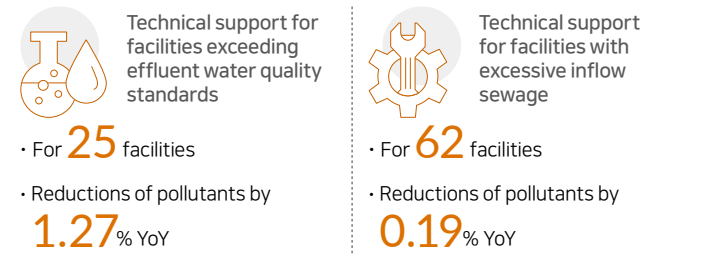


Water Quality and Ecosystem Management

Technical Support for Sewage and Wastewater Treatment Facilities

In order to fundamentally prevent water pollution at 694 sewage treatment facilities in Korea, K-eco provides customized technical support. In particular, we conduct cause analysis for facilities unsatisfying effluent water quality criteria. For facilities with excessive sewage inflow, analysis of the operational management status and improvement plans are presented.

Technological Supports for Sewage Treatment Facility Operation



Support for Ecotoxicity Management Target

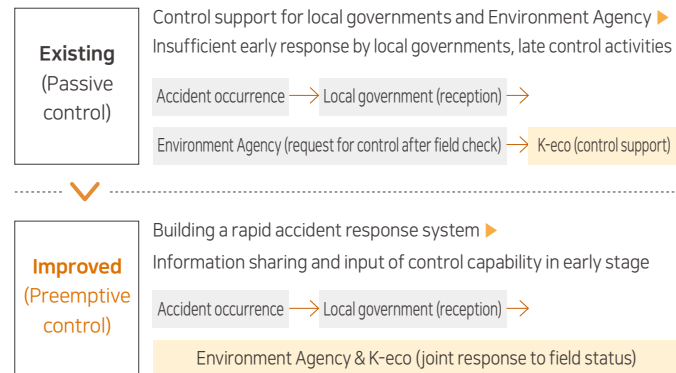
In accordance with the revision of the "Water Environment Conservation Act," the scope of application of the ecotoxicity management system¹⁾ has been extended to all industries of emission facilities from 2021. In response, we provided 82 new target workplaces with technical support for reducing causative substance including heavy metals and residual chlorine in wastewater facilities in an attempt to pursue early settlement of the new system before its enforcement. This effort will help each workplace relieve the burden on the new system and prevent toxic substances from flowing into rivers.

Monitoring of Water Pollution Accident

To prevent the spread of water pollution, K-eco is strengthening its integrated monitoring function and establishing a perfect response posture. We monitor the water quality of rivers through the water pollution control information system. Especially, a pilot project aimed at building the "IoT-based 24-hour monitoring system" is being carried out in stages for small businesses (about 31,000) that are concerned about the unauthorized discharge of wastewater.

¹⁾ A system for the integrated management of industrial wastewater quality by measuring the toxicity of unknown hazardous substances contained in effluent through living organisms

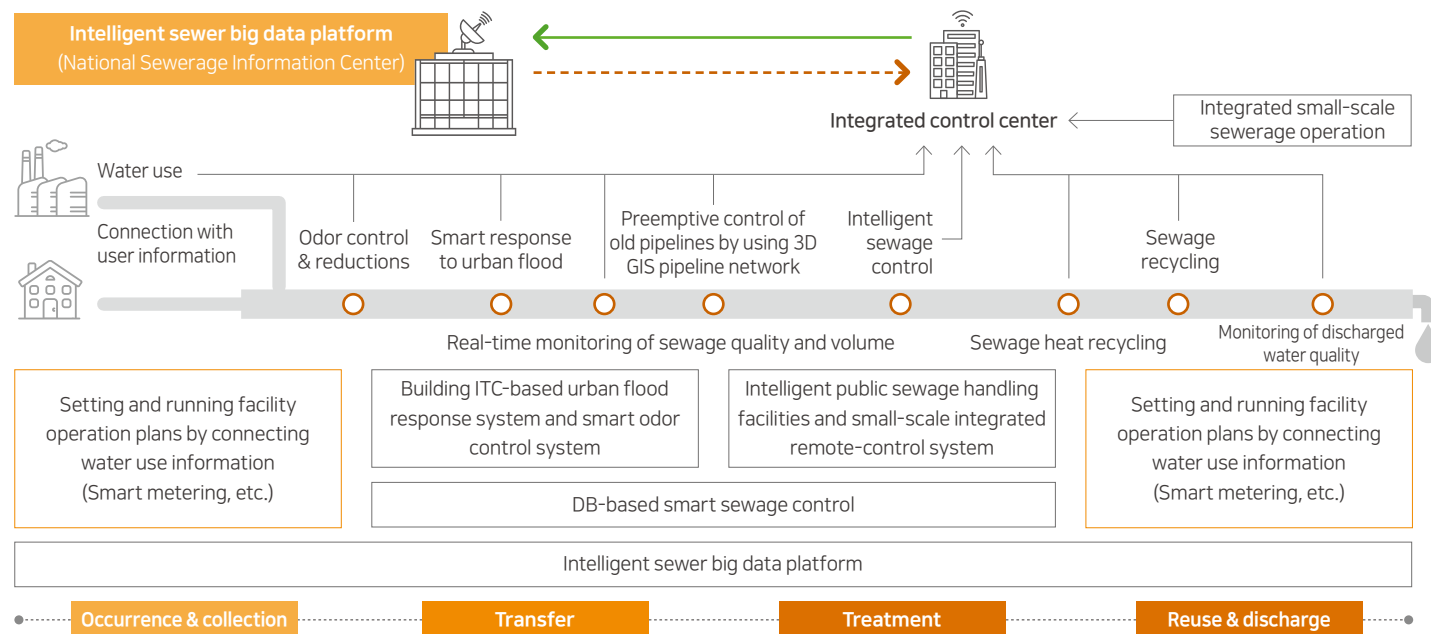
Anti-pollution Control System



Establish a Smart Sewage Management System

As it is predicted that 69% of sewage facilities in Korea will become obsolete by 2030, K-eco is providing technical supports to local governments that promote the establishment of ICT and AI-based smart management system across sewage treatment process. Upon the completion of this project for 33 places, it is expected to reduce GHG emissions by 6,545tCO₂eq per year.

Digitalized Smart Sewage Management System



Classification	2018	2019	2020
Initial response rate to water pollution accidents (%)	100	100	100
Workplaces equipped with water quality TMS (places)	966	984	1,012

CASE

National Water Industry Cluster

K-eco aims to promote the water industry through technological innovation as well as the restoration of the aquatic ecosystem by strengthening public safety and im-proving the water and soil environment in response to water disasters. Since initiating the National Water Industry Cluster in July 2019, K-eco has created an environment for innovative growth of domestic water companies and their technological competence progress. Particularly, we focus on cultivating promising Water Star companies and supporting infrastructure and research capability for water technology development. In 2020, sales of residing companies soared 122% from the previous year.



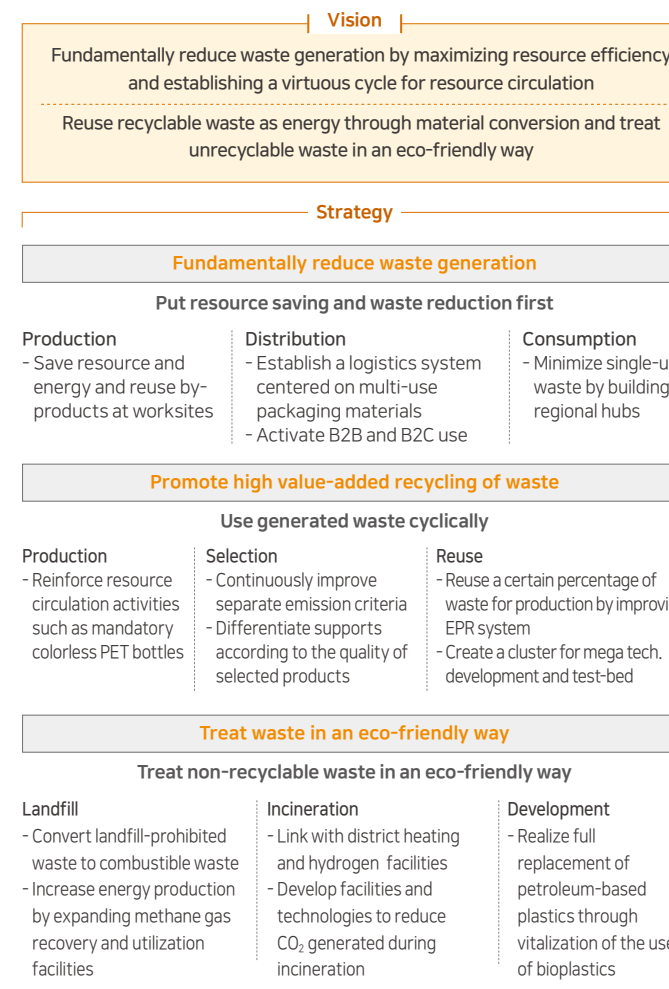
Realize a Circular Economy

Starting with the enactment of the Framework Act on Resource Circulation in 2018 and the "Great Change of National Resource Circulation Policy (Sep. 3, 2020)," K-eco has been leading a new paradigm of "transition to a circular economic society." In 2020, both a control tower and a dedicated organization, Resource Circulation Policy Support Department, were established. We are operating diverse resource circulation programs such as recycling resource recognition system and waste disposal charge system, pursuing resource circulation expansion, energization of waste, and prevention of people from harmful waste.

Leadership in Resource Circulation Economy

K-eco established a vision and strategy aimed at reducing waste generation, recycling generated waste, and handling unrecyclable waste in an eco-friendly way and is promoting a resource circulation performance control system. By doing so, we will lead a circular economy with the pursuit of environmental preservation and economic growth at the same time.

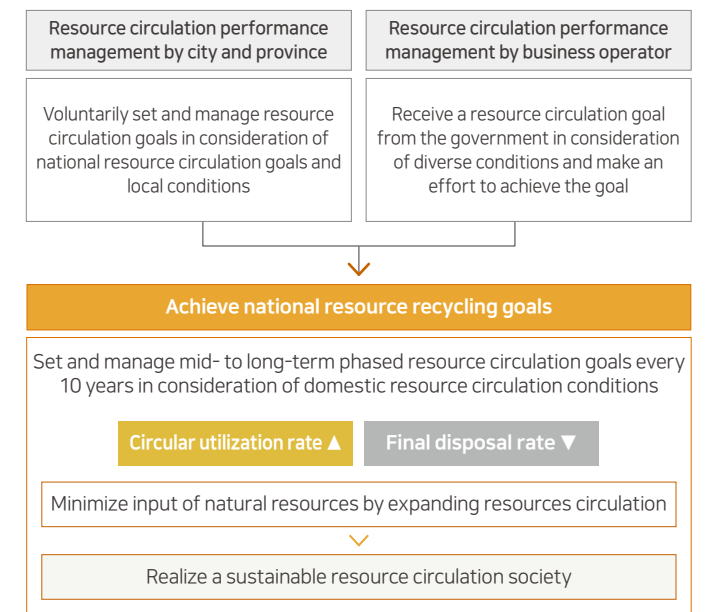
K-eco's Mid- to Long-term Vision & Strategy for Waste Control



Resource Circulation Performance Control System

Considering the domestic resource circulation conditions, we have set and managed mid- to long-term and phased national resource circulation goals. Resource circulation performances are managed by each city and province, while K-eco conducts target review and performance verification of businesses that discharge large amounts of waste. Moreover, we disclose our goals and performances under the resource circulation performance system.

Resource Circulation Performance Management System

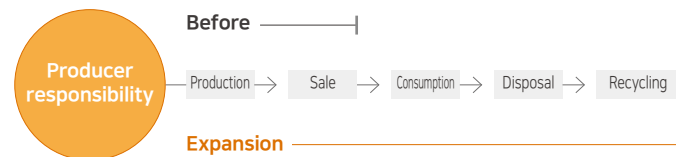


K-eco's Resource Circulation Performances

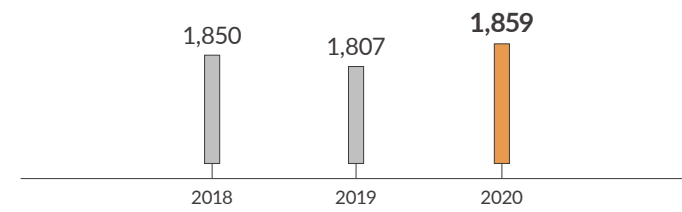
Classification	2019	2020	2021 Goal
Workplace waste reductions effect (%)	0.3	1.9	2.1
Recycling of waste electricity and electronic products (kg/person)	6.84	7.30	7.56
Recycling of packaging materials (thousand tons)	1,339	1,274	1,332

EPR System¹⁾

K-eco plays various roles in the entire resource circulation process. Particularly, producers had been responsible for circulation from the stage of production to sales, while the responsibility for waste handling after product use had been rested with consumers. Since the enforcement of the EPR system, however, the responsibility for resource circulation from production to recycling is given to producers. Failure in fulfilling the responsibility results in fines on the producers exceeding the cost of recycling.



Recycling of Products and Packaging Materials (Unit: thousand tons)



1) The EPR (Extended Producer Responsibility) system imposes a certain amount of recycling obligation on producers for product or packaging waste and gives a penalty more than the cost of recycling if this is not fulfilled.
2) Act on the promotion of saving and recycling of resources

Operation of Packaging Material and Structure Evaluation System

K-eco operates a system aimed at curbing the production of packaging materials and structure vulnerable to recycling and encouraging recyclable ones in accordance with the enforcement of related institution (Dec. 2019) and revision of the Resource Recycling Act²⁾ (Dec. 2018). We induced the development of packaging materials that are easy to recycle through a system such as unit price differentiation in producers' recycling costs, resulting in rapidly introducing label-free and perforated bottles and eco-tab. Particularly, the amount of transparent PET bottle production sharply decreased by 43% compared with the amount before implementing the system.

Recycling of Waste Electricity and Electronic Products

Through collaboration with companies and local governments, K-eco has been promoting the collection of waste home appliances, expanding the items subject to collection, and improving the waste home appliance separation and collection system.

Major Performances in 2020

- Spread collection boxes in apartments and provide information on their locations**

 Collected **5,617** tons of small waste home appliances (9%↑ YoY)
- Expand home appliances items eligible for recycling**

 27 items → **49** items
- Organize and operate a TF for waste resource collection hubs**

 Promote the establishment of hub in **4** areas

Laying a foundation for Future Waste Resource Circulation

It is expected that the generation of new waste such as solar power panels will increase rapidly due to expanding renewable energy supply. In response, K-eco is proactive in building systems and infrastructure for collecting and recycling future waste, especially waste solar panels and waste batteries for EV. In 2020, we supported the establishment and revision of laws and regulations specific to future waste resources, and stipulated regulations related to electronic products in the Resource Circulation Act and Waste Management Act. In addition, we plan to complete the construction and pilot operation of waste collection hubs in four regions and start the operation in 2022.

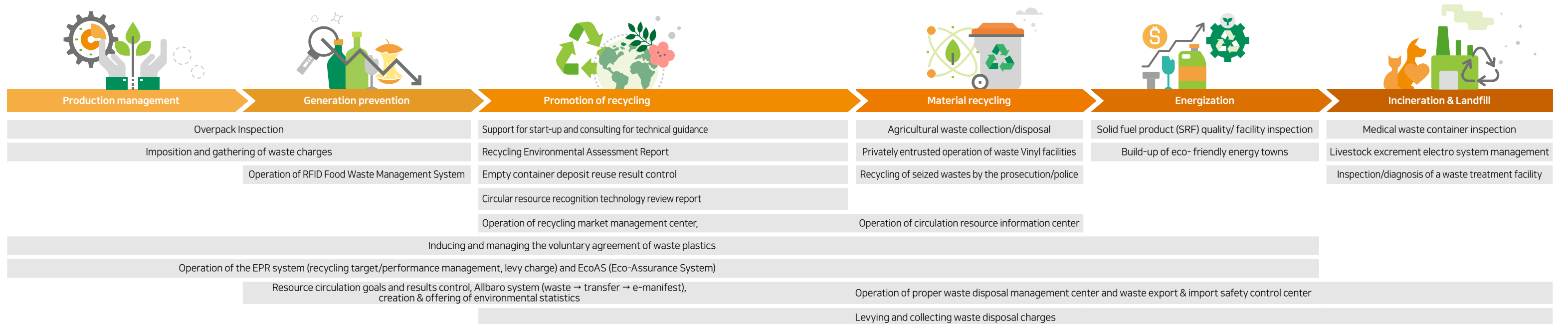
CASE

Ice Pack Recycling Campaign

We promoted a campaign to collect and wash ice packs for their reuse in collaboration with local governments and civic groups to prevent environmental pollution from microplastics in ice packs. This campaign contributed to preventing the generation of 60 tons of microplastics in advance, saving environmental costs of KRW 110 million, and creating social and economic values by supplying ice packs to traditional markets and local firms for free. As a result, K-eco won the Presidential Prize at the government-led best innovation practice competition in 2020 and plans to expand the campaign nationwide.



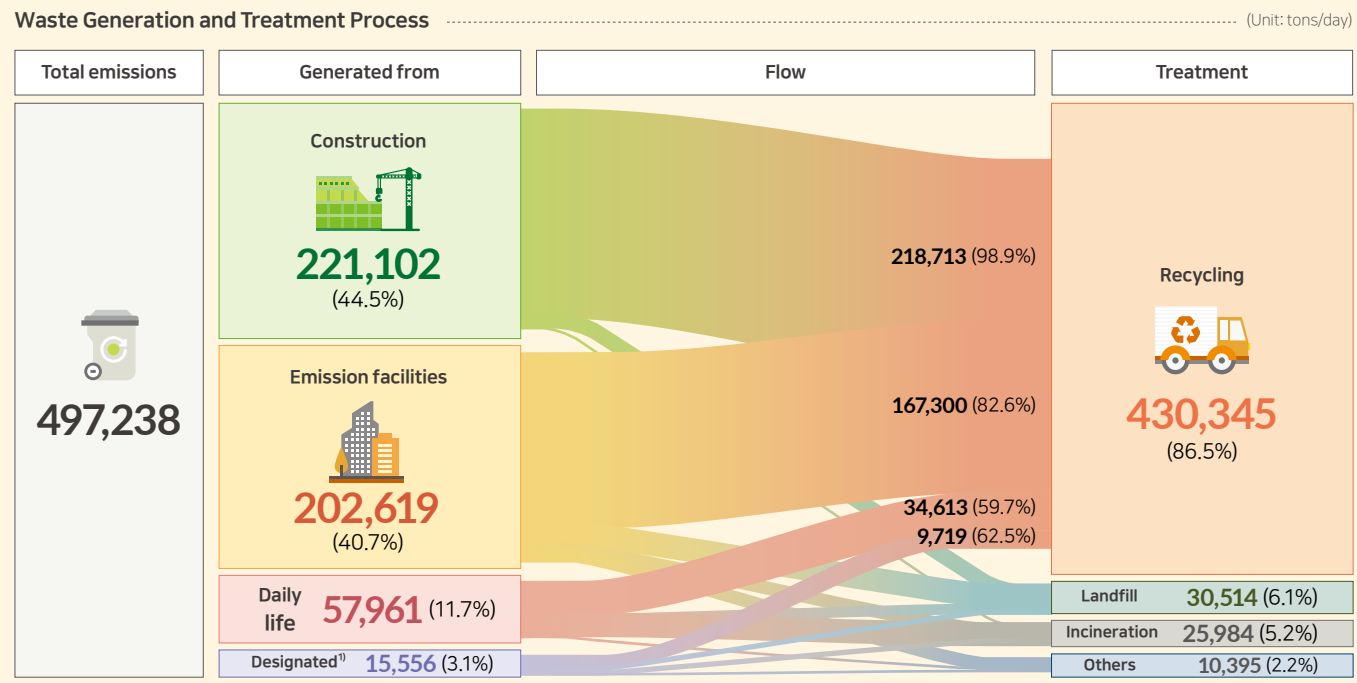
K-eco's Roles in Circular Economy



CASE

Production of reliable environmental statistics

Since 2019, K-eco has contributed to promoting national resource circulation by conducting annual surveys on the generation, treatment, and recycling of waste. In addition, as a designated statistics agency based on Article 15 of the Statistical Act, we prepare and publish a total of 7 types of nationally approved statistics in the field of waste recycling to provide statistical services to the public. The following diagram shows waste generation and treatment results in 2019 released through administrative data of 7 environment agencies and 17 cities and provinces as well as Allbaro system. K-eco accomplished waste recycling rate of 86.5% in 2019 and contributed to increasing at least 0.5% in annual average recycling rate for five years.



* Source: Nationwide waste generation and treatment status in 2019 (released through the Allbaro System (allbaro.or.kr) in Dec. 2020) 1) Including medical waste

Harmful Waste Management

We strive to turn environmental crisis into opportunity by preventing illegal waste disposal and recycling waste. In particular, along with the improvement of medical waste management system in response to prolonged Covid-19, we have operated an intelligent management system for construction and import/export waste control.

Improve Medical Waste Management System

K-eco has improved an on-site management system to control Covid-19-related medical waste rapidly and safely. A safe management system has been established for each field from medical waste generation to treatment and we also supported manpower and temporary facilities management system to prevent the expansion of Covid-19 pandemic. RFID infrastructure for medical waste and monitoring activities were further enhanced to prevent illegal treatment.

Improvement of the Medical Waste Management System

Built a Covid-19-related medical waste treatment system Administrative processing period: 6 days → **1** day

Intraday Covid-19-related medical waste treatment rate Over **95%**

Waste (unit: tons/year)	2018	2019	2020
Total amount of waste	224,556.52	233,825.04	191,400.78
Medical waste for quarantine	3,944.08	5,319.76	8,616.85
Medical care for quarantine (Covid-19)	-	-	5,787.69

Intellectual Waste Management System

K-eco operates a waste management system to ensure transparency and safety in waste control. Entire waste handling process (discharge, transfer, and treatment) is managed and monitored through Allbaro System by using internet and RFID technology. This system is applied to treating food waste and livestock manure as well as medical, construction, and import/export waste. In addition, the "intelligent waste management system" was piloted in 2019 to prevent illegal dumping, which has recently emerged as a serious social problem. This system will be completed in 2021. By capitalizing on the intelligent waste management system, we will manage field information in terms of waste transportation and input. In accordance with the revision of the Waste Management Act (May 2019), we also plan to operate the proper waste disposal management center and make the transfer of field information on waste treatment mandatory since 2022, building a system for intelligent waste safety treatment system.

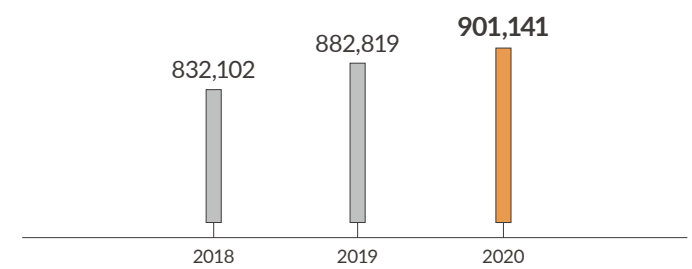
Inspection on Suspected Companies to Prevent Illegal Waste Generation

Inspected **27** workplaces
In collaboration with MOE and local governments

Activation of Waste-to-Energy Projects

K-eco has built infrastructure for the activation of green hydrogen using organic waste resources and launched a quality grading system for solid fuel products, thereby inducing the replacement of fossil fuels and reductions of carbon emissions. In addition, we pursue expansion of waste recycling, job and profit creation through the eco-friendly energy town development project aimed at simultaneously solving environmental and energy problems.

Waste-to-Energy Performance (by using incineration heat) (Unit: TOE)



Solid Fuel Product Quality Rating System

We launched the "quality rating system (best, excellent, and good)" for differentiating the quality of solid fuel products, contributing to minimizing carbon and pollutants, increasing heat efficiency, and achieving the effect of replacing 2.41 million TOE of fossil fuels.

Issued quality rating certification on **213** items
(Highest rating: 93%)

Support for Activating Green Hydrogen

We intend to create new value-added businesses in the hydrogen economy by utilizing unused biogas from organic waste or biogas produced from integrated biogasification facilities to be built. Now we are preparing a system for producing and utilizing green hydrogen.

Green Hydrogen Project Roadmap

1 st stage (~2021)	2 nd stage (2022)	3 rd stage (2023~)
Realize standard project cost for biogas facility and prepare business guidelines	Promote new pilot projects for integrated biogasification facilities (3 locations) and commercialize the technology for collecting CO ₂ generated in the purification process	Export the green hydrogen production model through integrated biogasification

Eco-friendly Energy Town

K-eco is operating a virtuous cycle environmental business promotion system to create an eco-friendly energy town led by residents. In particular, a mentor group composed of experts in the fields of environment, energy, industry, distribution, and PR strategy diagnoses performances and provides technical consulting for each field to strengthen policy support for eco-friendly energy towns and minimize trial and error in operation. We will also prevent possible problems in operating eco-friendly energy towns in advance by regularizing the operation of the mentor group.

Public Health and Environmental Protection

Life-friendly Environment Service

K-eco contributes to improving environmental health and quality of life of the people by actively supporting the people, especially the environmentally vulnerable, exposed to environmental harmful factors or inconveniences.

Resolving Environmental Harmful Factors in People's Daily Life (Unit: cases)

Emissions	2018	2019	2020
Investigation and inspection on asbestos	2,760	2,029	1,547
Radon measurement and radon-free construction	1,630	1,620	2,700
Handling of noise complaints between floors	38,525	35,911	53,858

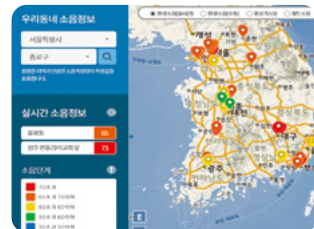
Life-friendly Environmental Service for the Public

Inter-floor Noise Solution Service

We are operating the Inter-Floor Noise Neighbors Center to alleviate inter-floor noise conflicts between apartment residents and provide diverse services such as noise level check, consultation on noise damage, and support for damage settlement.

Environmental Noise Information Service

K-eco measures environmental noise in real time and provides the results through its website. The information is also used as basic data for creating a calm environment.



Tire Noise Level Reporting System

As a legal institution for tire noise level testing, K-eco became Korea's first corporation to run the tire noise level reporting system. This system has been activated with the implementation of the tire noise level reporting and rating system from January 2020.



Environmental Health Service

Asbestos Safety Management

As the highest-ranking (S grade) asbestos investigation agency designated by the Ministry of Employment and Labor, K-eco provides a barometer for problem solving and correct diagnosis of asbestos use in buildings of other institutions. In particular, the "Supervisor Registration and Evaluation System" was implemented in January 2021 to strengthen the safety of asbestos dismantling work.

On-site Check Points of Asbestos Supervisor

- Stage 1** **Review of proposals**
Review of asbestos demolition and removal plans
- Stage 2** **Check of field works**
Securing health and safety in the process of asbestos demolition and removal
- Stage 3** **Check of asbestos concentration**
Prevention of damage to workers and nearby residents
- Stage 4** **Check of residue disposal**
Compliance with relevant regulations for proper waste disposal

Eliminate Radon Risk Factors

As the only public institution in Korea that provides indoor radon measurement service, K-eco supports not only the measurement of radon in buildings but also radon-free construction and follow-up management of facilities such as village hall where high concentrations of radon have been detected. Especially, we are expanding the scope of radon-free consulting and construction to relieve the anxiety about indoor radon levels of the people whose indoor life has increased due to Covid-19.



Installation of self-check device

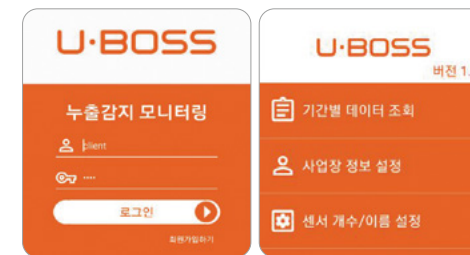
Radon-free construction

Harmful Chemical Substance Management

Hazardous Chemicals Management

K-eco is building a system to strengthen Korea's chemical safety control capability and prevent chemical leakage accidents. We strive to strengthen chemical safety and secure the safety of people by conducting inspection on hazardous chemical handling facilities and safety diagnosis based on the Chemicals Control Act and offering free consulting to SMEs vulnerable to chemical safety management. The ICT-based chemical safety management app developed by K-eco helps SMEs across the country that handle hazardous chemicals efficiently operate systematic access inspections and risk alert systems, contributing to minimizing casualties.

Mobile application that detects hazardous chemical leak*



* Mobile alarm provided by attaching IoT module to on-site leak detector

Chemical remote support system*



* Application that enables to create access and inspection documents and issue an alarm in case of an accident

Disclosure of Hazardous Chemical Substances Information to the Public

K-eco disclosed the PoPs¹⁾ measurement data for the first time in 2020 to ensure the public's right to know. In accordance with the Stockholm Convention on PoPs (2007), we are playing a role as a legal PoPs measuring institution. In response to increasing new measurement targets, we not only introduced automatic purification equipment and high-efficiency concentration equipment to minimize measurement errors and analysis time, but also disclose PoPs measurement and monitoring data through the public data portal to help utilize the data and create new values.

Production of Chemical Hazard Information

Supply of Internationally Accredited Test Data at Affordable Price

We support the registration of chemicals in business through the hazard testing by the GLP (Good Laboratory Practice). The GLP testing results are internationally reliable. K-eco tests physicochemical properties, ecological impacts, degradability, condensability, and health impacts on items that have insufficient testing base in Korea to produce hazardous information necessary for registration of chemical substances in business. The test results are supplied to small and medium-sized chemical companies at the level of 3-5% of the production cost.

Support for Chemical Substance Registration of Semiconductor Related Materials, Parts, and Equipment Firms

The development and registration of new alternative chemical substances is urgently required due to Japan's export restrictions on semiconductor materials, but the competence of domestic testing institutions is still insufficient. In response, K-eco preferentially supports the production of test data for new chemical substances that semiconductor related materials, parts, and equipment firms need, so that they can complete chemical substance registration on time and start production quickly.

1) PoPs (Persistent Organic Pollutants): Substances that endanger people and ecosystems due to their toxicity, persistence, biological accumulation, and long-distance mobility



CREATING SUSTAINABLE SOCIAL VALUE

S_ Realize Social Value

Public institutions are facing increasing demands for social value creation both internally and externally. K-eco is committed to creating stakeholder value.



45

Lead Inclusive Growth

50

Realize Safe and Happy Workplace

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Practice Human Rights Management

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Shared Growth with Partners

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Contribute to the Development of
Local Communities

Realize Social Value



K-eco is making a concerted effort to create safe working environment for employees and conduct socially equitable recruitment. We also focus on enhancing human rights management, nurturing talents for small and medium-sized partners and local communities, supporting sales growth of local firms, and creating environmental jobs.

1 Key issues	Issue	Linked with UN SDGs	Linked with UNGC principles
	<ul style="list-style-type: none"> Enhance occupational safety and health (workplace, partners, etc.) and public safety Prevent worker damage and improve labor conditions 	Good health and well-being	3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.
	<ul style="list-style-type: none"> Contribute to the development of local communities Enhance shared growth with partners Enhance stakeholder engagement and communication Lead the better quality of life and Green New Deal 	Decent work and economic growth Reduced inequalities Sustainable cities and communities	9. Industry, innovation, and infrastructure 11. Sustainable cities and communities
	<ul style="list-style-type: none"> Protect human rights of employees and partners 	Reduced inequalities Peace, justice, and strong institutions	1. Businesses should support and respect the protection of internationally proclaimed human rights. 2. Businesses make sure that they are not complicit in human rights abuses.
	<ul style="list-style-type: none"> Create jobs and improve the quality of employment 	Decent work and economic growth	6. Businesses should eliminate discrimination in respect of employment and occupation.
	<ul style="list-style-type: none"> Response to Covid-19 crisis Nurture talents in environment field 	Good health and well-being Decent work and economic growth	

2 Major outcomes	Icon	Value	Description
		10,553 persons	Creation of resource circulation assistant jobs
		Zero	Serious accidents at construction sites
		Excellent	Shared growth evaluation for 2 years in a row (highest level)
		KRW 4.4 billion	Sales of SMEs created through performance-sharing system

3 Goal (by 2024)	Target 1	Target 2	Target 3	Target 4
	Create 35,927 private jobs (cumulative)	Continue zero serious accident	Maintain the "Excellent" level in shared growth evaluation	Nurture 275 water-specific talents

Lead Inclusive Growth

Create Sustainable Jobs

As a leading public institution in inclusive growth, K-eco established a 5-year decent job creation strategy that reflects the Covid-19 crisis and government policies with the aim of creating decent jobs in both private and public sectors. Centered on the Social Value & Innovation Promotion Corps, Citizen-Participating Innovation Corps and General Operation Division are dedicated to reinforcing the power of job creation execution. Strategic tasks for job creation have been identified based on cooperation among each sector.

K-eco's Decent Job Creation Strategy (2020~2024)

Vision	Become a leader in inclusive growth by creating sustainable decent jobs			
Goal	Private jobs			Public jobs
Strategic directions	Create innovative value	Create jobs for co-prosperity	Enhance job creation capability	Create decent public jobs
Strategic tasks	1. Lead support for New Deal project	3. Sharpen competitiveness of environment business	6. Build promotion plans	9. Create decent jobs
	2. Support innovative growth in infrastructure	4. Create jobs for core business	7. Key business to solve environmental issues	10. Improve labor conditions
		5. Vitalize local & social economy	8. Nurture environmental talents	11. Conduct class-specific trainings
Special task	Support the creation of public jobs rapidly in response to Covid-19 pandemic			

Job Creation Activities and Performances

Private Job Creation

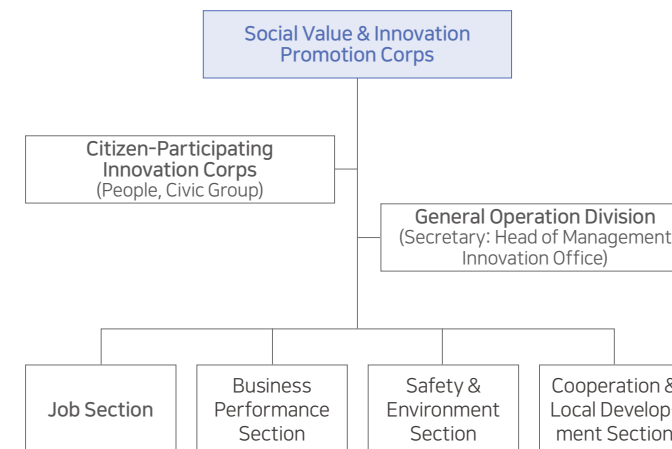
To create sustainable private jobs in the environment field, K-eco has established a mid- to long-term roadmap that includes specific goals and investment for each of the 7 strategic tasks and 87 detailed action plans. Based on the roadmap, a total of 6,740 jobs have been created in 2020, exceeding the annual target by 8.7%. From 2021, job creation in high value-added industries is expected as the "smart sewage management system," K-eco's New Deal business driven by intelligent innovation technology, was introduced. We will continue to create more private jobs by promoting environmental businesses and enhancing HR development.

Mid- to Long-term Roadmap for Private Job Creation (2020~2024)

(Unit: persons, KRW 100 million)

Strategic task	Jobs		Investment	
	2020	~2024(cum.)	2020	~2024(cum.)
Leading support for New Deal project (9 tasks)	461	4,622	451	3,980
Support innovative growth infrastructure (13 tasks)	368	1,947	203	2,046
Sharpen competitiveness of environment business (14 tasks)	227	1,261	46	242
Create jobs for core business (15 tasks)	4,113	21,666	7,565	39,609
Vitalize local & social economy (14 tasks)	131	894	215	1,225
Key business to solve environmental issues (9 tasks)	676	4,323	665	3,912
Nurture environment talents (13 tasks)	224	1,214	49	248
Goal	6,200	35,927	9,194	51,262

Organization Dedicated to Job Creation



Sustainable Public Job Creation

In accordance with the government's "Special Measures for Employment Stability" in response to the Covid-19 crisis, we have developed the "recycling product quality improvement support project" linked to our business feature, through which a total of 10,553 jobs for resource management support were created. This project was applied to public job creation programs of local governments beyond a short-term large-scale job creation event beyond a short-term large-scale job creation program promoted due to Covid-19.

Transparent and Fair HR Management

Reinforce Fair Recruitment

The demand for fair employment along with the people's right to choose a job is increasing. K-eco has established an improved recruitment plan to further reinforce fairness and transparency in hiring process without discrimination. This system contributes to fundamentally preventing the occurrence of misconduct in recruitment process and expanding job competency-oriented recruitment. In addition, we strengthened communication with job seekers through an inclusive process that considers them. This effort resulted in obtaining the "Excellent Institution for Fair Recruitment" certification, reducing complaints, and increasing satisfaction in recruitment.



Certificate for excellent institution in fair employment

K-eco's Recruitment Management Plan

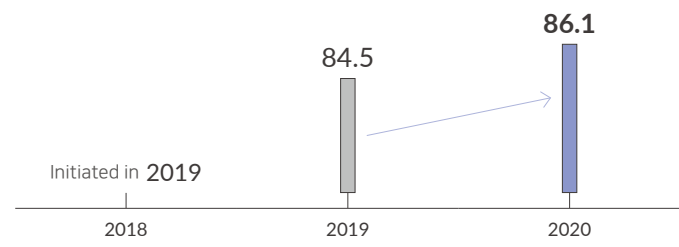
<p>Revision & regularization of recruitment system</p> <ul style="list-style-type: none"> Regulate and utilize the entire process, including recruitment design and fairness Reinforce follow-up management, such as employment victim relief and launch of the Recruitment Inspection Committee 	<p>Reinforcement of job evaluation</p> <ul style="list-style-type: none"> Prepare job description suitable for our characteristics and design document screening Reinforce integrated analysis that considers ability to connect situation and job capability beyond simple knowledge-based screening 	<p>Strengthening communication with job seekers</p> <ul style="list-style-type: none"> Create an untact recruitment environment to avoid hiring victims due to Covid-19 Increase recruitment satisfaction by expanding information channels and enhancing follow-up management
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Public Job Creation Process and Achievement



Recruitment Satisfaction Level

(Unit: points)

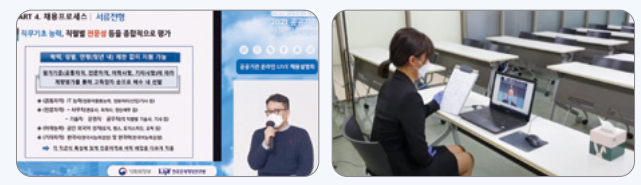


CASE

Build an Online Platform to Solve Recruitment Blind Spot Caused by Covid-19

The Covid-19 crisis requires a different recruitment method than the existing one. Accordingly, K-eco has created an untact recruitment environment by establishing an inclusive process for job seekers.

<p>Online recruitment information</p> <p>Offering of recruitment information through online channels (3 real-time conference, YouTube contents (160,000 views))</p>	<p>Video interview and evaluation system</p> <p>(Video interview) Building a video interview process in collaboration with competent public health center and applying it to untact interviewees (An applicant who is in self-quarantine took and passed the interview.) (Online evaluation) Execution of untact interview by online evaluation system</p>
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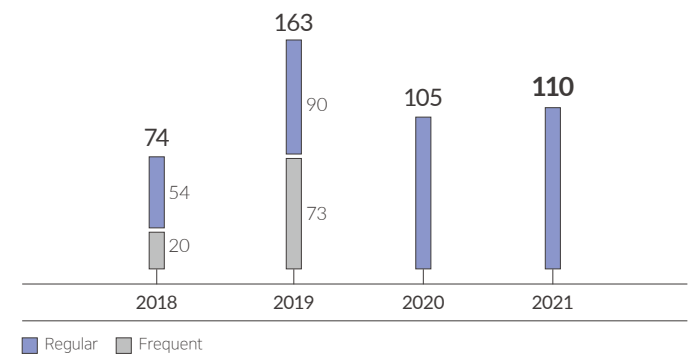


Expand New Hiring Capacity

K-eco has strictly promoted hiring capacity management to expand the number of new hires. The manpower demand survey, which was conducted once a year, has been expanded to twice a year. We also extended the validity period for the pre-qualified to one year, longer than the period of other institutions, through the analysis of three-year retirement rate. K-eco published a recruitment manual against Covid-19 pandemic, through which the recruitment process attended by over 7,000 applicants proceeded quickly without interruption. Time selection system and flexible working programs contributed to expanding new hiring capacity as well. As a result, the regular job hiring has been on a rise since 2018. Net increase in the number of jobs in 2021 reached 110, the largest in corporation history.

Net Increase in Jobs

(Unit: persons)



Diversity and Inclusion

Improve the Quality of Employment

K-eco is working to stabilize jobs and enhance the quality of employment. Through the three-stage pre-screening system in accordance with the government guidelines, we have improved the management of non-regular workers. In addition, the existing indefinite contract workers were converted to public officials and new job titles were added to enhance the sense of belonging. We relocate indefinite contract workers to workplaces they want by holding the Grievance Deliberation Committee and conducting surveys on competence and desired workplace, thereby preventing discrimination and operating reasonable personnel system.

Socially Equitable Recruitment

We recognize the socially underprivileged as partners to go together for growth. To this end, we have developed 135 jobs suitable for the socially underprivileged and expanded social value-based preferential hiring program for equitable employment. HR management system has also been improved to help them adapt to the company so we have achieved 100% of the recruitment goal. As a result, K-eco has transformed itself from an institution that paid employment levies into an institution that receives employment incentives, winning the Prime Minister Prize for best practice in HR management innovation and being selected as an exemplary employment agency by the Ministry of Patriots and Veterans Affairs in 2020. K-eco will lead the creation of social value as a public institution by continuously expanding socially equitable recruitment.



Won the Prime Minister Prize for best practice in HR management innovation in 2020 (Ministry of Personnel Management)



Selected as an exemplary employment agency (Ministry of Patriots and Veterans Affairs)

Performance in Socially Equitable Recruitment

(Unit: persons)

Classification	2018	2019	2020
Disabled	2	181	176
Men of national merit	103	143	138
Experiential interns (youth)	127	131	138
High school graduates	6	14	7

Systematic Female Talents Management

It is true that K-eco, which consists of human resources centered on technical positions, lacks a pool of female managers. In response, we are implementing a systematic female talents nurturing system that ensures their career path from recruitment to executive level.

Strategy for Nurturing Female Talents

- Employment expansion**
 - Promote recruitment based on gender equality**
 - Recruitment without discrimination through blind interview and fair recruitment
 - Exceed the government-led recruitment target (30%)
 - Develop jobs suitable for career-interrupted women and grant additional points
- Competence enhancement**
 - Expand competence-building trainings**
 - Conduct workshops for leadership enhancement
 - Support external agencies for commissioned education
 - Encourage female managers' participation in decision-making including the HR Committee
- Promotion expansion**
 - Expand promotion and assign to core departments**
 - Appoint female executives
 - Assign female managers to core positions
- Career interruption prevention**
 - Create working environment for work-life balance**
 - Encourage the use of childcare leave
 - Include childcare leave period in service period essential for promotion

Thanks to this effort, our female employment rate increased 11% from the previous year to 47.4%, 17.5% higher than the government target of 30%. The ratio of female managers (level 3 or higher) also rose by 52% year-on-year. They accounted for 6.2% of all managers. Moreover, K-eco made the period of parental leave included in the service term required for promotion and created an atmosphere where parental leave can be used freely to prevent career interruption of female employees.

Status of Female Talents

(Unit: persons, %)

Classification	2018	2019	2020
Female employment rate	36.6	36.4	47.5
Ratio of female executives ¹⁾	3.9	3.8	6.2
No. of females promoted	67	63	117
Childcare leave users (female)	128	148	154

1) Ratio of female executives among all managers

Talents Nurturing

Employee Competence Development

At K-eco, employee competence development is promoted in connection with its management strategy.

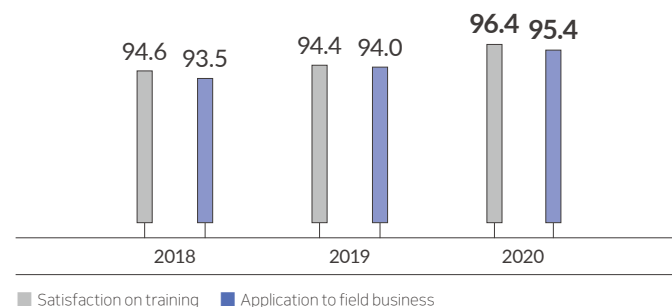
Strategy for Employee Competence Development

HRD vision	Nurture talents with the ability to achieve our vision				
HRD direction	Common competence	Leadership competence	Job competence		
HRD strategy	Internalize core values	Strengthen job expertise	Enhance leadership of empathy and communication	Nurture global talents	
Action tasks	<ul style="list-style-type: none"> Establish proper public service mindset Improve legal education methods 	<ul style="list-style-type: none"> Operate mandatory common job course by position Promote the internalization and sophistication of job courses 	<ul style="list-style-type: none"> Enhance communication leadership Improve organizational culture through empathy and communication 	<ul style="list-style-type: none"> Conduct trainings for dispatching experts to international organizations Expand commissioned trainings for degree acquisition 	

Due to Covid-19 pandemic, the existing collective trainings have been converted to a non-face-to-face method. A total of 821 courses and 1,379 cyber education programs for microlearning have been running, through which 80,131 persons have completed trainings. As a result of actively using the non-face-to-face platform, the application of education to the field increased for three consecutive years and satisfaction on education also rose by 2 points compared to the previous year.

Satisfaction on Education by Career Stage

(Unit: points)



Nurture Environmental Talents

Nurture Environmental Experts at Home and Abroad

To nurture global environmental experts, we dispatch staff to international organizations such as UNOSD¹⁾ and UNESCO²⁾, thereby strengthening our capacity for policy-making related to sustainable development in the environmental field. Domestically, we support managers and staff to receive commissioned training from Seoul National University, National Defense University, Unification Education Center, and Sejong Research Institute. As a result, 883 (accumulated) doctoral-level environmental experts have been produced, exceeding the goal of 800 persons.

1) UNOSD: United Nations Office for Sustainable Development

2) UNESCO: United Nations Educational, Scientific and Cultural Organization

Establish an Institution for Environmental Experts Nurturing

K-eco aims to become a specialized institution for nurturing competent environmental experts. To this end, a task force for the establishment of the training center was launched in 2016 and the construction of HR Development Center started in 2019. In 2021, we established a basic plan to operate the center and secured 16 employees and budget. The center will offer a variety of programs to develop our employee capability, support national environmental policies, and educate external experts in connection with local communities. With the launch of the Human Resources Development Center in 2021, K-eco will establish itself as a leading institution in nurturing environmental experts and promoting and educating national environmental policies.



Aerial view of HR Development Center

Realize Safe and Happy Workplace

Enhance Safety and Health

Create a Safe Construction Environment

K-eco is committed to creating an environment where employees can work safely, through which we aim to reduce industrial accidents by 60% and achieve zero serious accidents by 2024. In particular, we have been strengthening on-site safety inspections by internal and external experts and field safety control to achieve zero serious accidents at construction sites. This effort allowed us to become the only public institution to win the Minister Prize for the merit for industrial safety from the Ministry of Interior and Safety.



Minister Prize for the merit for industrial safety

Senior & Junior Safety Patrol

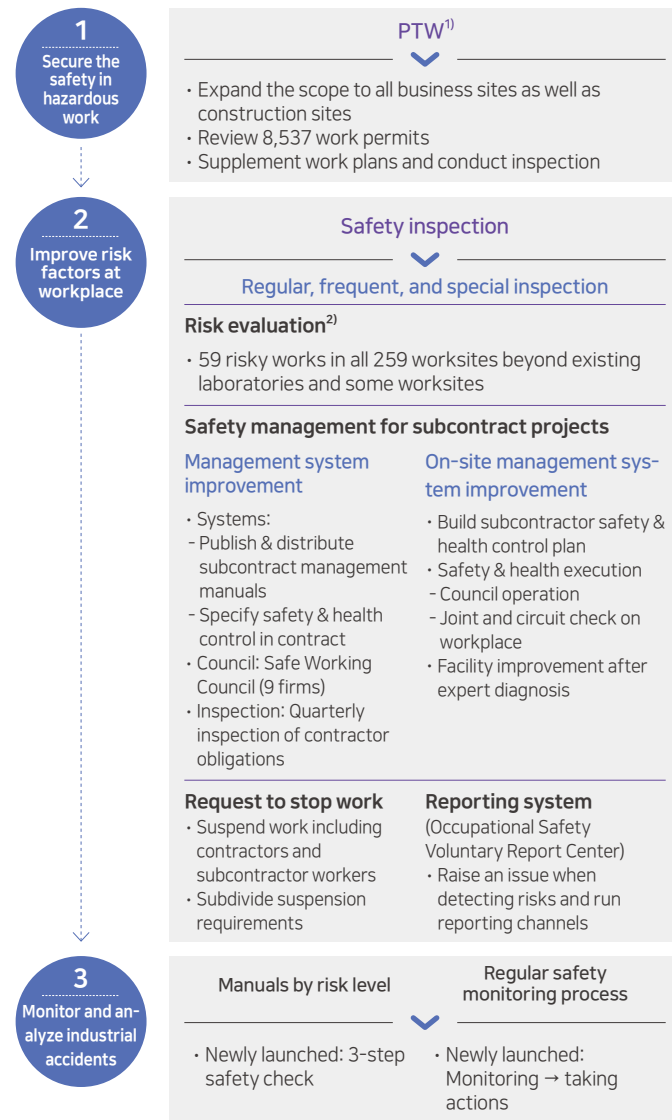
The safety patrol driven by senior employees subject to wage peak program and new employees was introduced in 2019 and the second session was organized in 2020. A total of 59 safety risk cases have been identified through 104 on-site inspections by the safety patrol, all of which have been corrected. This system has contributed to the transfer of the experience and expertise of senior employees to new employees, resulted in being selected as an excellent integrity policy by the Anti-Corruption and Civil Rights Commission.



Safety Patrol launch ceremony

Support for Voluntary Safety Control

We strive to create an environment in which workers can prevent safety accidents in the entire work process in addition to conducting safety inspection by internal and external experts.



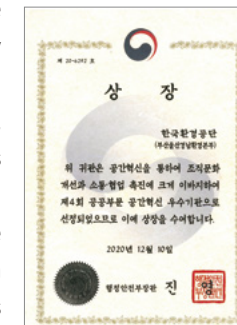
1) PTW (Permit To Work): A system in which a work permit is requested to confirm safety measures before work, and work is performed after approval.
 2) Risk evaluation: Autonomous safety management system in which employers engage workers to find and evaluate harmful and risk factors such as machinery, equipment, and facilities on their own, and then establish and implement improvement measures

Strengthen Safety Management of Partners

We have established a safety management system for small and medium-sized contractors and are promoting the improvement of their safety capabilities as a priority. As part of that, we provided 54 small and medium-sized contractors who joined the innovation partnership led by MOTIE (Ministry of Trade, Industry and Energy) with consulting on safety jointly with Korea Industrial safety Association. The association conducted safety diagnosis on 54 firms 102 times to identify and correct 1,510 weak points. We will continue to help small and medium-sized contractors to prevent industrial accidents and ensure safe construction environment.

Create a Safe Working Environment at the Headquarters

To improve the working environment inside the head office building, we conducted regular safety inspections to remove risk factors and revised the facility operation and management manual. We also provided a rest area for cleaning workers and installed braille blocks, safety handles, and parking spaces for pregnant women for the convenience of the socially disadvantaged. As a result, there were only two industrial accidents at the headquarters, a decrease of 67% year-on-year, in 2020. We also won the Minister Prize of Interior and Safety for best practice in space innovation in 2020.



Minister Prize of Interior and Safety for best practice in space innovation in 2020

Worker-tailored Health Care

To help employees live a healthy life, K-eco conducted customized follow-up management such as job rotation, monitoring, and treatment while working for 274 employees with health abnormalities. The scope of special health checkup and work environment inspection has also been expanded. To promote the health of employees, the "K-eco Healthy Person Contest" was held to reward those who properly managed skeletal muscle mass and body fat mass. Job rotation is carried out for emotional workers every two years. We also conducted three surveys on stress control and provided psychological counseling to 29 employees.

Organizational Culture that Respects Work and Life

Improve Organizational Culture

K-eco has been promoting organizational culture improvement in consideration of changes in the environment where the demand for upgrading the way of working and a restful life is increasing due to Covid-19. As part of that, we have conducted self-evaluation on organizational culture (integrity culture index) twice a year since 2019. By implementing action plans for improving the way of working, considering childbirth and childcare, and ensuring the right of rest, we aim to become an organization where their works and lives are respected.

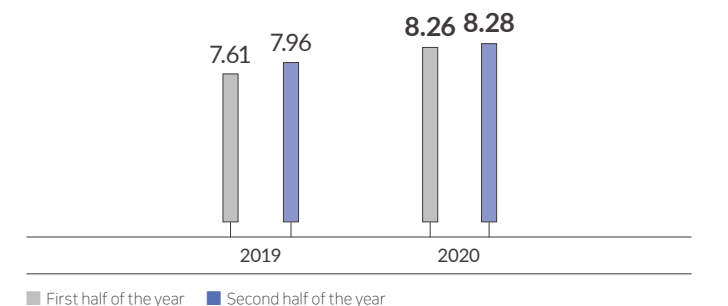


Action Tasks for Organizational Culture Improvement

- Improve the way of working**
 - Create unctact business environment
 - Expand flexible work system
- Further consider childbirth and childcare**
 - Encourage the use of childcare leave
- Further ensure the right of rest**
 - Activate the use of annual leave

Self-assessment on Corporate Culture

(Unit: points)



Improve the Way of Working

We are operating the K-eco-type telecommuting in line with the expansion of non-face-to-face working trend. By autonomously designing the types and proportions of telecommuting that fit our business characteristics, we not only complied with the government guidelines but also improved the execution power of telecommuting. Other activities include the operation of a smart working center, flexible working system including flextime work, leaving office on-time, and PC-off system on every Wednesday.

Consider Childbirth and Childcare

K-eco operates various programs so that employees do not have difficulties in childbirth and childrearing, including free use of parental leave, expansion of fertility treatment leave, shortened working hours during pregnancy and childrearing. As part of that, we also introduced a special leave system (2 hours parental leave per day) for employees with children under the age of 5. As a result, all employees who had taken childbirth leave used parental leave and the rate of use of parental leave also increased 11.2% from the previous year.


Parental Leave Users

(Unit: persons)

Classification	2018	2019	2020
Female	109	148	154
Male	33	48	64
Total	142	196	218

Ensure the Rights of Rest

With the belief that sufficient rest contributes to the work-life balance of employees, K-eco encourages them to use annual leave by reflecting usage rate in internal evaluation. We also run medical service rooms for employees who need rest and stability, while providing cleaning and security workers with shower and changing rooms. As a result, the turnover rate of cleaning and security workers marked zero.



Certification on family-friendly corporation from the Ministry of Gender Equality and Family
8 years in a row



Cooperative Labor-Management Culture

Resolve Pending Issues through Open Communication

K-eco forms a consensus and solves pending issues through open communication between labor and management. In order to strengthen bottom-up and field-oriented communication, we are also operating new communication channel suitable for the "With Corona" era, including K-eco Bamboo Forest, YouTube, and IntegrityTube. Through open communication, a welfare system without discrimination between regular and non-regular workers is being operated and a labor-management agreement has been reached on the introduction of job-based pay for wage system reform. The Board-level Employee Representative System was conducted form the 10th BOD meeting. Based on value-creating labor-management partnership, K-eco acquired the certification on excellent labor-management culture company for the first time in 2020, 10 years after the integration. We will lead the realization of social values through cooperation and communication between the labor and management going forward.



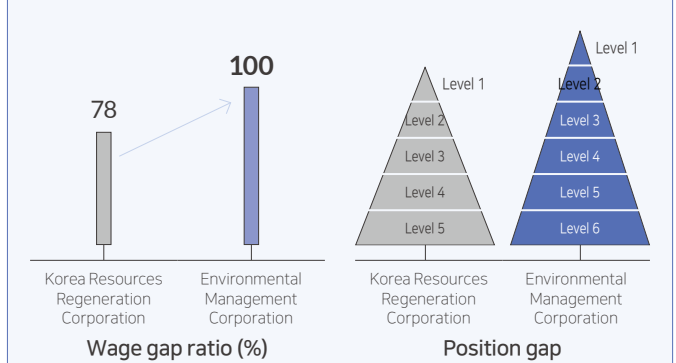
Certification on excellent labor-management culture company in 2020

CASE

Resolve the Wage Gap through Labor-Management Agreement

Since the integration in 2010, there has been a conflict between employees of the two institutions due to wage and rank gap. To address this conflict, the labor and management had jointly operated a consultative body to resolve the wage gap, and a final agreement was reached in August 2019. Since then, the wage gap between employees of the two institutions has been completely resolved and the labor-management conflict has been alleviated.

Background of Conflict among Employees of Two Institutions



Labor-Management Communication Channels

Bottom-up	K-eco Shinmungo	Grievance handling system through an external channel	Untact
	Dialogue with department head	Employees in their 30s and level 5 who were lowest rated in the organizational culture diagnosis	
	Public office meeting	Gathering of grievances in public jobs after the transition to regular position (twice)	
New channels	YouTube	Creation of diverse contents for organizational culture with executives	Untact
	K-eco Bamboo Forest	Anonymous board, private questions, opinions on irrationality	
	IntegrityTube	Creation and sharing of card news for eliminating workplace bullying	
	Live concert	Live concert with the theme of integrity led by senior staff	
Field communication	SNS safety guard band	Safety control through real-time untact communication at construction sites	Face-to-face
	Labor-management joint inspection	Visit to sites for safety inspection and grievance handling	
	Field communication with executives	Improvement of employee acceptance of organizational restructuring	

Practice Human Rights Management

Promote Human Rights Management

The responsibility of public institutions for human rights management is increasingly emphasized. In response, based on the goal of "human-centered K-eco that considers the dignity and value of human beings," we have established a human rights management promotion system and strengthened the power of execution. Since 2019, we have formed an organization dedicated to human rights management and operated human rights violation relief procedures, resulting in obtaining the certification on human rights management system in 2020.

Certification on human rights management system



Establish Guidelines for Human Rights Management

K-eco pledged on fulfilling human rights management by declaring the "Human Rights Management Charter" which stipulated ethical value and behavior criteria that all employees should comply with in business. The guidelines for human rights management execution established in 2019 reflect not only domestic and international standards and norms but also guidelines of National Human Rights Commission. Moreover, the guidelines contain the issues with regard to prohibition of discrimination and forced labor, guarantee of three labor rights and occupational safety, and human rights and relief procedures for all stakeholders.

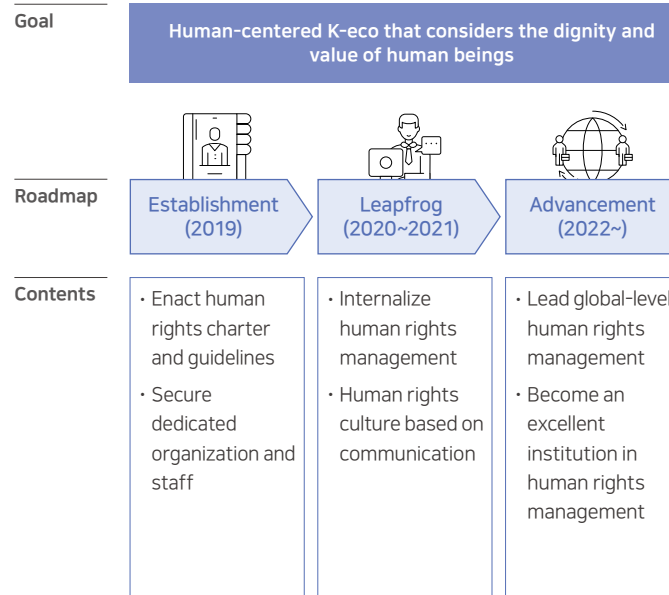
Expand Human Rights Impact Assessment

Human rights impact assessment is conducted to identify potential human rights risks that may arise in the course of business activities. In accordance with the Human Rights Management Manual of the National Human Rights Commission, K-eco has conducted the human rights impact assessment in two aspects of institution operation and major business. It was initiated in 2019. In case of impact assessment on major business, the scope was further extended to four categories of air emission caps control, installation and operation of automatic water quality measurement network, ERP program, chemical substance handling facility inspection and safety diagnosis beyond just chemical substances.

Human Rights Impact Assessment in Major Businesses

Classification	2019	2020
No. of business for assessment	1	4
Major business	Chemical substance sector	<ul style="list-style-type: none"> Atmosphere total volume management Installing and operating automatic water quality measuring network EPR system Inspection and safety diagnosis on chemical substance handling facilities

K-eco' Human Rights Management System



Internalization of Human Rights Management

Response to Human Rights Issues

In order to address human rights violation issues such as sexual harassment and workplace bullying, K-eco has strengthened regulations and improved the system, led by the CEO. This effort resulted in higher awareness of human rights and gender sensitivity and no sexual misconduct.

Response to Human Rights Issues

Classification	Improvement efforts	Performances
Enhancement of regulations	<ul style="list-style-type: none"> (Sexual harassment) Enhancing disciplinary standards (Prohibition of secondary damage) Stipulating the prohibition of secondary damage related to sexual harassment and assault and conducting special human rights education (Workplace bullying) Stipulating the prevention, handling, and disciplinary standards with regard to workplace bullying in employment regulation, 	<ul style="list-style-type: none"> Raising the awareness Increasing 5.6% in gender sensitivity level Zero sexual misconduct
Improvement of systems	<ul style="list-style-type: none"> (Operation of a committee aimed at eliminating sexual harassment and assault and workplace bullying) Preparing elimination plans by inviting outside experts (Anti-bullying TF) Operating a TF consisting of relevant departments (Audit Office, HR Dept. and Social Value Innovation Dept.) (PR of manuals) Enhancing manuals to handle misconducts and distributing them to all employees (Mandatory electronic pledge) Making all employees pledge on eliminating sexual harassment and bullying 	

Training on Human Rights

In order to respond to human rights issues and prevent human rights violations in advance, it is important to spread a culture of respect for human rights to all employees. To this end, K-eco provides all employees with customized human rights trainings through online channels and reinforces PR activities companywide.

Performance in Human Rights Training

Prevention of 4 forms of violence and harassment	Specialized training tailored to managers
3,502 persons completed the training.	214 persons completed the training.
Prevention of recurrence	Information on the concept, criteria, and case of sexual harassment and bullying
All subjects completed the training	All employees



Human rights training for high-ranking positions

Improve Relief Procedure

K-eco has improved the relief procedures stipulated in the human rights management implementation guideline established in 2019 and regularly guides employees so that they can easily understand the procedures. For example, victims can find psychological stability by reporting the damage through the K Whistle Helpline, which is operated through outsourcing, and then receiving an investigation on the damage under the presence of a reliable officer. In addition, we not only ensure separation from the assailant, strict confidentiality, and paid leave for psychological stability, but also provide reassuring lawyers to the reporter and help overcome the fear of secondary damage by consulting with external professional agencies.

Improve Human Rights Sensitivity in Local Communities

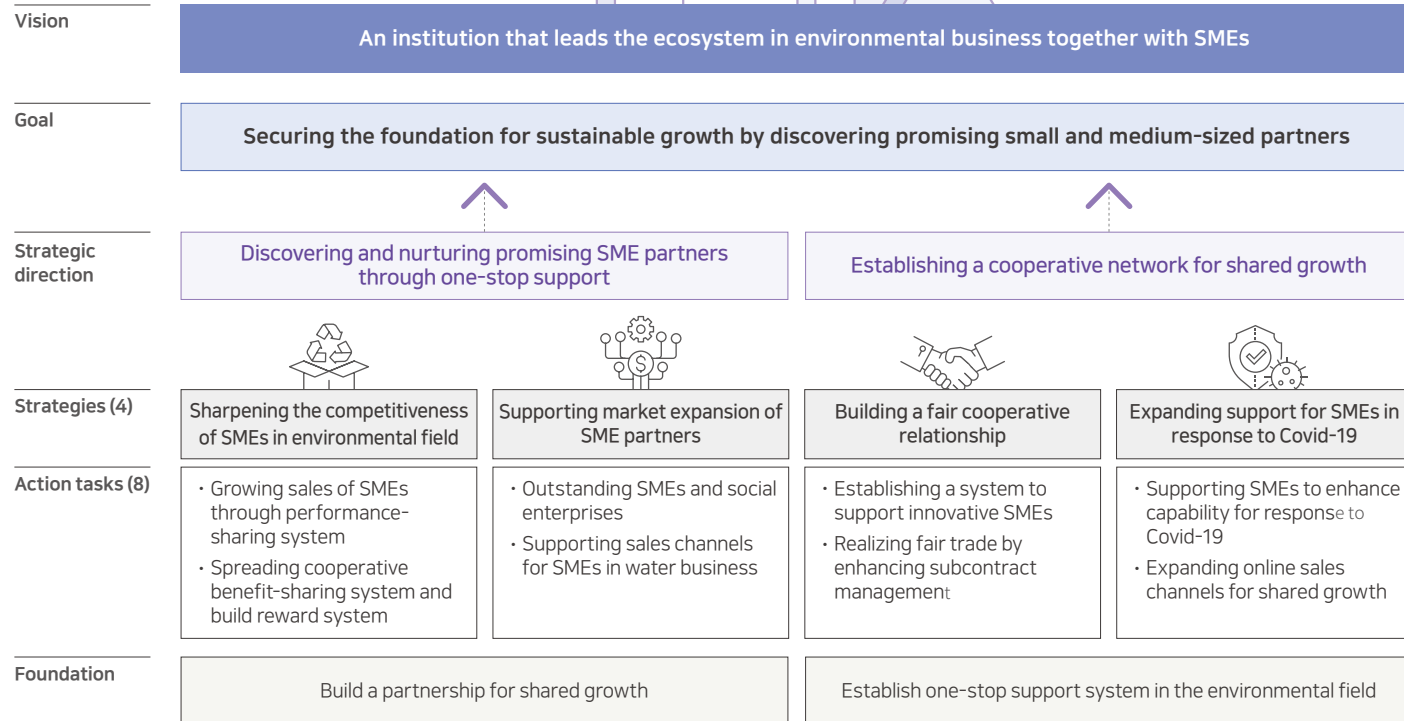
We strive to raise the awareness of human rights in local communities as well as to internalize human rights management to our employees. By organizing the Incheon Regional Management Council, we share current issues and cases of human rights management with local people and disseminate human rights management within the region. In addition, by activating the operation of the Safe Work Council, we are working hard to ensure that our stakeholders are protected for their human rights in a safe working environment.

Shared Growth with Partners

Promote Shared Growth

K-eco pursues shared growth with SMEs and small business owners in the environmental field. To this end, based on a systematic shared growth strategy, we are promoting a plan to revitalize the environmental industry ecosystem and expand ESG management to our partners.

K-eco's Shared Growth Strategy



Discover and Nurture Promising SME Partners in Environment Field

Enhance Competitiveness of SME Partners

Activate Win-win Cooperation System

We pursue shared growth and the realization of social value by leveraging the infrastructure owned by K-eco and small and medium-sized partners to strengthen cooperation in developing product and technology and improving function and process. As part of that, we have operated the Performance Sharing Deliberation Committee online due to Covid-19 and made efforts to revitalize performance sharing

and win-win cooperation systems. In particular, the performance-sharing system, in which 29 cases were registered in 2020, contributed to creating SME sales of KRW 4.4 billion, an increase of 46% from the previous year, based on joint technology development and cooperation. In addition, the number of registrations for the cooperative benefit-sharing system increased from only one in 2019 to 10 in 2020. As a result of these efforts, K-eco achieved the "Excellent" rating, the highest level, in the shared growth evaluation for the second year in a row in 2020 following 2019.

Develop Eco-friendly Smart Eco-factory

The demand for a new concept eco-friendly smart eco-factory that minimizes pollutant emissions and maximizes energy efficiency is rapidly increasing. In response, K-eco has been proactive in encouraging the transition to the eco-friendly smart factory by providing funds to SMEs with factories. In 2020, a total of KRW 9.8 billion was provided to 11 factories. By 2022, we plan to invest KRW 100 billion in 100 manufacturing plants that emit a lot of pollutants to promote conversion to eco-friendly manufacturing plants.

Policy to Foster Eco-friendly Smart Factories

Classification	2020	2021	2022
Supports	Support up to KRW 1 billion per company and promote this project	Support 30 factories (KRW 30 billion) and disseminate this project	Support over 60 factories (KRW 60 billion) and establish of this project
Goal	Support of KRW 9.8 billion to 11 factories	Expansion of smart eco-factory	Environmental protection and competitiveness enhancement

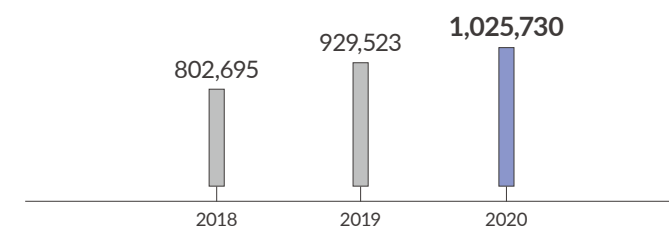
Support for Sales Channel Expansion of SME Partners

Shared Growth Mall

SMEs have had difficulties in expanding their sales channels as the government-led purchasing consultations and events have been reduced due to the Covid-19 pandemic. In response, K-eco operated the Shared Growth Mall to help them expand online sales, contributing to generating sales of KRW 286 million. As a result, product purchasing from SMEs increased around 10% over the previous year.

Product Purchasing from SMEs

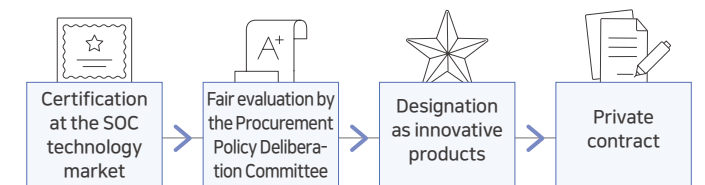
(Unit: KRW in millions)



SOC Technology Market

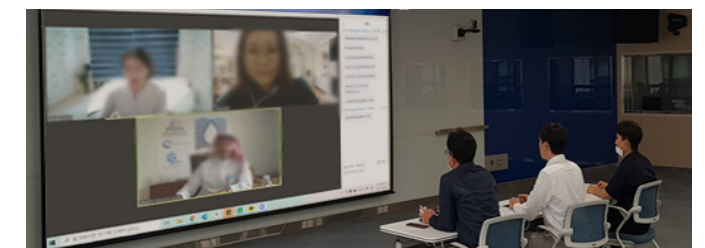
K-eco is operating the SOC Technology Market led by public institutions to support the expansion of sales channels for SMEs who have difficulties in developing new markets even with innovative technologies. We also disclose K-eco's intellectual properties (patents, utility model rights, etc.) on the technology market platform and SMEs can use them to promote commercialization. If a SME product certified in the SOC Technology Market is designated as an innovative product through the evaluation of the Procurement Policy Deliberation Committee, it is listed on "Innovation Marketplace" of the Public Procurement Service to be recognized as a subject of private contracts. The SOC Technology Market is expected to greatly contribute to the expansion of the market for SMEs.

Private Contract Process for Innovative Products



Field-Test Support for Export Expansion

K-eco promotes joint technology development with SMEs with promising water technologies, while actively helping them advance overseas. Most overseas buyers require local field test verification when purchasing water technology and related products. However, since 85.5% of domestic water companies are small, K-eco's policy support is necessary for their overseas expansion. Accordingly, we selected two promising SMEs with water technology and supported local field test cost (KRW 303 million) and technology development consulting. If they win the orders successfully, it is expected to generate approximately KRW 26.7 billion in sales by 2023. In addition, we held an online consultation meeting for buyers from Jordan, Turkey, and Israel to support promising domestic water companies in developing overseas markets.



Online consultation for procurement

Contribute to the Development of Local Communities

Leadership in Shared Growth

Build a Fair Trade Culture

K-eco is operating the Subcontractor Keeper program and win-win payment system to improve the subcontract transaction culture and protect SMEs. The coverage of Subcontractor Keeper program was extended to construction projects worth at least KRW 30 million in 2020 beyond KRW 50 million in 2019. It also improved direct payment effect for small-scale construction projects. We not only trained subcontractors about the use of win-win payment system but also issued the win-win bonds of KRW 2.3 billion, an increase of 9% year-on-year, by improving the bond issuance system, preventing non-payment in advance and helping partners secure liquidity.

Operation of the Subcontractor Keeper¹⁾ Program

Introduction (2014~2016)	Expansion (2017~2019)	Application to small-scale construction (2020~)
<ul style="list-style-type: none"> Recommendation for use (estimate KRW 8.2 billion) Unlinked with Korea On-line E-Procurement System 	<ul style="list-style-type: none"> Sign on MOU between K-eco and Public Procurement Service Expand compulsory targets (KRW 8.2 bil. - KRW 5.0 bil. - KRW 3.0 bil. - KRW 50 mil.) 	<ul style="list-style-type: none"> Construction projects worth at least KRW 30 million Improvement of direct payment for small-scale construction projects

Protect the Rights and Interests of Partners

K-eco has improved the system that checks overdue payment of wages and construction costs as well as subcontract management process to protect the rights and interests of partners. In addition, we made it compulsory for all ordered projects to create an "unfair contract checklist" so that we can check in advance whether there are any unfair clauses in the tasks and contract terms. Clauses for risk management with regard to safety control and disaster prevention also added to check whether safety-related costs are properly reflected in the construction project costs.

Support the Response to Covid-19

We have promoted economic and administrative supports to help SME partners overcome the Covid-19 crisis. The bid deposit, which had been at least 5% of total bid amount, was decreased to 2.5% and contract deposit also fell from at least 10-15% to 5-10%, thereby easing the economic burden of bidders. Other activities include skipping contract

screening for legitimate orders to swift cashflow to private sectors, reducing the number of bid failure from twice to once eligible for private contract, and shortening payment deadline from 7 to 3 days.

Support ESG Management of SME Partners

K-eco is proactive in disseminating ESG management to partners by supporting carbon reductions facilities and evaluating activities for environment, ethics, and human rights when selecting partners. We also support their safety management activities to prevent safety accidents.

Support for ESG Management of SME Partners

Classification	Supports	Details						
Environment	Support for GHG reductions facilities to companies subject to GHG and energy target management	<ul style="list-style-type: none"> Support for the installation of GHG reductions facilities Scale: Support 50% of investment cost as subsidy Estimated GHG reductions (Unit: tCO₂e) <table border="1"> <thead> <tr> <th>2020</th> <th>2019</th> <th>2022</th> </tr> </thead> <tbody> <tr> <td>1,208</td> <td>798</td> <td>2,982</td> </tr> </tbody> </table>	2020	2019	2022	1,208	798	2,982
	2020	2019	2022					
1,208	798	2,982						
Evaluation on green management when selecting a main bank (responsibility management for climate environment)	<ul style="list-style-type: none"> Assign 5 points Use of the financial support system for green company (1 point) Declaration of coal-free management (1 point) Membership in green finance initiatives (1 point) Contribution to environment field (2 points) 							
Social responsibility	Reflection when selecting partners	<ul style="list-style-type: none"> Deduction of points Violation of minimum wage, delayed payment of wages, non-compliance with labor improvement 						
	Reflection in contract terms	Added participation in human rights protection under special conditions of fair competition and integrity contract						
Safety	Disaster management	Best safety management practice contest including partners						
	Safety management at workplace	<ul style="list-style-type: none"> Expansion of PTW companywide Regular, frequent, and special inspection Expansion of risk assessment companywide Expansion of the scope of work suspension request 						
ESG	Business agreement with Incheon ESG Supporters (Apr. 29, 2021)	<ul style="list-style-type: none"> Establishment of ESG management of Incheon-based companies E: Eco-friendly R&D tasks and carbon neutrality sector S: Worker safety management & shared growth program development G: Development of regulations at field, system improvement, linkage with FSC 						

Fulfill Social Responsibility

K-eco contributes to the development of local communities by pursuing the goal of creating a comfortable and safe living environment for all people. To help local communities overcome difficulties such as sluggish economy and unemployment caused by Covid-19, we are fulfilling our social responsibility as a public institution based on three major strategic tasks for co-prosperity.

K-eco's Social Responsibility Strategy

Goal	Creating a comfortable and safe living environment for all people			
Strategy	Linkage with environmental competence	Contribution to economic revitalization	Resolution of social issues	
Co-prosperity with communities	Nurturing local talents	Revitalizing local economy	Expanding participatory projects	
Target	Vulnerable class	Children and youth	Local communities	Global

K-eco's Social Contribution

K-eco promotes social contribution activities required for local communities by utilizing its environmental capabilities.

Spread Eco-friendly Culture

Publish and Distribute "Earth Keeper"

K-eco published and distributed an environmental playbook named "I'm an Earth Keeper." so that children can develop eco-friendly lifestyle habits together with their parents. The playbook is composed of contents such as learning about my lifestyle, empathizing on environmental issues such as climate change, and guiding good lifestyle habits such as separate discharge. On top of that, K-eco is making a concerted effort to disseminate eco-friendly culture across local communities.



Earth Keeper

Green Campus Environment Club Support Project

Through the "Green Campus Environment Club Support Project," K-eco has selected 32 clubs and supported expenses for promoting environmental activities. This project serves as an opportunity and foundation for university students to directly design and implement eco-friendly activities to build a sustainable green campus, while spreading eco-friendly culture. Through this project, K-eco will raise their awareness of environment and continue to support university to play a central role in spreading eco-friendly culture.

CASE

Activities of Green Campus Environment Clubs

"CCTV in Action" Club

- A project to donate vegetables grown by club students to local communities through a program called Indeok Nongsan
- Vegetables such as lettuce and perilla leaves grown without pesticides by university students are delivered to the elderly through the nearby Wolgye Social Welfare Center.

"I have a new awareness of the environment through these activities. I want to continue to carry out various campaigns to promote environmental issues in cooperation with local communities."

"With-Us" Club

- Conducting various eco-friendly activities such as development of a chatbot related to carbon dioxide emission, environmental education for elementary and middle school students and the disabled, coping with fine dust, waste collection around Nam River, and creation of the GNU Onsaemi-ro

"We will continue to promote activities to create a green campus and spread eco-friendly culture."

¹⁾ As a system established by the Public Procurement Service to improve the unfair subcontracting culture such as non-payment and delay of subcontract payments in public construction and software business service contracts, the ordering organization should manage and monitor the flow of billing and payment between subcontractors in an electronic way.

Support Solar Power Generation to Schools in Island

K-eco signed a business agreement with nine organizations including Incheon City, Incheon Southern Office of Education, Incheon Port Authority, and KEPCO to promote the "Energy Independent School Embracing the Sun" project. This project is to provide scholarships to local students by utilizing the savings in electricity bills and sales of electricity and carbon credits generated by distributing solar power generation facilities to schools in island areas. We expect this project to contribute to supplying stable electricity to local schools and providing scholarships worth about KRW 6 million per year (KRW 140 million for 25 years).

It is also expected to reduce the cost for air quality improvement by KRW 70 million per year and to attain the effect of replacing fossil fuel imports by KRW 10 million per year. K-eco endeavors to nurture environment-friendly children as well as the government-led Green New Deal project through collaboration with related institutions, thus realizing social value for co-prosperity with local communities.

Global Social Contribution

Donation of Clothing to Developing Countries

K-eco's volunteer group visited a slum area of the Bantar Gebang in Indonesia to carry out activities for improving local children's educational environment (making computer classrooms, repairing old facilities) in 2019. In 2020, due to Covid-19, global social contribution activities were replaced with clothing donations to developing countries instead of local visits. Employees working at the headquarters and six regional headquarters participated in collecting reusable clothing and old uniforms and those were donated to developing countries. Some of the clothes donated were sold at local bazaars, and the proceeds were used to purchase hygiene products and art education for local children.

A total of 1,456 K-eco employees directly sorted the 5,662 items collected and the social contribution fund (called Cheonmi Manmi¹⁾) was used for the cost of laundry, packaging, and customs clearance. We expect that donation of unused clothing will create the effect of resource circulation and reductions of carbon emissions. Considering that it is difficult to visit overseas regions due to Covid-19, we will continue to promote global sharing activities that fit the characteristics of K-eco's business.

1) Voluntary fundraising activities that donate changes less than KRW 1,000 or less than KRW 10,000 of an employee's monthly salary to a social contribution fund

Participate in Overcoming Covid-19 Crisis

We fulfill our social responsibilities for local communities through diverse activities including revitalization of local business, partial return of salary, donation of masks and protective clothing, participation in Good Rent Movement, and free meal service. Supports for flood victims and socioeconomic enterprises are also promoted to realize social value as a public institution.

Activities to Overcome the Covid-19 Crisis

	Support for local economy	<ul style="list-style-type: none"> • Payment of incentives with Onnuri Gift Card • Designation of every Thursday to go to traditional market (shuttle bus service)
	Support for flood victims	<ul style="list-style-type: none"> • Fundraising for flood restoration in the rainy season • Forming an emergency technical support team for environmental basic facilities
	Support for vulnerable class	<ul style="list-style-type: none"> • Support for free meal event • Support for PCS for emergency training
	Support for socioeconomic enterprises	<ul style="list-style-type: none"> • Delivery of the fund for revitalizing social enterprises in Incheon (I-SEIF)
	Other donations and volunteer works	<ul style="list-style-type: none"> • Partial return of salary, donation of masks and protective clothing • Support for quarantine activities, Good Rent Movement • Voluntary financial donation by employees

Improve Community Convenience

Sharing of Facilities and Resources

For better convenience of local communities, K-eco shares its public facilities and resources. For example, we have built a mini park, cafeteria, and civil affairs consultation room on the idle site of the Busan Ulsan and Gyeongnam Headquarters office building for the convenience of citizens, local residents, and visitors. Parking spaces for the disabled and pregnant women have also been expanded. In collaboration with local governments and the Education Promotion Agency, we are providing free environmental education contents such as photos of winners of the Environmental Love Contest and animations in terms of environment to elementary schools. These efforts resulted in winning the Minister Prize of Interior and Safety at the best space innovation practice contest in 2020.

Expand Information Sharing

To build a social environment of cooperation and coexistence, we have been proactive in sharing public data. Particularly, in 2019, we improved the deficiencies in civil complaint information and laid the foundation to preemptively provide high-quality information services. In addition, the APIs¹⁾ on electric vehicle charging stations and fine dust alert data were opened to the private sector to support startups. As a result, K-eco achieved "Excellent" grade in comprehensive information disclosure evaluation by scoring 91.0 points and 1st rating in public data quality management evaluation.



Evaluation on public data quality management level

1st rating

Comprehensive evaluation on information disclosure

91.0 points, excellent level

Contribute to Economic Revitalization

Nurturing of Environmental Experts

K-eco nurtures talents who can lead the environmental field through strategic alliances with other public institutions and universities. We operate a specialized graduate school that educates on climate change, waste-to-energy conversion, and integrated environmental management. Trainings for the development of expertise in the international environment, greenhouse gas, and refrigerant recovery are also provided. Particularly, the specialized graduate school, launched in 2020, will contribute to fostering experts who can manage the integrated environment of large business sites. Thanks to this effort, K-eco won an award for international cooperation from GGGI²⁾ and the EBI Award in the climate change business sector. We will do our best to lead to job creation in the local community, not satisfied with nurturing environmental experts.

Nurturing of Experts in Environment Field

Classification	Total (persons)	Operation of specialized graduate schools			Professional manpower training		
		Climate change	Waste-to-energy	Integrated environment Mgt.	International environment	Greenhouse gas	Refrigerant recovery
Nurturing	478	25	136	35	15	107	160
Recruitment	115	17	20	New	10	51	17

Revitalize Local Economy

Support for Youth Startup

In order to address the youth unemployment issue and lay the foundation for creating local jobs, K-eco is working hard to discover local young entrepreneurs. For example, we selected 3 teams through the Incheon-based Young Entrepreneur Contest and provided them with startup support fund of KRW 10 million by utilizing the social contribution fund raised from employee salaries. In addition to financial support, consulting and testbed service and business space have been provided to boost youth startup.



Development of coffee foil upcycling plastic materials and products

Best

Production of eco-friendly ice packs made of jellyfish

Excellent

Production of tumbler using coffee grounds

Encouraged

1) API (Application Programming Interface): Language or message type that is used for communication operating systems and application programs
2) GGGI: Global Green Growth Institute

Support for Companies Residing in the Water Business Cluster

K-eco contributes to the vitalization of local economy by supporting the growth of companies residing in the water business cluster. In order to alleviate their economic burden caused by Covid-19, we participated in the Good Rent Movement to provide free rental support of about KRW 200 million to 64 companies and KRW 39 million for water technology experiment and analysis for free. On top of that, with the aim of making Daegu as a leading city in water business, we have focused on cultivating five companies with promising water technologies by delivering technical advice from experts in industry, academy, and research sectors. Expenses for R&D and IP registration worth KRW 220 million were also supported and three performance-sharing projects were registered. Three of the participating companies were selected as the leader of the "Water Industry Project Lab Competition" hosted by the Ministry of Environment and received approximately KRW 500 million. In addition, the Residing Companies Council, Samsung Engineering, and local governments signed a business agreement to support the entire business process, including R&D of water technologies, demonstration, commercialization, and overseas expansion of small- and medium-sized water companies.

Support for Socioeconomic Enterprises

Build an Eco-friendly Energy Town

K-eco has been promoting the eco-friendly energy town development project in which local residents participate to simultaneously solve environmental and energy issues. In particular, this project pursues developing a new profit model that reflects the opinions of local people and expanding the scale through the collaboration with external organizations. Considering the local location conditions and the technical capabilities of the residents, we built a smart fish farming town in Hadong-gun, which is located on the coast, and a smart livestock town in Hwacheon-gun, which has livestock breeding technology. Moreover, the scale of financial support was expanded from KRW 6.0 billion to KRW 11.4 billion by capitalizing on the Farming and Fishing Village Win-Win Cooperation Fund jointly raised with Korea Southern Power located in Hadong-gun, maximizing the project impact. We expect this project to create 23 local jobs and profit of KRW 2.2 billion annually.



Operate an Online Shopping Mall for K-eco Employees

An online shopping mall dedicated to K-eco employees is operating to promote purchasing of products from socioeconomic enterprises. This shopping mall has about 130,000 products including office supplies manufactured by social economy enterprises. To ensure product quality, we manage shoppers through an evaluation committee consisting of at least 5 persons and also operate a website to promote the products. The shopping mall contributed to increasing about KRW 475 million in annual sales of socioeconomic enterprises and creating jobs.



Run an Environmental Café

K-eco has been operating an environmental café by capitalizing on idle spaces together with social enterprises. The environmental café contributes to creating jobs for the underprivileged and boosting business of social enterprises. Through the café, two new jobs were created for the severely disabled, and the use of 10,000 disposable cups was also reduced.

Utilization of Idle Space in Regional Head Office Building

Classification	Details
Support for space and budget	<ul style="list-style-type: none"> Providing idle space on the 1st floor of Chungcheong Environment HQ building free of charge Supporting fund for café interior renovation, equipment purchase, etc. (KRW 79 million)
Revitalization of social enterprises	<ul style="list-style-type: none"> Commissioned operation of the café to social enterprises Hiring disabled baristas through collaboration with the Employment Agency for the Disabled Support for sales channels of products produced by the severely disabled
PR of environment	<ul style="list-style-type: none"> Operation of zero-disposable café, promotion of resource circulation and added value creation by collecting coffee grounds and developing recycling businesses
Facility sharing	<ul style="list-style-type: none"> Opening café and sharing convenience facilities with local residents and visitors

Address Social Issues

Engage in Local Communities

Collaboration for Resource Circulation

With the increase in single-person households and Covid-19 pandemic, fresh food delivery service is on the rise and the use of ice packs and packaging containers is also sharply growing. Accordingly, microplastics are emerging as a critical environmental issue in local communities as well. To address this issue, K-eco has been focusing on developing models for ice pack reuse through public-private cooperation and discovering customers. This project resulted in preventing the generation of 60 tons of microplastics in advance, saving KRW 110 million in treatment, and creating 35 new jobs. It was also selected as the best government innovation practice and received the Presidential Prize. In 2021, it was selected as a citizen-participating preferential task by the Ministry of Economy and Finance.

CASE

Fostering a village business "Oullim Village Community" as a social enterprise (applied in 2021)

1. Engage in volunteer works

- "Oullim Village Community," a civic group in Busan, participated in ice pack reuse campaign to clean and classify ice packs.

2. Support the growth of social enterprises

- Developed education programs for elementary and middle school students (Development of air freshener DIY kit made of waste ice pack and support for patent application) in alliance with the civic group
- K-eco supported the civic group to grow into a social enterprise by enhancing their competence and operating a ice pack recycling experience class in connection with Busan Office of Education

3. Support sales channels

- Delivered items needed for ice pack cleaning (around KRW 10 million)
- Laid a foundation for becoming a social enterprise and won the Minister Prize of Environment at the social economy BP contest



Ice Pack Reuse Council

Subject	K-eco (control tower)	Private sector	Local government
Role	Model development, product and manpower support, problem solving, performance analysis, etc.	Sorting, washing, drying, packaging of ice packs (Oullim Village Community (civic group), Hwameyong-dong, Busan, etc.)	Installation and monitoring of collection boxes, citizen participation, linkage with desired jobs, etc.

Establish a Win-win Cooperation System

In order to resolve waste and odors, which are chronic environmental problems in Incheon where its headquarters is located, and nurture local SMEs in environment sector, K-eco has established a win-win cooperation system in which central and local governments and private companies can participate. Through the system, a total of KRW 7.2 billion was supported to 27 SMEs residing in industrial complex with frequent complaints.

Green Innovation Win-win Cooperation System

Subject	MOE	K-eco	Incheon City	SK Incheon Petroleum
role	Administrative and financial support for installing innovative facilities for SMEs, performance expansion, etc.	Support for investment costs (20%), low-interest loan, discovery of targets, etc.	Support for investment costs (20%), low-interest loan, discovery of targets, etc.	Fostering SMEs, applying excellent technologies and facilities to business field, etc.

Inspect the Status of Separate Discharge of Recyclables

K-eco promoted the inspection on the status of separate discharge by recyclable item together with citizens to spread social awareness of the importance of proper separate discharge. A total of 110,000 households in 77 complexes participated in the contest for separate discharge of recyclables hosted by a council consisting of K-eco, local government, civic groups, and recycling businesses, 12 complexes of which received awards (KRW 13 million).

The number of participating households increased 175% over the previous year. This event was selected as a best practice for innovation and received a commendation from the President of the Audit and Inspection Service.





SOLIDIFYING SUSTAINABILITY MANAGEMENT SYSTEM



G_Establish Sustainability Management System

K-eco is building an ESG management system based on the trust of all stakeholders, including employees and the public, and is promoting proactive risk management and ethical management.



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Corporate Governance

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Ethical Management

Establish Sustainability Management System



K-eco is committed to strengthening the practical role of the BOD, operating a company-wide risk management system, and expanding ethical management, thereby resolving uncertainties in business and promptly responding to potential risks.

1 Key issues	Issue	Linked with UN SDGs	Linked with UNGC principles
	<ul style="list-style-type: none"> Establish and operate a transparent decision-making structure Ethical management and anti-corruption 	Reduced inequalities Peace, justice, and strong institutions	6. Businesses should eliminate discrimination in respect of employment and occupation. 10. Business should work against corruption in all its forms, including extortion and bribery.
	<ul style="list-style-type: none"> Enhance occupational safety and health (workplace, partners, etc.) and public safety Establish a risk management system for major businesses Prevent worker damage and improve labor conditions Improve decision-making structure for ESG management Create economic value through major businesses Secure future growth engines 	Good health and well-being Decent work and economic growth	

2 Major outcomes	Icon	Value	Description
		11 times	Regularized the BOD meeting and expand convocation (twice added)
		31%	Increased the ratio of female executives (doubled)
		Highest	Privacy protection level for 3 years in a row
		Excellent	Anti-corruption policy evaluation for two years in a row

3 Goal (by 2024)	Target	Current
"Excellent" in the governmental customers satisfaction	77 points in information security assessment	1 st grade in comprehensive integrity

Corporate Governance

Composition and Operation of the BOD

Composition of the BOD

At K-eco, the BOD is the supreme decision-making body that deliberates and concludes critical agendas in management. As of November 2021, the BOD consisted of 14 members of the CEO, a standing auditor, 5 executive directors, and 7 non-executive directors. K-eco conducts an open recruitment that does not discriminate against gender, religion, race, nationality, etc. when selecting executives, ensuring fair and transparent appointment process. The standing auditor is appointed by the President after deliberation by the Public Institutions Steering Committee and recommendation of the Minister of Economy and Finance. Non-executive directors are appointed by the Minister of Environment through the recommendation of the Executive Recommendation Committee.

Operation of the BOD

In 2020, the BOD was convened 13 times to deliberate 29 resolution items and 8 reporting items. In principle, the Board of Directors meets on the last Friday of every month. The number of regular BOD meeting was expanded to 11 times from existing 9 times a year. In order to formalize management proposals that had been made informally, the written questionnaire system was introduced from the 13th BOD meeting. Our mid- to long-term management goal and strategies, and new core values were announced through the resolution of the BOD and a supplementary budget for job creation was also decided. The contents and results of the BOD meetings are disclosed on our website and "ALIO," a management information disclosure system for public institutions. In 2021, we will focus on increasing the participation rate of BOD members in view of the fact that the BOD meeting will be held non-face-to-face and continuously providing information to non-executive directors to raise their understanding of our business, thereby increasing the practicality of the BOD meeting.

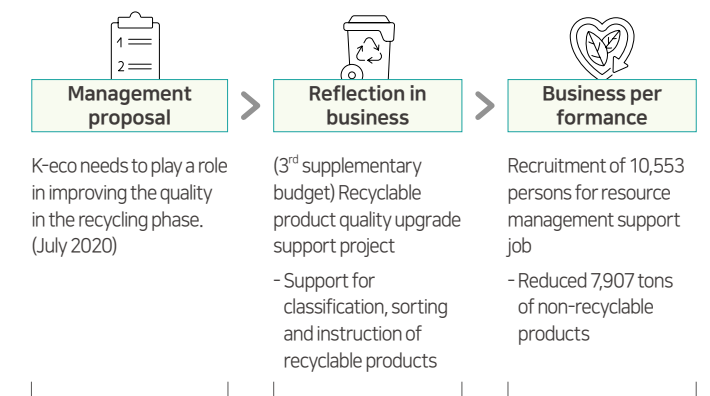
BOD Meeting

Classification	Unit	2018	2019	2020
BOD meetings held	Times	16	15	13
Determination agendas	Items	30	30	29
Reporting agendas	Items	3	12	8
Directors' attendance rate	%	78	79	77
Non-executive directors' attendance rate	%	69	69	65

Strengthen the Expertise and Diversity of Non-executive Directors

We are striving to secure the professionalism and diversity of non-executive directors. In particular, the field of expertise, which was previously divided into media and environment, was subdivided into media, climate, water, and energy to further focus on enhancing the professionalism in environment sector. Going forward, we will also reinforce support for the activities of non-executive directors to expand the use of their expertise and encourage their participation in management.

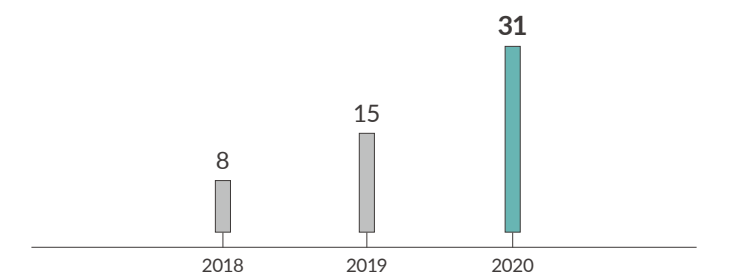
A case of decision-making of Sustainability (ESG) Management



Gender Equality in the BOD

K-eco had appointed a female BOD member for the first time in 2019. In 2020, a total of four female executives joined the BOD with the expansion of female executive rate to 31%. To secure more female BOD members, we eliminated discriminatory factors against female applicants in the operation of the Executive Recommendation Committee. We will continue to expand the female executive rate to enhance gender equality and diversity.

Female Executive Rate



BOD Members (as of November 2021)

Classification	Name	Gender	Position	Career	Tenure
CEO	Jang Jun-young	Male	CEO of K-eco	<ul style="list-style-type: none"> Advisory Member, the Peaceful Unification Advisory Council Chairman, Korean Federation for Environmental Movement President, SUDOKWON Landfill Site Management Corp. President Roh Moo-hyun's secretary 	Dec. 04, 2018 – Dec. 03, 2021
Standing Auditor	Lee Se-geol	Male	Auditor	<ul style="list-style-type: none"> Policy Secretary, Seoul Metropolitan Government Chairman, Korea Environment Association Secretary General, Korea Federation for Environmental Movement 	Mar. 15, 2021 – Mar. 14, 2023
Executive Director (Official member of the government)	Park Chan-ho	Male	Head of Management Planning HQ	<ul style="list-style-type: none"> Secretary General, Green Patrol Measurement Technology Development Project Unit Secretary General, Korea Waste Association Policy Adviser, Ministry of Environment's Office 	Mar. 22, 2021 – Mar. 21, 2023
	Ryu Seung-do	Male	Head of Climate & Air Quality Management HQ	<ul style="list-style-type: none"> Director of Environmental Health Research Dept., NIER Manager of Environmental Health Research Dept., NIER Researcher of Noise & Vibration, Air Research Dept., NIER 	Mar. 22, 2021 – Mar. 21, 2023
	Ryu Jae-cheon	Male	Head of Water Environment Management HQ	<ul style="list-style-type: none"> Head of Overseas Business Dept., K-eco Head of Global Business Dept., K-eco 	Jun. 12, 2020 – Jun. 11, 2022
	Kim Eun-sook	Female	Head of Resource Circulation Management HQ	<ul style="list-style-type: none"> Head of Resource Circulation Dept., K-eco Head of PR Office, K-eco Head of Waste Management Dept., K-eco 	Jul. 22, 2019 – Jul. 21, 2022
	Choi Cheol-sik	Male	Head of Environmental Facility HQ	<ul style="list-style-type: none"> Head of Eastern Metropolitan Area Env. Safety Check Dept., K-eco Head of Aquatic Ecosystem Facility Dept., K-eco Head of Water & Sewerage Business Dept., K-eco 	Sep. 27, 2021 – Sep. 26, 2021
Non-executive Director (Appointed member)	Kim Beop-jeong	Male	Head of Climate & Carbon Policy Office, MOE	<ul style="list-style-type: none"> Head of Climate & Carbon Policy Office, MOE (current) 36th Administrative Examination Head of Planning and Coordination Office, MOE Air Environment Policy Officer, Climate and Air Policy Officer Secretary General, National Climate & Environment Conference 	Jun. 16, 2021 – End of tenure
	Kang Wan-ku	Male	Social Budget Officer, MOEF	<ul style="list-style-type: none"> Social Budget Officer, MOEF (current) 36th Administrative Examination Chief Secretary, Deputy Prime Minister's Office, MOEF Policy Adviser, Deputy Prime Minister's Office, MOEF Secretary General, Social Security Council under MOHW 	Jul. 27, 2021 – End of tenure
	Lee Yun-seop	Male		<ul style="list-style-type: none"> Head of Planning and Coordination Office, MOE Deputy Director, Environment Policy Office, Blue House Secretary of Water and Sewerage Bureau, MOE 	Oct. 05, 2020 – Oct. 04, 2022
	Min Man-ki	Male	Co-presentative, Green Transport	<ul style="list-style-type: none"> Co-presentative, Green Transport (current) Standing Auditor, Seoul Metro Director/Co-presentative, Green Transport 	Oct. 05, 2020 – Oct. 04, 2022
	Lee Eun-young	Female	Head, Human & Data	<ul style="list-style-type: none"> Head, Human & Data (current) Executive Officer, President's Office of Opinion Polls Adjunct Professor, Sungkonghoe University Head, Korean Social Opinion Research Institute 	Dec. 16, 2019 – Dec. 15, 2021
	Park Hyun-jeong	Female	Vice President, Institute for Climate	<ul style="list-style-type: none"> Vice President, Institute for Climate Change Action Non-executive Director, Seoul Energy Corporation Programme Officer, UNFCCC Bureau 	Oct. 05, 2020 – Oct. 04, 2022
	Park Sook-hyun	Female	Head, Sustainable System Research Center	<ul style="list-style-type: none"> Head, Sustainable System Research Center (current) Research Fellow, Citizen Environment Research Institute Lecturer, Hyupsung University and Suwon University 	Oct. 05, 2020 – Oct. 04, 2022

Operation of Subcommittees

To further utilize the expertise of non-executive directors and strengthen their practical roles, we designated departments in charge of each subcommittee and promoted smooth communication. We also reorganized subcommittees, which had been divided into two sectors of future management and social value, into post-Corona, climate change response, and social value sectors in order to actively respond to pending issues. By doing so, we were able to achieve visible results such as creating more jobs through the recycling quality improvement support project and resource management supporter system.

Subcommittee Operation and Performances

subcommittee	Supported by	Activities and performances
Post-Corona Committee	Management & Planning HQ	<p>[Direct training] Special lectures on the era of post-Corona by non-executive directors to executive staff → Reduced projects with poor performance (70→3) by operating a TF dedicated to Covid-19 response</p>
Climate Crisis Response Committee	Climate & Air Quality Management HQ	<p>[Task review & advice] Review and advice on the task "laying the foundation for implementing global cooperation under the new climate system" [Preview of mid- to long-term management goals] Proposal of amendment resolution to raise GHG reductions target</p>
Social Value Committee	Audit Office, Business Innovation Dept.	<p>[Advice on integrity] Advice on improving integrity including discussion meeting by position and regular newsletter service → Increase of internal integrity (4th grade → 2nd grade)</p>

Board-level Employee Representative System

K-eco completed a labor-management agreement to introduce the Board-level Employee Representative System in June 2020 in accordance with the government's policy for improving the governance of public institutions. As a result, employee representatives have been attending and expressing their opinions since the 10th BOD meeting in October 2020. We intend to expand employee participation in management through prior review of their agenda and briefing sessions for union members.

Performance Evaluation and Compensation

Director's remuneration is set on an annual salary system in compliance with K-eco's remuneration regulation and consisted of job-based and performance-based salary. Remuneration type and amount is disclosed on our website and "ALIO," a management information disclosure system for public institutions, in a fair and transparent manner.

Remuneration of Directors

(Unit: KRW in million)

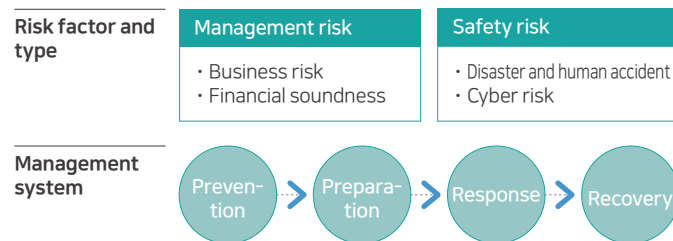
Classification	2018	2019	2020
President	142.6	151.6	178.8
Standing auditor	114.7	112.1	138.6
Executive director	114.1	119.2	143.6
Average remuneration of executive directors	118.2	125.2	151.4
	Male		
	Female	-	108.6
Non-executive director	16	19	20
Average remuneration per employee	58	60	60



Risk Management

Risk Management System

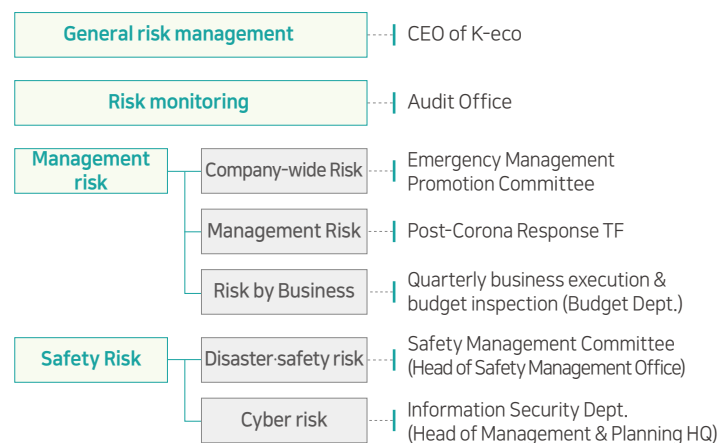
In order to minimize management uncertainty and promptly respond to potential risks, K-eco classifies possible risk factors into two categories of management risks and safety risks and operates management system by each category.



Company-wide Risk Management System

K-eco formed the Emergency Management Promotion Committee in 2020 to promote company-wide management risk management. In particular, the review of revenue recognition criteria and profit increase methods by each business was conducted. In the future, the committee intends to establish a financial risk management plan and promote continuous risk management by each business. We have obtained the ISO45001 certification in 2019 and KOSHA-MS certification in 2020 to ensure company-wide safety management system. In 2020, we established the "safety management responsibility plan," launched a control tower for disaster safety, and recruited safety management experts. In particular, "safety" is reflected as the top priority in the management policy of President to take safety root in our organization. Moreover, in accordance with the declaration of 2050 Net-Zero by the government, K-eco launched the Carbon Neutral Council in February 2021.

Company-wide Risk Management System



Emergency Management System in Response to Covid-19

K-eco formed the Covid-19 Emergency Response Headquarters and a Post-Corona TF to strengthen the quarantine system and expand supplies and manpower support to protect the safety of the people and revitalize the local economy. In addition, by adopting a labor-management joint declaration and crisis management report to respond to Covid-19, we are trying to overcome the national disaster together with our employees.

Labor-Management Joint Declaration to Overcome the Covid-19 Crisis

-
1. Recognize Covid-19 crisis and provide quality environmental services
 2. Relieve psychological anxiety factors within the organization
 3. Revitalize local economy and enhance partners' competitiveness
 4. Create a safe workplace through non-face-to-face culture
 5. Reinforce roles and responsibilities for Green New Deal policy and job creation

CASE

Proclaim the Introduction of Function Continuity Management System (Feb. 1, 2021)

K-eco proclaimed the introduction of "Function Continuity Management System" to maintain our regular functions even in unpredictable disaster situations such as Covid-19. This system aims to minimize damage and resume core functions within the preset recovery time when our core functions are interrupted due to disasters or accidents. To establish this system, we formed a dedicated department in September 2020, and performed impact analysis and risk assessment on jobs of all departments in case of a disaster. Upon the completion of this system, K-eco plans to additionally acquire the "Excellent Disaster Reductions Company" certification from the Ministry of Interior and Safety through continuous improvement activities.

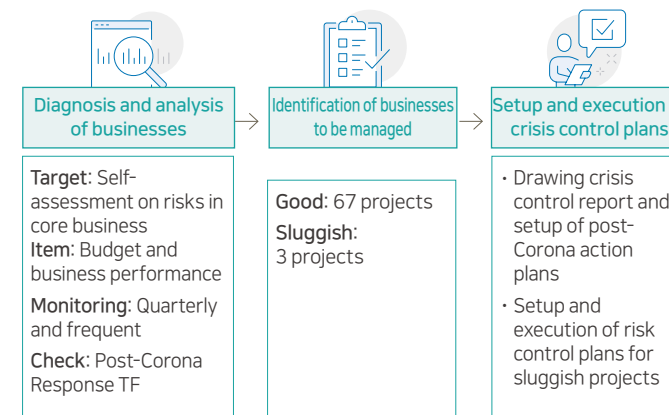


Management Risk

Core Business Crisis Management

K-eco is implementing crisis response management for key businesses in accordance with the crisis management plan. By identifying businesses to be intensively managed even under crisis situation through self-evaluation on risks, we seek to provide uninterrupted service in our core businesses.

Core Business Crisis Response Process



Result of Obstacle Factor Analysis by Project to be Managed and Performances

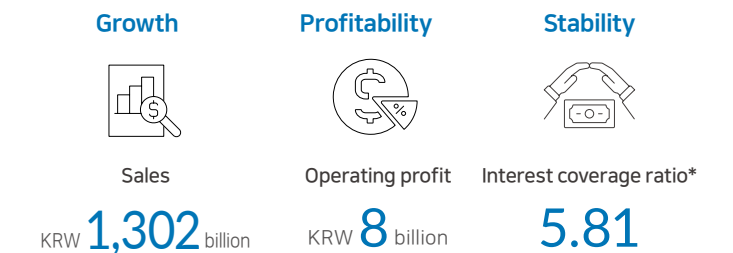
Classification	Obstacle factor	Performance
Diagnosis of hazardous chemical handling facilities	No inspection on facilities due to the postponement of periodic inspection	Concentration on safety diagnosis of hazardous chemical handling facilities to prevent chemical accidents during regular inspection grace period (251% of goal)
Promotion and education on environment	Closing of PR room due to social distancing	Distribution of environmental playbooks and online environmental education contents to kindergartens and elementary schools
Installation and inspection of low NOx burners and inspection	Restriction on inspecting sited subject to follow-up management	Non-face-to-face inspection of accreditation and performance confirmation of low NOx burners instead of on-site inspection

Financial Risk Management

K-eco's capital is impaired due to paying additional tax as a result of tax audit. However, we are making a concerted effort to minimize deficits through cross-department collaboration based on company-wide financial risk management system. We formed the Emergency Management Promotion Committee to discuss profit increase and budget saving measures including the realization of commission rates for facility installation and government-led research projects and to review performance check every month. It is possible to convert to net profit excluding additional tax of KRW 15.7 billion in 2020. The tax appeal litigation against the results of three tax audits in 2011, 2014, and 2020 is in progress and we've been working for early judgment and winning. Some of the additional tax levied in 2020 has been partially revoked. The corporate tax enforcement ordinance was amended so that government contributions used to acquire assets can be included in deductible expenses when calculating corporate tax, and this can be expected to reduce our corporate tax by KRW 2 billion per year.

Sales
KRW **1,302** billion

Financial Status



(Unit: KRW 100 million)

Classification	2018	2019	2020
Sales	10,790	11,843	13,019
Operating profit (loss)	(6)	86	80
Net profit (loss)	1.6	36	(117)

* Interest coverage ratio: As an indicator of the ability to perform interest payments on debt, a score of 1 or higher is evaluated stably.

Monitoring of Fair Accounting

To enhance accounting credibility, K-eco has established a multi-faceted monitoring system and is blocking accounting irregularities at the source.

Advancement of Fair Accounting Monitoring System

Classification	Details
Control Self-Assessment	Establishment of the CSA through e-audit system → Preemptive control of fraudulent spending → Incentive to high-performing department
Operation of accounting and financial management system	Operation of accounting and financial management system in connection with Hometax → Blocking of accounting errors
Audit on accounting settlement by the Audit Office	Securing reliability and independence of accounting by joint audit with independent auditors (twice a year)



Emergency Management Promotion Committee

Safety & Health Management Promotion System

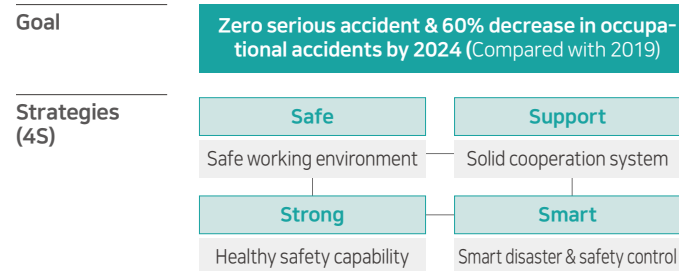


Safety Risk

Establish a Safety Management System

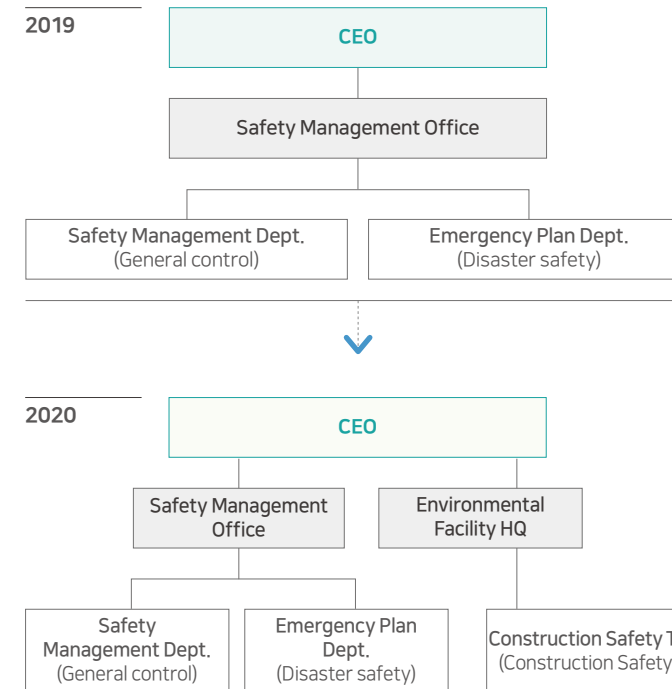
K-eco is striving to provide a safe environment for the public and employees by setting safety as its top priority and management policy. We distributed the safety and health management policy company-wide in January 2020 to raise employees' awareness of safety management and facilitate it for the training of executives. In addition, the personnel and budget within the dedicated organization were expanded to establish a safety and health management promotion system and to strengthen the disaster and safety management system. Going forward, K-eco will further strengthen its risk management system to achieve zero serious accident.

Safety Management Goal and Strategy



Establish an Organization Dedicated to Safety and Revamp Safety Management System

We are operating an organization dedicated to disaster and safety management under the CEO. In 2020, Emergency Facility HQ and Construction Safety TF were newly launched. In particular, the safety management organization was formed in a line-step structure to strengthen responsibility for safety management. The position of safety and health management director was upgraded to executive and head of regional headquarters and we designated safety officer by department.



Advance Safety Management System

As a result of steadily upgrading the disaster and safety management system, K-eco obtained a "good" grade in all risk assessment items by the Korea Occupational Safety and Health Agency. In 2020, the number of occupational accidents at K-eco was 27, a decrease of 47% from 51 in 2019 and there was no serious accident. In addition, we conducted preemptive and special safety inspections in the chemical safety field, and strengthened safety management for local water supply modernization projects.

Safety Management System and Major Performances

Classification	Disaster safety	Occupational safety
Prevention	· Upgrade the leader position (Dept. Head → CEO) · Designation of safety officers (8 persons)	· Introduce KOSHA-MS · Expand safety council
Preparation	· Eliminate risk factors by developing manuals tailored disaster type	· Resolve safety blind spots by advancing safety manuals and programs
Response	· Establish a reporting system including control tower operation	· Diversify safety check activity · Support safety activities
Recovery	· Emergency recovery of damaged facilities	· Establish accident handling, verification, and reporting system, minimize recurrence

Smart Safety Management System

K-eco became the first public institution to introduce the "smart work permit system." Smart safety management equipment has been expanded to 53 locations to proactively detect worker risks and prevent safety accidents and a pilot operation of a drone equipped with a speaker has also begun. In particular, we have developed and operated an AI-based safety helmet monitoring system, a remote support system for chemical safety management using IoT, and an automatic pre-processing system for environmental analysis through collaboration with SME partners. The laboratory hood monitoring system and IoT-based emergency calling were also introduced to ensure safety at laboratories handling hazardous chemicals.

Employee-centric Safety Culture

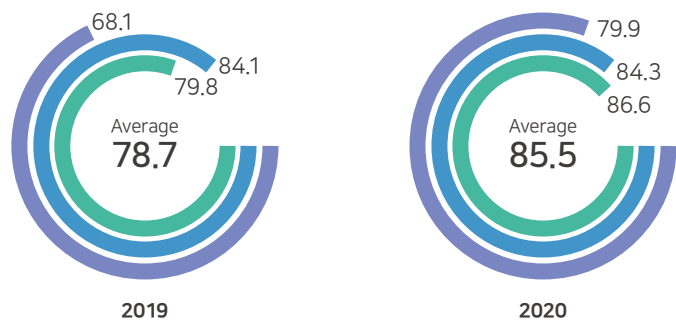
We are working hard to raise the awareness of safety among internal members, including business partners. In 2020, a survey was conducted on the level of safety management for workers of partners, which resulted in increasing 6.8 points compared to the previous year.

Safety Culture Education & Programs

01 Safety management contest including partners	02 Worker-driven safety accident prevention program
03 Executive-participating safety inspection and advice	04 Tailored safety training for the management and supervisors

Evaluation of Safety Management Activities

(Unit: points)



■ People (39 persons) ■ Partners (121 persons) ■ Employees (3,015 persons)

* Expert survey

Occupational Safety Voluntary Report Center

K-eco operates a channel to receive reports on unsafe facilities, unsafe work practices, and safety risks discovered during work. Workers can exercise the right to stop work when they sense a hazard and report the fact anonymously through this channel.

K-eco's Safety 119



Safety sticker: Information board, office, cafeteria, restroom



Safety badge: K-eco's field workers, contractors, partners' employees

Personal Information Protection and Cyber Security

Protection of Personal Information

K-eco has been taking the lead in protecting the rights of information subjects through intensive management of personal information by life cycle. As a result, we scored 94.68 points, higher than the average of 84.9 for public institutions, in the "Personal Information Protection Management Level Diagnostic Evaluation" of the Personal Information Protection Committee, obtaining the highest rating for three consecutive years.

Personal Information Management Process by Lifecycle



Major Policies

Classification	Details
Internal policy	Revision of personal information related regulations
Response capability	Dissemination of manuals for infringement response and disaster response
Strict inspection	Inspection on safety of personal information handling system
Awareness improvement	Training on information protection and PR

Cyber Security

We are responding to cyber security threats through continuous expansion and monitoring of information security infrastructure. In 2020, we focused on improving policies and systems and upgrading our employees' security capabilities to strengthen information security.

Cyber Security Management Items

Improve information security execution level	<ul style="list-style-type: none"> Improve information security policy and system Enhance cyber-attack response drill
Expand information security infrastructure	<ul style="list-style-type: none"> Establish intellectual security control system Enhance telecommuting security in response to Covid-19

Security Training

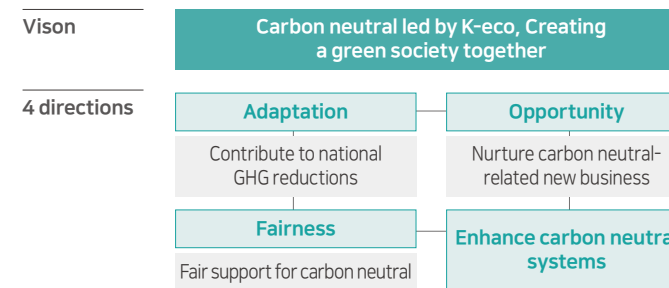
Classification	2019	2020
Collective training	4 times (1,134 persons)	10 times (2,862 persons)
Non-face-to-face training	-	1 lecture (3,031 persons)

Carbon Neutral Management

Response to Climate Crisis

K-eco declared "carbon-neutral management" in line with the government's "2050 Net-Zero" scheme to overcome the climate crisis and make company-wide efforts to transition to a carbon-neutral society. We will lead the transition to a carbon-neutral and decarbonized society by innovating our business portfolio with a focus on responding to the climate crisis. By doing so, as an organization specializing in climate and air management, we will fulfill our responsibilities to provide future generations with an environment free from climate crisis.

Carbon Neutral Management Strategy System



K-eco's Statement of Carbon Neutral Management



As a representative public institution leading the response to climate change and sustainable development in our society, K-eco pledges and declares as follows to achieve the 2050 Net-Zero scheme.

- We actively lead the nation vision "2050 Net-Zero" by realizing the establishment purpose of K-eco aimed at responding to climate change and reducing GHG.

- We create a decarbonization culture and realize net-zero by using renewable energy and eco-friendly transportation.

- We support various policies and technologies to induce companies and local governments to reduce GHG emissions and take the lead in developing low-carbon business and related ecosystem.

- We protect vulnerable industries and classes created in the process of carbon-neutral transformation and provide necessary support for industrial structure transformation.

- We communicate with customers, strengthen cooperation with companies, and spread our experience and technology to the world to form consensus on carbon neutrality.

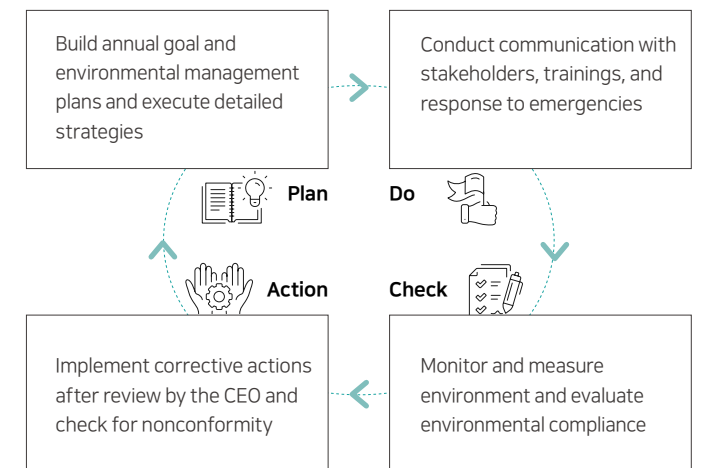
March 4, 2021
All employees of K-eco

Environmental Management

K-eco is committed to implementing environmental management in entire business process. We have been certified for planning, development, design, and supervision, evaluation, and management of environmental basic facilities and private environmental facility projects as well as planning, management, and informatization for policy support in the sewage sector. Based on the certifications, we will minimize environmental impact and lead eco-friendly business practice.

Environmental Management Promotion Process

PDCA Cycle for Environmental Management



Certification on Environmental Management System



Ethical Management

Ethical Management System

Under the vision of "Clean K-eco that sustainably grows based on the trust of the people," K-eco has been committed to implementing ethical management at the company level. In 2020, as a result of actively practicing ethical management based on the ethical management brand "Fall for the love of K-eco," internal integrity level reached 2nd grade, which is 2 grades higher than the previous year, and K-eco achieved "excellent" grade in the anti-corruption policy evaluation for public institutions. We will do our best to achieve the first grade in comprehensive integrity evaluation.

Ethical Management Promotion System of K-eco



Ethical Regulation

K-eco has established the Charter of Ethics, Ethics Management Practice Regulation, Code of Conduct, and Integrity Contract Regulation to provide all employees with the basis for correct behavior and value judgment. The Charter of Ethics is the basic principle of ethical management practices and activities at K-eco, and Ethics Management Practice Regulation and Code of Conduct stipulate specific actions including organizations and systems required for implementing the Charter of Ethics. All employees pledge to practice integrity and ethics. In particular, new employees are obliged to sign the pledge of integrity when joining the company.

Ethical Management Organization

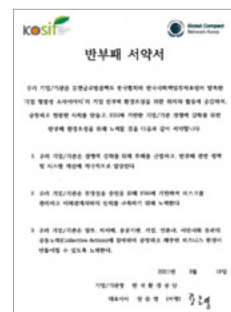
The Ethical Management Committee, which is composed of the CEO, a standing auditor, and executive directors, leads the company-wide implementation of ethical management. The ethical management practice council encourages collaboration between departments and flexible response to ethical practice. We also designate integrity practice leader by each department.

Anti-corruption Ethical management System

K-eco operates the ABMS (Anti-Bribery Management System) to handle public complaints with fairness and transparency. ABMS, which was introduced in October 2019, has maintained the certification by passing the examination of the Korea Compliance and Certification Institute in October 2020.

Pledge on Anti-corruption of the BIS Summit¹⁾

By signing on anti-corruption of the BIS Summit, K-eco pledged to make joint efforts to improve fairness and transparency with civic groups, government ministries, and domestic and foreign companies.

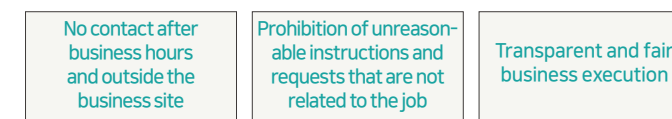


¹⁾ BIS (Business Integrity Society) is a project launched by the UN Global Compact Korea Association and Korea Sustainability Investing Forum with three goals - creating an anti-corruption environment through improvement of laws and systems, reinforcing corporate compliance and ethical management capabilities, and joint efforts to build an anti-corruption corporate culture - to increase business transparency of Korean companies and establish a fair market environment in Korea.

Establishment of Work Guidelines for Construction Site Staff

To enhance integrity at the construction site, K-eco established the "Guidelines for Contact between Construction Supervisors and Staff" in July 2020. The guidelines specify the scope of unfair behavior in relation to the Anti-Graft Act and Code of Conduct. Based on the guidelines, K-eco blocks unfair behaviors between supervisors and staff at construction sites in advance.

Guidelines for Contact between Supervisors and Staff



Proclamation of the Year of Integrity Culture

To secure integrity that meets the expectations of the public, in January 2021, K-eco declared the Year of Elimination of Corruption and Establishment of Integrity Culture and launched four strategies - securing driving force for company-wide anti-corruption, strengthening monitoring of areas vulnerable to corruption, normalizing organizational culture, and communicating integrity culture. Each department has prepared its own code of ethical conduct and has been promoting autonomous integrity tasks.

Integrity Practice Tasks

We are implementing 20 detailed actions in terms of integrity under the four major strategies.

Ethical and Human Rights Management Promotion

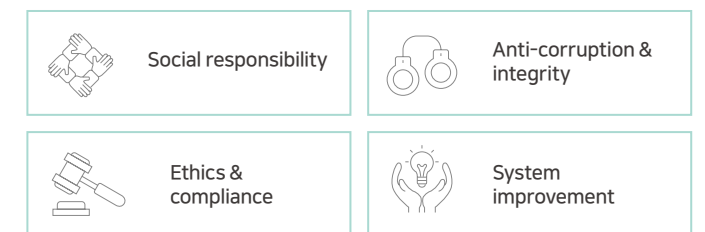
Focus direction	Strategies
Anti-corruption	Improve ethical management constitution
Business integrity	Integrity activities to build trust
Integrity culture	Organizational culture that emphasizes integrity
Human rights management	Respect for people, human rights management

Strengthen Internal Checks and Anti-corruption Policies

Internal Check System

K-eco has operated an internal check system based on analysis on our inherent risks. It was reestablished in 2020 based on company-wide ethical management system. By capitalizing on this system, we conduct internal control activities in 4-step process of planning & completion management, evaluation & contract management - pre- & post-management, and dissemination & sharing. We also enhanced a pre-inspection system for social responsibility and compliance.

CSR, Ethics, and Compliance Inspection Items



Monitoring by Contract Stage

In order to ensure integrity and completely improve the areas vulnerable to corruption, K-eco is reinforcing transparency in all stages of contract management from supplier selection to project completion.

Monitoring System by Contract Stage

Classification	Details
Project order	<ul style="list-style-type: none"> Expand outside members of the Contract Review Committee Improve the government-supplied material selection review committee system
Evaluation	<ul style="list-style-type: none"> Expand outside members when evaluating proposals Tighten regulations to specify punishment for unfair conduct by evaluators
Project start	<ul style="list-style-type: none"> Pledge integrity between both parties at the beginning
Completion	<ul style="list-style-type: none"> Receive complaints during project period

Enhance Contract Management

K-eco implements the "Contract Management Happy Call" system, where the head of department directly communicates with stakeholders of the project through wireline to check whether any misconduct has occurred in the process of work and listens to their opinions and suggestions. In 2020, this system was operated for 1,063 contracts.

CASE

Launch the Refund Payment Decision Review Committee

Although there had been frequent complaints from the person obligated to pay the levy and refunds for erroneous payment, whether or not to return the levy has been determined by the subjective review of one person in charge. To improve this, the "Refund Payment Decision Review Committee" was launched. Accordingly, the objectivity of the deliberation and decision on the feasibility and appropriateness of the refund payment was secured, contributing to the enhancement of transparency and fairness in the national finance operation.

Classification	Waste charge system	Charge for recycling	
		EPR (Extended Producer Responsibility)	Advanced environmental protection system
Legal charge	Impose waste charge on businesses that supply unrecyclable products, materials, and containers	Impose the obligation of recycling on product and packaging materials producers and penalty for non-compliance	Impose the obligation of recycling on electrical and electronic product makers and penalty for non-compliance

Ethical Management Communication Activities



Internalize the Culture of Integrity and Ethics

Raise Employees' Awareness of Ethics

Executives-led Ethics Message Relay Campaign

Relay Campaign



Employee-participating Ethical Culture Activities

K-eco has been promoting ethical culture activities in which everyone can participate to internalize the ethical awareness of its employees. Those include Integrity Live with the CEO, Bamboo Forest with anonymity, ethics contents contest, mock report on corruptions, and "refresh," contributing to resolving intergenerational conflict, ensuring healthy communication, and creating an organizational culture with mutual respect.

CASE

Published a Handbook Named "10 Ways to Make Your Job More Enjoyable" in Celebration of the 10th Anniversary of Integration

- Identified 10 ways through the idea contest for all employees
- 1) How to work well at K-eco
- 2) How to be recognized by your seniors (juniors)



Discussion Meeting for Integrity

K-eco makes anti-corruption commitments and exchanges of integrity contracts at the beginning of business and holds integrity meetings from time to time during the process.

Integrity Meeting



Training on Integrity and Ethics

At K-eco, each employee receives an average of 20 hours of integrity training. Particularly, we strive to provide ethical trainings tailored to the characteristics of each department and job-specific corruption risk factors. Trainings about anti-graft law and integrity for contract staff are conducted from the beginning of each project.

Integrity Training Tailored to Job

Classification	Corruption risk	Contents
All employees	Lack of perception on ethical management	Ethical management education for proper business promotion
New employees	Lack of concept of ethics and code of conduct	Education on ethical management concepts and codes of conduct
Newly promoted	Lack of familiarity with detailed information about work	Training on budget execution, contract, and partner management
Executives	Exposure to solicitation and abuse	The role of a leader necessary to build an integrity and ethical organizational culture
Vulnerable job	Customary factors in the business process	Customized training that reflects the characteristics of each job and customer needs

Monitoring and Reporting Channels

Measurement on Ethical Management (Integrity culture index)

We check the satisfaction level on ethical management for all employees twice a year. The result is used as the KCI (K-eco Clean Culture Index) which is an indicator of individual ethical level inspection and ethical management effectiveness. In the second half of 2020, it has risen 4 times in a row since 2019, when the measurement began, by recording 8.28 points. The annual average increased by 6.3% compared to the previous year.

KCI Assessment Result

2019			2020		
1H	2H	Average	1H	2H	Average
7.66	7.96	7.78	8.26	8.28	8.27

Reporting Channels

K-eco operates the "K-eco Shinmungo," through which stakeholders are able to report unethical or illegal cases. We also have anonymous reporting channels such as Bamboo Forest and Integrity Forecast System. The anonymity of the reporter is thoroughly protected through an external reassuring lawyer system. Our reporting system has been continuously upgraded with the introduction of mock reporting and misconduct self-reporting period. The Audit Office operates a "visiting grievance counseling center" that directly visits construction sites in 120 locations across the country.

Internal & External Reporting Channels

Internal	Bamboo Forest	Anonymous bulletin board, an employee-led integrity communication platform Free voice of employees (anonymous)
	Integrity Forecast	Investigation of 5 integrity items for all employees every other week
Common	Help Line	Internal & external public reporting channel
External	K-eco Shinmungo	Receiving grievances from external stakeholders
	Visiting Grievance Counseling Center	Direct visits to about 120 construction sites nationwide

Reassuring Lawyer System and Victim Relief

In order to guarantee the rights and anonymity of the whistleblower, K-eco appoints external experts as the reassuring lawyer to support the whistleblower's all procedures. We also provide psychological counseling to victims of sexual harassment and workplace bullying.



APPENDIX

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Awards and Association Memberships

Sustainability Management Performances

Economic Performances

Summarization on Statement of Financial Position

(Unit: KRW in millions)

Classification	2018	2019	2020	
Assets	Current assets	97,219	93,411	98,497
	Non-current assets	55,432	62,232	64,399
	Total assets	152,651	155,643	162,896
Liabilities	Current liabilities	189,404	182,197	194,597
	Non-current liabilities	50,470	60,553	64,328
	Total liabilities	239,874	242,750	258,925
Equity	Capital stock	78,719	78,719	78,719
	Retained earnings (deficit)	(164,942)	(165,826)	(174,748)
	Total equity	(87,223)	(87,107)	(96,029)

Summarization on Statement of Comprehensive Income

(Unit: KRW in millions)

Classification	2018	2019	2020
Revenue (sales)	1,078,958	1,184,304	1,301,922
Net sales	1,078,958	1,184,304	1,301,922
Cost of sales	1,063,032	1,161,351	1,278,189
Selling and administrative expenses	16,547	14,361	15,728
Operating profit	(621)	8,591	8,005
Other income	1,763	881	3,821
Other expense	23,594	24,164	24,190
Other profits	265	197	157
Financial income	25,151	25,204	11,450
Financial expense	2,198	2,283	1,516
Profits in equity method investment, etc.	-	-	-
Net profit before income tax (loss)	766	8,426	(2,273)
Income tax expense (income)	(1,596)	4,782	9,424
Net profit (loss)	159	3,644	(11,697)
Other comprehensive income	(7,806)	(3,527)	2,774
Total comprehensive income	(7,647)	116	(8,923)
Net profit-to-sales	0.01	0.31	(0.90)
Equity turnover rate	(1,237)	(1,360)	(1,356)

Environmental Performances

Classification			Unit	2018	2019	2020
Energy consumption	Electricity		TJ	125,577	132,583	130,897
			kWh	13,080,929.67	13,740,278.48	13,635,183
	Others	Total	TJ	41.753	39.137	37.905
		City gas (LNG)	m ³	262,136.46	263,418.89	287,665.24
		Kerosene for boilers	ℓ	1,100	0	0
		Kerosene for offices	ℓ	247,222	740	0
		CNG (vehicles)	m ³	2,239.59	4,806.85	2,001.33
		LPG (vehicles)	ℓ	1,039.21	740.38	240.29
		Gasoline	ℓ	273,858.49	330,810.68	407,074.35
		Diesel	ℓ	564,120.61	459,216.03	129,878.26
Energy intensity		TJ/KRW 100 million	0.016	0.014	0.013	
Water consumption	Head office		ton	39,095.44	35,597.52	34,990.54
GHG emissions	Head office		tCO ₂ eq	5,208	6,386.91	6,390.86
	Regional HQ		tCO ₂ eq	3,574	2,557.08	2,355.02
GHG intensity			tCO ₂ eq/KRW 100mil.	0.814	0.755	0.672
Green purchasing	Total purchasing		KRW in millions	23,569	26,414	47,124
	Green products		KRW in millions	18,084	23,093	41,188
	Green product purchasing rate		%	76.7	87.4	87.4
Violation of environmental laws	Violation of environmental laws and regulations		Cases	0	0	0
	Non-monetary sanctions		Cases	0	0	0

* Changes in data (compared with the 2018 K-eco Sustainability Report): New <water consumption>, <energy intensity>, <GHG intensity>, <violation of environmental laws>

Social Performances

Classification			Unit	2018	2019	2020	
Employees	Gender	Male	Persons	1,940	2,116	2,098	
		Female	Persons	710	838	908	
		Female ratio	%	26.8	28.4	30.2	
	Age	20s	Persons	429	587	612	
		30s	Persons	898	937	918	
		40s	Persons	685	749	800	
		50s and higher	Persons	638	681	676	
		Total	Persons	2,650	3,052	3,008	
	Worksite	Head office	Persons	1,412	1,597	1,540	
		Others	Persons	1,238	1,357	1,466	
	Position	Executives	Total		6	7	7
			Male		6	6	6
			Female		0	1	1

Social Performances

Classification			Unit	2018	2019	2020		
Employees	1 st class	Total		42	41	43		
		Male		41	41	43		
		Female		1	0	0		
		2 nd class	Total		134	141	158	
			Male		133	137	154	
			Female		1	4	4	
		3 rd class	Total		323	328	356	
			Male		307	312	326	
			Female		16	16	30	
		4 th class	Total		470	502	533	
			Male		383	404	415	
			Female		87	98	118	
	Position		Others	Total		1,042	1,255	1,239
				Male		673	783	729
				Female		369	472	510
	Professional job	Total		64	81	78		
		Male		62	79	76		
		Female		2	2	2		
	Unlimited contract job	Total		569	599	592		
		Male		335	354	349		
		Female		234	245	243		
	Employment type	Permanent job	Persons	2,016	2,355	2,414		
		Unlimited contract job	Persons	569	599	592		
		Fixed-term workers	Persons	159	186	591		
		Indirect employment	Persons	0	2	61		
	Employment of the disabled	Disabled employees	Persons	2	181	176		
		Disabled employment rate	%	2.75	5.57	4.86		
New employees	Total	Total	Persons	98	363	166		
		Youth	Persons	91	325	161		
		Female	Persons	37	132	79		
		Disabled	Persons	2	13	0		
		Non-metropolitan talents	Persons	46	190	84		
		High school graduates	Persons	6	14	7		
	Age	New unlimited contract jobs	Persons	72	104	58		
		Under 30	Persons	71	329	197		
		30-50	Persons	23	133	24		
		Over 50	Persons	4	5	3		

Social Performances

Classification			Unit	2018	2019	2020	
Turnover and retirement	Total	Retirees	Persons	51	154	173	
		Turnover and retirement rate	%	1.6	5.2	5.8	
		Regular retirement	Persons	26	49	48	
		Voluntary retirement	Persons	3	11	5	
	Gender	Male	Persons	22	111	140	
		Female	Persons	10	43	33	
	Age	Under 30	Persons	14	34	47	
		30-50	Persons	16	49	61	
		Over 50	Persons	29	71	65	
Childcare leave	Number of users	Total	Persons	128	196	218	
		Male	Persons	32	66	70	
		Female	Persons	96	130	148	
	Employees who returned to work after leave	Total	Persons	127	172	180	
		Female	Persons	95	130	126	
	Employees working for over one year after return to work	Total	Persons	126	126	171	
		Female	Persons	94	94	130	
	Rate of return to work	Total	%	99.2	99.2	99.4	
		Male	%	100	100	97.6	
		Female	%	98.9	99.0	100	
	Rate of over 12-month service	Total	%	98.4	99.2	99.4	
		Male	%	94.1	100	97.6	
		Female	%	97.9	99.0	100	
	Training and education	Average training hours per employee (total)		Hours	127.37	128.9	112.4
		Employment type	Technical job	Hours	135.5	140.6	119.6
Office job			Hours	121.4	132	111.1	
Operation job			Hours	134.3	148.4	129	
Unlimited contract job			Hours	107	99.6	90.6	
Training expense per employee (total)		KRW in thousand	751	715	760		
Trainees by position (total)		Persons	42,935	51,924	76,889		

Social Performances



Classification			Unit	2018	2019	2020
Training and education	Ethics and human rights training	Average time spent on ethics training per person	Hours	5	10	20
		Participants in ethics training	Persons	1,954	3,051	7,782
		Ethics training completion rate	%	100	100	100
		Sexual harassment prevention trainings (collective / cyber)	Times	10/1	10/1	3/1
		Time spent on sexual harassment prevention training	Hours	15,933	12,752	14,494
		Participants in sexual harassment prevention training	Persons	5,839	3,188	3,625
		Sexual harassment prevention training completion rate	%	94.2	100	100
		Labor union	Labor union members		Persons	2,515
Labor union membership rate			%	99	95.1	80.1
Corporate culture	Integrity culture index		Point		7.78	8.27
BOD operation	BOD meetings held		Times	16	15	13
	Concluded agendas		Items	30	30	29
	Reported agendas		Items	3	12	8
	Attendance rate of non-executive directors		%	69	69	65
	Shared growth	Purchasing of SME products		KRW in million	802,695	929,523
Purchasing from social enterprises and cooperatives		KRW in million	4,405	4,509	6,693	
Shared growth evaluation in environment sector		Cases	Good	Excellent	Excellent	
Performance sharing support tasks		Cases	70	23(1)	39(10)	
Performance sharing patents registered		Cases	16	12	16	
Utilization of the Subcontractor Keeper System		Cases	9,271	16,959	18,838	
Occupational safety and health	Accidents at worksites		Cases	9	7	9
	Death rate per ten thousand employees at construction sites		%	0	11.2	0
	Training on occupational safety and health		Persons	2,875	3,066	3,474
Information security	Private information management level by Personal Information Protection Committee		Point	96.73	97.7	94.68
	Leakage of private information		Cases	0	0	0
Social contribution	Social contribution (donation)		KRW in million	710	926	1,049
BOD composition	Gender	Male	Persons	13	12	10
		Female	Persons	0	2	4
	Age	Under 30	Persons	0	0	0
		30-50	Persons	1	1	0
		Over 50	Persons	12	13	14

* Changes in data (compared with the 2018 K-eco Sustainability Report): New <water consumption>, <energy intensity>, <GHG intensity>, <violation of environmental laws>

GRI Standards Index

Universal Standards






GRI 102: General Disclosures

Topic	Index	Description	ISO 26000	SDGs	Page	Reporting	Assurance
Organizational profile	102-01	Name of the organization	6.3.10/6.4.1~6.4.5/6.8.5/7.8		8~11		●
	102-02	Activities, brands, products, and services					●
	102-03	Location of headquarters					●
	102-04	Location of operations					●
	102-05	Ownership and legal form					●
	102-06	Markets served					●
	102-07	Scale of the organization					●
	102-08	Information on employees and other workers			82~84	Refer to Sustainability Management Performances	●
	102-09	Supply chain			56~58	Refer to the following link: https://www.keco.or.kr/kr/customer/together/contentsid/3635/index.do	●
	102-10	Significant changes to the organization and its supply chain			-	No significant changes	●
Strategy	102-11	Precautionary Principle or approach			26~41	Creation of sustainable environment including pollution prevention	●
	102-12	External initiatives			4, 76	Support for UN Global Compact, UN SDGs	●
	102-13	Membership of associations			93		●
Ethics and integrity	102-14	Statement from senior decision maker	4.7/6.2/7.4.2		6, 7		●
	102-16	Values, principles, and norms of behavior	4.4/6.6.3		76~79	Refer to Ethical Management	●
Governance	102-18	Governance structure	6.2/7.4.3/7.7.5		67~69	Operation of the BOD	●
	102-40	List of stakeholder groups	5.3		14		●
Stakeholder engagement	102-41	Collective bargaining agreements			85	Refer to Sustainability Management Performances	●
	102-42	Identifying and selecting stakeholders			14		●
	102-43	Approach to stakeholder engagement			14		●
	102-44	Key topics and concerns raised			16, 17	Refer to Materiality Analysis	●
	102-45	Entities included in the consolidated financial statements	5.2/7.3.2~7.3.4		81	Refer to Sustainability Management Performances	●
Reporting practice	102-46	Defining report content and topic boundaries			17	Refer to Materiality Analysis	●
	102-47	List of material topics			17	Refer to Materiality Analysis	●
	102-48	Restatements of information			-	No changes	●
	102-49	Changes in reporting			17	Refer to Materiality Analysis	●
	102-50	Reporting period	7.5.3/7.6.2		2	Refer to About this Report	●
	102-51	Date of most recent report			-	May 2019	●
	102-52	Reporting Practice	7.5.3/7.6.2		-	Biennially published, plan for annual publication since 2021	●
	102-53	Contact point for questions regarding the report			2	Refer to About this Report	●



Topic	Index	Description	ISO 26000	SDGs	Page	Reporting	Assurance
Reporting practice	102-54	Claims of reporting in accordance with the GRI Standards			2	Refer to About this Report	●
	102-55	GRI Content Index			86~88	GRI Standards Index	●
	102-56	External assurance			90, 91	Refer to Third Party Assurance Statement	●

Topic-specific Standards

GRI 200: Economic

Topic	Index	Description	ISO 26000	SDGs	Page	Reporting	Assurance
Management approach	103-01	Explanation of the material topic and its boundary			44, 66	Management Approach	●
Economic performance	201-01	Direct economic value generated and distributed	6.8.1~6.8.3/6.8.7/6.8.9		81	Sales: KRW 1,301,922 million Corporate tax: KRW 9,424 million Remuneration (per capita): KRW 60 mil. Purchasing from SMEs: KRW 1,026 bil. Social contribution (donation): KRW 1,049 million	●
		Financial implications and other risks and opportunities due to climate change	6.5.5		67, 68, 70		●
Indirect economic performance	203-01	Infrastructure investments and services supported	6.3.9/6.8.1/6.8.2/6.8.7		30~34	Support for monitoring of environmental preservation and public health, etc.	●
Procurement practices	204-01	Proportion of spending on local suppliers	6.4.3/6.6.6/6.8.1/6.8.2/6.8.7		20, 85	Purchasing of products from SMEs, social enterprises, and cooperatives	●
Anti-corruption	205-02	Communication and training about anti-corruption policies and procedures	6.6.1~6.6.3		76~79	Refer to Ethical Management	●

GRI 300: Environmental

Topic	Index	Description	ISO 26000	SDGs	Page	Reporting	Assurance
Management approach	103-01	Explanation of the material topic and its boundary			26	Management Approach	●
Energy	302-01	Energy consumption within the organization	6.5.4		82	2018: Electricity 126TJ / Others 42TJ 2019: Electricity 133TJ / Others 39TJ 2020: Electricity 131TJ / Others 38TJ	●
		Energy intensity					2018: 0.016TJ/KRW 100 million 2019: 0.014TJ/KRW 100 million 2020: 0.013TJ/KRW 100 million
Emissions	305-04	GHG emissions intensity	6.5.5			2018: 0.814tCO ₂ eq/KRW 100 million 2019: 0.755tCO ₂ eq/KRW 100 million 2020: 0.672tCO ₂ eq/KRW 100 million	●
Environmental Compliance	307-01	Non-compliance with environmental laws and regulations	6.5.6			No violation and saction	●

TCFD Report

GRI 400: Social

Topic	Index	Description	ISO 26000	SDGs	Page	Reporting	Assurance
Management approach	103-01	Explanation of the material topic and its boundary			44, 66	Management Approach	●
Employment	401-01	New employee hires and employee turnover	6.4.3		83, 84	Refer to Sustainability Management Performances	●
	401-03	Parental leave			84	Refer to Sustainability Management Performances	●
Occupational health and safety	403-01	Occupational health and safety management system	6.4.6		72, 73	Refer to Safety Risk	●
	403-02	Hazard identification, risk assessment, and incident investigation	6.4.6/6.8.8		50, 85	Conducted risk assessment. Review of occupational accidents per 10,000 workers. Other data are not managed due to low cases as the nature of business	●
	403-03	Occupational health services			50, 51	Refer to Enhance Safety and Health	●
	403-04	Worker participation, consultation, and communication on occupational health and safety			50, 74	Analysis of safety management level and operation of Safety Labor Council and Autonomous Occupational Safety Reporting Center, etc.	●
	403-05	Worker training on occupational health and safety			72~74	Refer to Safety Risk	●
	403-06	Promotion of worker health			51	Refer to Worker-tailored Health Care	●
	403-07	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships			50, 51	Refer to Enhance Safety and Health	●
	403-08	Workers covered by an occupational health and safety management system			73, 74	Including employees and partners in safety & health management policy and partners in survey of safety management activities	●
Training and education	404-01	Average hours of training per year per employee	6.4.7		84	Refer to Sustainability Management Performances	●
Human rights assessment	412-02	Employee training on human rights policies or procedures	6.3.5		55, 85	Refer to Sustainability Management Performances	●
	412-03	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	6.3.3/6.3.4 6.3.6		58	Refer to Support ESG Management of SME Partners	●
Local communities	413-01	Operations with local community engagement, impact assessments, and development programs	6.3.9/6.5.1~ 6.5.3/6.8		59~63	Refer to Contribution to Local Communities	●
Customer safety & health	416-01	Assessment of the health and safety impacts of product and service categories	6.7.1./6.7.2 6.7.4/6.7.5 6.8.8		40, 41	Refer to Public Health and Environmental Protection	●
Customer privacy	418-01	Substantiated complaints concerning breaches of customer privacy and losses of customer data	6.7.1/6.7.2 6.7.7		85	Refer to Sustainability Management Performances	●

TCFD	Index	K-eco's Response	Page
Strategy	a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	K-eco is aware of economic, social, and environmental risk factors caused by climate impact and is analyzing climate change risks and physical risks through the Carbon Neutral Promotion Council. In addition, we recognize and respond to possible future risks in advance.	70, 75
Governance	a) Describe the board's oversight of climate-related risks and opportunities.	In order to fulfill its economic, environmental, and social responsibilities, K-eco segmented its professional areas, which had focused on environmental field, into media, climate, water, and energy fields, and operates subcommittees under the BOD. In order to improve our ability to respond to climate change, we will further specify the role of the BOD and management. Risks and opportunities related to climate change will be reviewed and reported to management as important business decision-making items.	67~69
Governance	b) Describe management's role in assessing and managing climate-related risks and opportunities.	In order to support the achievement of the national greenhouse gas reductions goal and expand new and renewable energy, K-eco established a TF for climate response and a TF for hydrogen charging station construction in the short term. We are working hard to lay a foundation for biogas production by running hubs for future waste gathering and pursuing integrated processing of organic waste resources. Management will support timely input of budget and manpower to carbon-neutral projects through efficient decision-making, and finally check the results. We also intend to expand collaboration on carbon neutrality and climate crisis response by establishing a dedicated organization and regional governance.	69, 70, 75
Metrics and Targets	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	K-eco's GHG emission in 2020 was 15,009.88tCO ₂ eq. Direct emission from fuel combustion (Scope1) and indirect emissions (Scope2) were 8,745.88tCO ₂ eq and 6,264.003tCO ₂ eq, respectively. K-eco has declared Net-Zero by 2050 and intends to promote effective GHG reductions activities in connection with the national carbon neutral scheme.	82
Metrics and Targets	a) Disclose the metrics used by the organization to assess climaterelated risks and opportunities in line with its strategy and risk management process.		
Metrics and Targets	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	K-eco manages indicators such as GHG emissions and energy use to evaluate risks and opportunities related to climate change.	82
Governance	b) Describe management's role in assessing and managing climate-related risks and opportunities.		
Risk Management	a) Describe the organization's processes for identifying and assessing climate-related risks.	K-eco identifies and prioritizes major issues through materiality analysis. In particular, as environment and climate change issues are very important for K-eco, we plan to evaluate and verify climate change response policies, energy efficiency enhancement, and resource conservation. For operational risk management, we plan to thoroughly manage carbon emissions from business trips, supply chains, and product use, and also expand support for partners to reduce carbon emissions. Disaster risks related to climate change are thoroughly managed and evaluated through the safety and health system. Climate change related risks and opportunities will be strictly identified and controlled through these processes in accordance with financial and non-financial impacts.	16, 17, 67~70

Third Party Assurance Statement

To Korea Environment Corporation's management and stakeholders:

Introduction

The Korean Standards Association ("the verifier" hereinafter) has been requested to independently verify the 2021 Korea Environment Corporation Sustainability Management Report ("the report" hereinafter). The verifier has presented its independent verification opinion by reviewing the viability of the data included in the report produced by the Korea Environment Corporation. The Korea Environment Corporation is responsible for all the claims and achievements included in this report.

Independence

As an independent verification agency, the verifier has no interests across the entire business activities of the Korea Environment Corporation other than the service of providing a third-party verification of the report, nor does it have any associations for profit which may degrade its independence.

Verification standards and level

The verifier has performed the verification based on the GRI Standards and concluded that the company's compliance with the principles of inclusiveness, materiality, response and impact and the reliability of the information included in the report are 'moderate' based on the AA1000AS v3 verification guidelines.

Type and scope of verification

The verifier has performed a Type 2 verification based on AA1000AS v3. This means that the verifier has assessed the accuracy of the claims of the Korea Environment Corporation and the information concerning its achievements included in the report. The verifier has conducted its verification based on the period from January 1, 2020 to December 31, 2020, focusing on systems and activities, including CSR management policies and objectives, businesses, standards, achievements, etc. The verifier has also verified the environmental and societal data and the financial data concerning financial achievements in the broad sense. The verification of stakeholder participation has been limited to a review of the materiality assessment process.

Verification methods

The verifier has collected the information, data and evidence related to the verification scope using the following methods:

- Analysis and investigation of media reports on the sustainability management of the Korea Environment Corporation.
- Examination of the management system and process used in preparing the report and improving sustainability performance.
- Review of whether the audited financial statements report on the financial performance data match the disclosed data.
- Examination of internal documents and corroborating materials.

Verification results and opinions [at the level of verification principles and processes]

The verifier has reviewed and presented opinions on the details included in the draft report. The report has been corrected based on such a review outcome. In addition, the verifier could not find any material errors or inappropriate descriptions in the contents included in this report. The verifier presents the following opinion on the Korea Environment Corporation 2021 Report:

Inclusiveness: Has Korea Environment Corporation included its stakeholders in the process of its strategic response to sustainability issues? It has been verified that the Korea Environment Corporation is aware of the importance of stakeholder participation when pursuing sustainable management and it is striving to establish a process for participation. The Korea Environment Corporation defines executives and employees, labor unions, government and the National Assembly, media outlets, citizens, business partners, and local community as stakeholder groups and provides communication channels for each group. It has been verified that through these communication channels, K-eco collects diverse opinions.

Materiality: Has Korea Environment Corporation included any material information that will allow its stakeholders to make informed decisions in its report? It has been judged that the Korea Environment Corporation has not omitted or excluded any material information for its stakeholders. It has also been confirmed that the Korea Environment Corporation performed the materiality assessment with key issues derived from its analysis of its internal and external environments to report the materiality based on the results of such assessment.

Responsiveness: Has Korea Environment Corporation duly responded to the requests and concerns of its stakeholders?

It has been confirmed that the Korea Environment Corporation has surveyed and monitored the impact of its business activities on its stakeholders based on the updated verification standards. It has also been confirmed that the details are duly reflected in its report.

Impact: Has Korea Environment Corporation duly monitored the impact on its stakeholders? It has been confirmed that the Korea Environment Corporation has surveyed and monitored the impact of its business activities on its stakeholders based on the updated verification standards. It has also been confirmed that the details are duly reflected in its report.

Review of GRI Standards application level

The verifier has confirmed that this report has been prepared in accordance with the Core Options of the GRI Standards. The verifier has also confirmed based on the data provided by the Korea Environment Corporation that the details related to the indicators of the following universal standards and material topic standards are facts based on the data provided.

Universal Standards

The verifier has confirmed that the report has followed the requirements of the Core Option common standards by reviewing the following indicators:

102-1 to 102-13 (Profile of organizations), 102-14 (Strategies), 102-16 (Ethics and integrity), 102-18 (Governance structure), 102-40 to 102-44 (Engagement of stakeholders), 102-45 to 102-56 (Reporting practices), 103 (Business approach methods)

Material Topic

The verifier has confirmed the specific disclosure items of the material aspects derived through the process for determining the items reported by reviewing the following indicators:

- Economy: 201-1, 201-2, 203-1, 204-1, 205-2
- Environment: 302-1, 302-3, 305-4, 307-1
- Society: 401-1, 401-3, 403-1, 403-2, 403-3, 403-4, 403-5, 403-6, 403-7, 403-08, 404-1, 412-2, 412-3, 413-1, 416-1, 418-1

Opinions and improvement suggested by segment

The verifier recommends that Korea Environment Corporation review the items listed below to develop its enterprise-wide sustainability strategies for steadily responding to the issues:

Economic segment

Through the sustainability management report, the Korea Environment Corporation shares its economic activities and performance data with its stakeholders and as a quasi-governmental organization under the Ministry of Environment, it pursues GHG emission-related projects to fight climate change through environmental pollution prevention, environmental campaigns, and natural resources recycling. Furthermore, the Korea Environment Corporation is striving to meet its GHG reductions targets by carrying out all tasks related to the emission trading scheme (ETS) despite the high uncertainties in the economy due to the Covid-19 pandemic. These tasks include the allocation, evaluation, & certification of emission permits and the stabilization of the carbon market. In order to contribute to the development of South Korea as an environment-friendly country for the long term by efficiently managing its GHG emission-related projects, the economic performance verifier recommends that K-eco provide full transparency in its management through continuous management innovation and reliable accounting data.

Environmental segment

As South Korea's leading public agency, the Korea Environment Corporation's activities and key achievements for realizing the 2050 Carbon Neutral Society should be viewed as an optimistic sign. The numerous policies and projects pursued by K-eco to protect the health of citizens and natural environment are intricately linked to people's everyday lives. This report offers a clear insight into the role of the Korea Environment Corporation. It is also recommended that K-eco establish a mid-to-long-term management system for realizing a carbon-neutral society in the future, establish a set of quantitative targets and performance management system for projects pursued, and communicate more pro-actively with stakeholders by clearly disclosing the aforementioned targets and system.

Societal segment

The Korea Environment Corporation is working hard to not only implement socially responsible management within its organization but also to adopt socially responsible management throughout its supply chain. It was verified that K-eco provides GHG emission-reducing equipment to its SME partners, carries out social responsibility evaluations when selecting business partners, and ensures provisions on fair competition, business ethics, and human rights management are reflected in its partnership contracts. In particular, its policy of including socially responsible management evaluation indices like "evaluation items on climate change response" when selecting a deposit bank illustrates sound and exemplary socially responsible management practices. It is recommended that K-eco upgrade the ESG performance management system applying socially responsible management. K-eco would achieve this objective by expanding the scope of quantitative indices currently in use for socially responsible management and improving the reporting standards for these indices.



November 2021
Myung-Soo Kang, CEO and Chair
Korean Standards Association

Diagnosis on ISO26000 Execution Level

K-eco commissioned Terra Consulting Group (herein "Assessor") for independent review and assessment of its capability for internalizing global-level social responsibility management process and its performances in accordance with the Global Standards for Organization's Social Responsibility (ISO 26000).

Diagnosis Method and Process

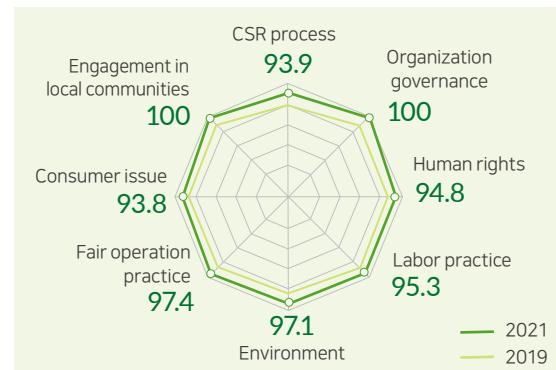
Based on the ISO 26000 diagnosis checklist developed and distributed by the Korean Agency for Technology and Standards (KATS), the assessor confirmed the checklist drawn up by the Social Value Innovation Department of K-eco. To ensure the reliability of self-diagnosis results, the assessor reviewed documents collected by administrative departments in the aspects of finance, environment, society, and governance.



- **Diagnosis period:** September to October 2021
- **1st stage:** Diagnosis of the execution level based on internal documents
- **2nd stage:** Diagnosis through interview with executives and employees at business field

Diagnosis Result

The execution level of ISO 26000 by K-eco was 93.9% in social responsibility management process and 96.3% in performances centered on 7 core themes. The comprehensive result including process and performance was 95.4%, representing that the level of social responsibility management by K-eco is "Excellent," equivalent to "A" grade.



Diagnosis area	Execution level (2021)		
	Score/total	Satisfaction	Evaluation*
CSR management process	338/360	93.9%	Excellent
Organization governance	20/20	100.0%	Very Excellent
Human rights	110/116	94.8%	Excellent
Labor practice	122/128	95.3%	Very Excellent
Environment	136/140	97.1%	Very Excellent
Fair operation practice	74/76	97.4%	Very Excellent
Consumer issue	90/96	93.8%	Excellent
Engagement in local communities	64/64	100.0%	Very Excellent
Subtotal	616/640	96.3%	Excellent
Total	954/1,000	95.4%	A

* Evaluation criteria	Execution stage	Score	Satisfaction	Evaluation	Comprehensive grade
	4 th stage	800 and higher	95% and higher	Very Excellent	A
	3 rd stage	779~600	90~94%	Excellent	B
	2 nd stage	599~300	80~89%	Good	C
	1 st stage	299~0	79% and lower	Insufficient	D

Recommendation for Management Improvement

K-eco is conducting social responsibility management activities based on a systematic process and creating better results than existing evaluation in the performance aspect. However, we recommend the following management improvements for continuous social value creation to meet increasing stakeholders' requirements and interest in the organization.

- Social responsibility management process aspect: It is recommended to measure the impact of interactions between K-eco and stakeholders in a quantitative way and actively use it as basic information to improve business performance. In addition, in monitoring K-eco's social responsibility activities, it is required to improve the system in which all members, including the management, can participate to check and supplement the performances.
- 7 core themes aspect: In order to prevent human rights risks that may arise from K-eco's small and medium-sized partners and to spread the awareness of human rights throughout the industry, it is recommended that the human rights impact assessment is carried out to the first-tier suppliers and below. It is also necessary to develop more active policies and conduct activities so that the industry can develop products and services for the realization of a circular economy. As a frontier in the national environmental policy, the assessor hopes that K-eco will continue to lead the realization of environmental and social values with which people can sympathize.

김현석

Awards and Association Memberships



President Prize Contest for Best Government Innovation Practices (Ministry of Interior and Safety)	Prime Minister Award Contest for Best HR Innovation Practices (Ministry of Interior and Safety)	Excellent Enterprise Labor-Management Culture in 2020 (Ministry of Employment and Labor)	Minister Prize Contest for Best Space Innovation Practices in the Public Sector (Ministry of Interior and Safety)
Minister Prize Merit for Occupational Safety (Ministry of Interior and Safety)	Commissioner Prize Excellent institution for the development, improvement, dissemination and use of national statistics (Statistics Korea)	Minister Prize Contest for Environmental Data Analysis Tasks (Excellent Award) (Ministry of Environment)	Excellent Award Public Institution Service Innovation Award (Korean Association for Public Enterprises)
National Assembly Environment and Labor Committee Chairman Award Korea Communication Award (Korea Corporate Magazine Association)	Grand Prize The 10 th Korea SNS Awards in 2020 (Korea Association for Social Contents Development)	CCBJ Awards U.S.-based EBI (Environmental Business International)	Popularity Award Contest for Best Practices of Resource Circulation (Ministry of Environment)

Association Memberships

Association	Association	Association
Clean SYS	Korean Society of Environmental Engineers	Korea Plastics Pipes Research Society
Korean Water and Wastewater Association	Korean Society of Odor Research and Engineering	North Korean Water Issues Research Association
Korea Soil and Groundwater Conservation Association	Korean Society for Atmospheric Environment	Environmental Impact Assessment
Korea CRO Association	Korean Society of Soil and Groundwater Environment	Korea Water Resources Association
Korea Waste Association	Korea Society of Waste Management	Society of Korean Smart Water Grid
Water Quality Automatic Analyzer Association	Korean Environmental Law Association	Korea Tax Policy Association
Korea Business Council for Sustainable Development	Korean Society for Environmental Analysis	The Geological Society of Korea
Korea Quality Assurance Association	Korean Society on Water Environment	Korean Society for Indoor Environment
Korea Environment Consulting Association	Korean Association for Public Administration	Korean Society of Public Enterprise
Social Cooperative Hangang	Korean Society of Environmental Health and Toxicology	The Korean Association for Governance Studies
Korea Green Foundation	Korean Academy of Environmental Science	Korean Association for Organizational Studies
Korea Water Cluster Conference	Korea Environmental Policy and Administration Society.	Korean Society of Environmental Health
Korea Construction Environment Association	Korean Society of climate Change Research	Korea Water Forum
Korean Society of Water & Wastewater	Korean Association for Policy Studies	National Assembly Water Forum

2021

K-eco Sustainability Report



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