

# Engineering *Excellence*, Delivering *Value*





## ABOUT THIS REPORT

### Overview

Samsung Engineering has published sustainability reports annually to disclose the company's sustainability management goals, activities, and performance for transparent communication with stakeholders, making this edition the company's 11th sustainability report.

### Reporting Principle and Credibility

This report is prepared in accordance with the core requirements of the Global Reporting Initiative (GRI) Sustainability Reporting Standards. Additionally, to report material issues that best suit the traits of each industry, the report reflects the reporting standards of the Sustainability Accounting Standards Board (SASB), the recommendations from the Task Force on Climate-related Financial Disclosure (TCFD), and the United Nations' Sustainable Development Goals (SDGs). Financial information in this report observes the Korean International Financial Reporting Standards (K-IFRS). Furthermore, the transparency and objectivity of the contents were assured by a third party that specializes in providing independent assurance.

### Reporting Period

This report is based on Samsung Engineering's activities from January to December 2021. For certain material issues, the report includes contents prior to 2021 as well as the 1<sup>st</sup> half of 2022. When necessary, the report provides trends in the time series using the three most recent years from 2019 to 2021.

### Reporting Scope

The report covers both domestic and overseas businesses - including project sites - as well as subsidiaries. Data with different reporting scopes such as those of our suppliers, were marked separately.

### Reporting Assurance

To secure the objectivity and enhance the credibility of the contents, the report was assured by an independent third party, and the results are stated on pages 131-132.

### Additional Information

To enhance accessibility for our various stakeholders, this report is posted on the company's website (<http://www.samsungengineering.co.kr/>).

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## CEO's Message



In this era of the great paradigm shift, Samsung Engineering started on a grand journey to make the world more sustainable. We pledge to lead the way in resolving global challenges with a focus on the environment and productivity through our exceptional technology and business competitiveness. We will leap forward as a game changer that leads the new trends of our time.

Sung An Choi  
President & CEO

In 2021, on top of the issues of the COVID-19 pandemic caused by the Omicron variant, the imbalance of economic recovery and the escalation of geopolitical conflicts, the significance of sustainability has been further highlighted by strengthened international response to climate change through measures related to energy transition and the environment.

To adapt to these changes and to take a step further, Samsung Engineering aims to become a **"Sustainable Solution Provider"** that creates sustainable values based on the world's best technology, and contribute to the shared growth and prosperity of all stakeholders including clients, employees, partners, communities, and shareholders.

In response, Samsung Engineering is carrying out the two strategies with the goal to 1) solidify its market presence in the traditional petrochemical sector as an innovation-driven company with second-to-none productivity achieved through an entirely new execution system, and 2) make its mark in the new ESG market as a technology-driven company by acquiring state-of-the-art green technologies like hydrogen and expanding its business scope.

### Innovation-driven Company with Project Delivery Solution

Thanks to our Shift Left strategy (FEED to EPC) we are implementing to enhance our competitiveness in project award and execution, Samsung Engineering won the Malaysia Shell OGP project and secured Shell, the global "oil major" as our new client. We also successfully won the Saudi APOC PDH/UTOS and the Saudi Aramco Jafurah gas projects by proposing innovative solutions and enhancing client credibility. In addition, Samsung Engineering is accelerating innovation in execution based on digital transformation through design automation of all disciplines and stronger cooperation with licensors and suppliers, leading to productivity improvement and schedule reduction. In addition, our global operation system is growing stronger, as witnessed by the recently-launched joint venture with a local company in Saudi Arabia. On such a basis, Samsung Engineering is committed to securing distinctive cost competitiveness and innovating our project execution system.

### Technology-driven Company with Beyond EPC Solution

Our investment portfolio is expanding, centering on technological venture firms, in a bid to acquire new green technologies in areas of hydrogen, ammonia, and carbon capture. Our strategy will extend to sales and operation by taking an early lead in the market through our flagship projects. Samsung Engineering has started to advance into the Southeast Asian market in earnest, by acquiring shares of a Vietnamese water treatment company to enhance our environmental infrastructure business. In the Korean market, we are focusing on broadening the scope of our water treatment and incinerator operation business. We aim to improve our bottom line by consistently expanding and diversifying our business model.

In addition, Samsung Engineering is strengthening sustainable management with the goals of respecting people and the environment, promoting reliable partnership and fostering responsible growth. In this regard, we have newly established an ESG Committee and elected a female outside director with environmental expertise to improve the executive power of the board of directors and the role of the Chief Safety Officer (CSO) has been reinforced to instill a safety-first management culture in our company. Furthermore, we have been pouring in our utmost effort to realize the delivery of zero-defect quality of our deliverables. Samsung Engineering also pledges to provide strategic support for shared growth to our partners, expand social contribution activities in Korea and beyond, as well as proactively contribute to solving global climate issues by achieving carbon neutrality.

In this era of the great paradigm shift, Samsung Engineering started on a grand journey to make the world more sustainable. We pledge to lead the way in resolving global challenges with a focus on the environment and productivity through our exceptional technology and business competitiveness. We will leap forward as a game changer that leads the new trends of our time.

I sincerely ask for your continued interest and support going forward. Thank you.

# Overview

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# Samsung Engineering at a Glance

## Company Overview

Based on years of technological competence, ample experiences, and talented employees, Samsung Engineering is an engineering, procurement, construction (EPC) company that provides comprehensive solutions in all sectors of the plant business. Over the last half-century, we successfully executed over 1,000 projects around the globe in the Middle East, Asia, Americas, and Europe through our unmatched client-focused services. With a relentless effort to enhance client values and to attain excellence in quality, we are recognized for our global competency.

<b>Company Name</b>	Samsung Engineering Co., Ltd.
<b>Founded in</b>	1970
<b>CEO</b>	Sung An Choi
<b>Number of Employees</b>	5,622 (As of December 31, 2021)
<b>Location</b>	26, Sangil-ro 6-gil, Gangdong-gu, Seoul, Republic of Korea

## Samsung Philosophy

Human resources, technology, and contribution to humanity are the very reasons for Samsung's existence and the ultimate objectives we pursue. Samsung Engineering will devote its human resources and technology to create superior products and services, thereby contributing to a better global society.

## Core Values



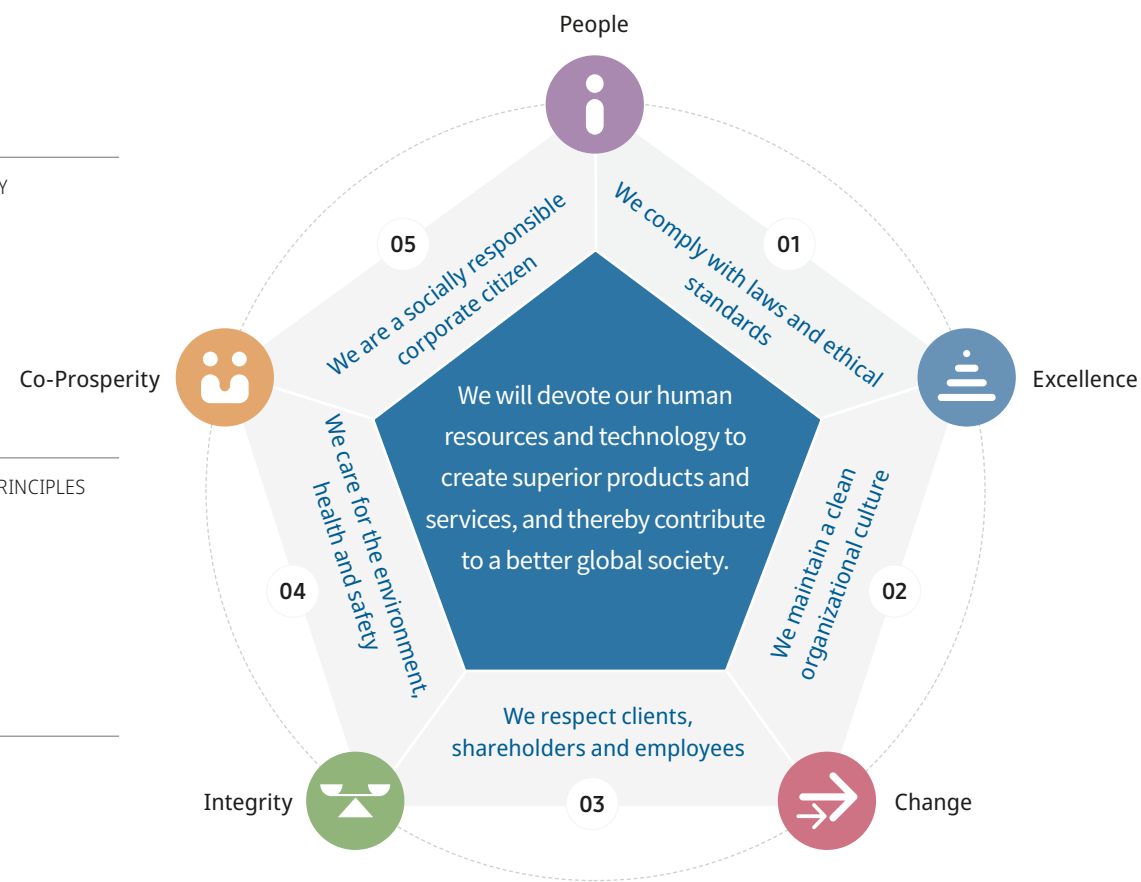
SAMSUNG PHILOSOPHY



SAMSUNG BUSINESS PRINCIPLES

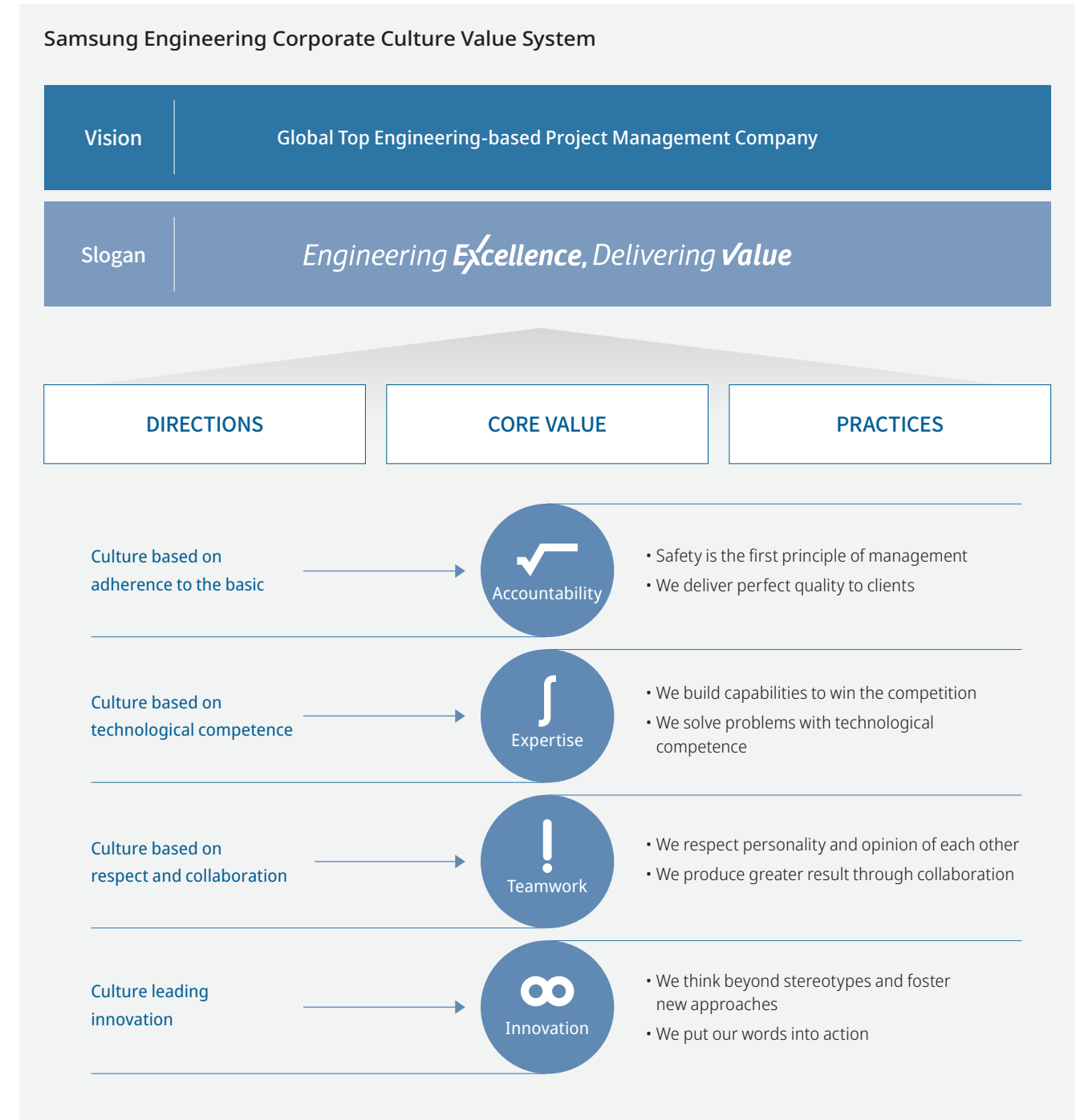


SAMSUNG VALUES



## Corporate Culture

Based on four core values under Samsung Engineering's vision and slogan, we established our corporate culture value system that provides specific guidance and practices. Samsung Engineering is engaging in phase-by-phase activities to spread the value system across the company.



### Business Areas

Samsung Engineering is expanding its business areas across the engineering industry from refinery, gas, petrochemicals, upstream business to industrial facilities, and environment business. In addition, we provide optimized engineering services to our clients from initial project planning to feasibility studies as well as engineering, procurement, construction, and operation and maintenance (O&M).

### Business Areas

Hydrocarbon	Non- Hydrocarbon
<p><b>Oil &amp; Gas Processing</b></p> <ul style="list-style-type: none"> <li>Gas Processing &amp; Treating (GOSP, GSP)</li> <li>LNG (Liquefaction, Regasification)</li> <li>Pipelines</li> <li>Offshore</li> </ul> <p><b>Refinery</b></p> <ul style="list-style-type: none"> <li>Distillation (CDU, VDU)</li> <li>Hydrotreating</li> <li>Cracking &amp; Coking (Hydrocracker, Delayed Coker)</li> <li>U&amp;O (Utility &amp; Offsite)</li> </ul> <p><b>Petrochemicals</b></p> <ul style="list-style-type: none"> <li>Naphtha-Ethane-Propane Cracking</li> <li>Ethylene</li> <li>Propylene</li> <li>Aromatics</li> <li>Fertilizers</li> <li>Polymers</li> <li>U&amp;O (Utility &amp; Offsite)</li> </ul> <p><b>Green Solution</b></p> <ul style="list-style-type: none"> <li>Hydrogen, CCUS (Carbon Capture, Utilization and Storage), ASU (Air Separation Unit)</li> <li>Energy Optimization</li> </ul>	<p><b>Industrial</b></p> <ul style="list-style-type: none"> <li>Semiconductor</li> <li>Display</li> <li>Battery</li> <li>Electronic Components</li> <li>Tire</li> <li>Metallurgy</li> <li>GMP (Good Manufacturing Practice)</li> </ul> <p><b>Environmental</b></p> <ul style="list-style-type: none"> <li>Sewage Treatment</li> <li>Wastewater Treatment</li> <li>Water Treatment</li> <li>Water Reuse</li> <li>Ultrapure Water</li> <li>Desalination</li> <li>Air Pollution Prevention</li> <li>Waste Treatment</li> <li>Waste to Energy</li> </ul> <p><b>Bio</b></p> <ul style="list-style-type: none"> <li>Monoclonal Antibody</li> <li>Recombinant Protein</li> <li>Vaccine</li> <li>Blood Plasma</li> <li>Cell/Gene Therapy</li> <li>Chemical Drug</li> </ul> <p><b>Power Generation</b></p> <ul style="list-style-type: none"> <li>Coal-fired</li> <li>Oil-fired</li> <li>Gas-fired (Simple Cycle, Combined Cycle)</li> <li>IGCC (Integrated Gasification Combined Cycle)</li> <li>CHP (Combined Heat &amp; Power Plant)</li> </ul>

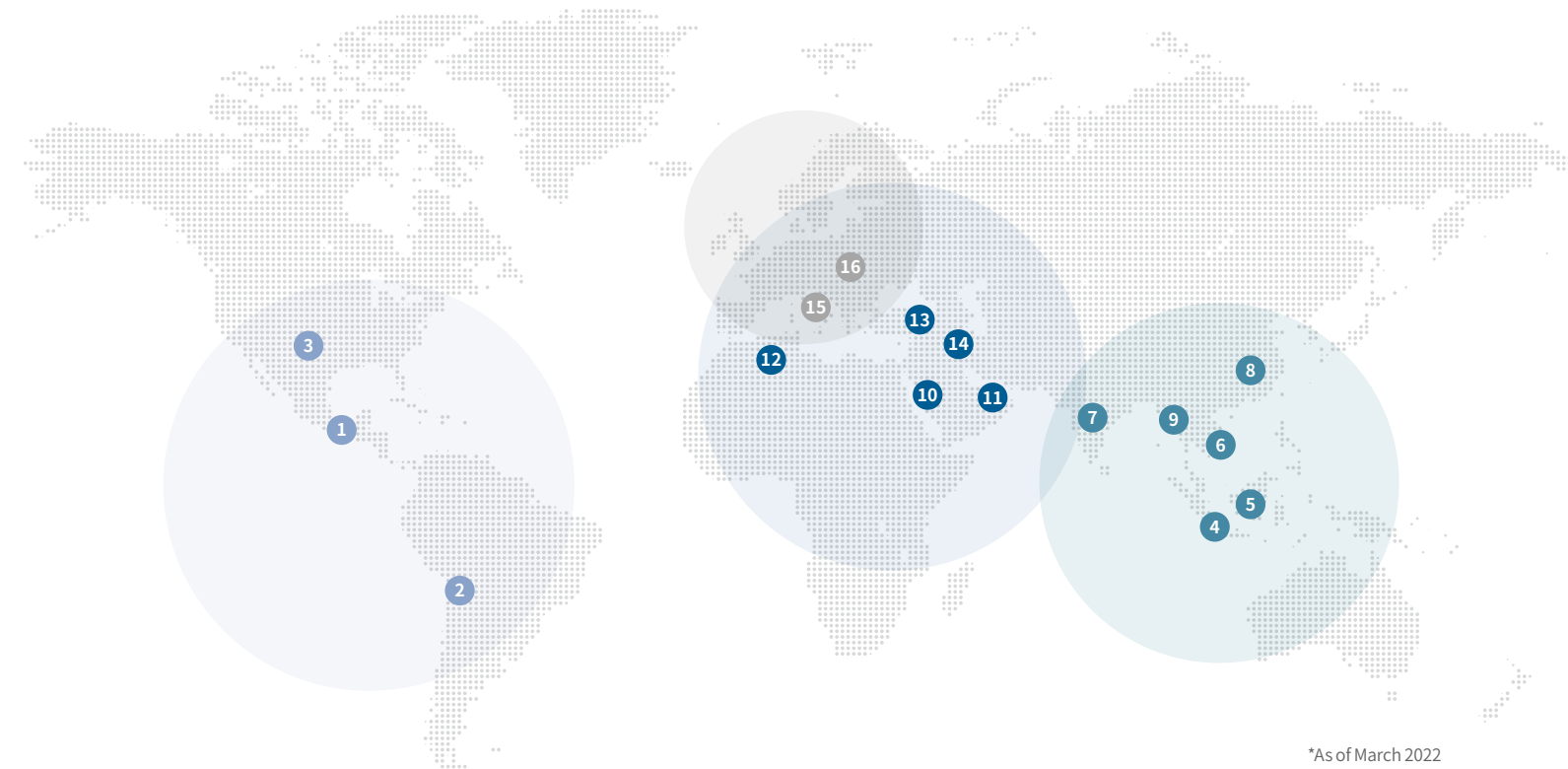
### Services

<p><b>Feasibility Study &amp; Financing</b></p>	<p><b>Engineering</b></p>	<p><b>Procurement</b></p>	<p><b>Transportation &amp; Installation</b></p>
<p><b>Project Management</b></p>	<p><b>Construction</b></p>	<p><b>Commissioning</b></p>	<p><b>Operation &amp; Maintenance</b></p>

# Global Network

Through its overseas network of 16 countries\* in the Americas, Asia, and the Middle East, Samsung Engineering is responding to the rapidly changing global business environment.

### Global Network



\*As of March 2022

### Americas

- 1 **Mexico** Grupo Samsung Ingenieria Mexico, S.A. De C.V.
- 2 **Bolivia** Samsung Engineering Bolivia S.A.
- 3 **US** Samsung Engineering America Inc.

### Asia

- 4 **Malaysia** Samsung Engineering (Malaysia) Sdn. Bhd.
- 5 **Indonesia** PT Samsung Engineering Indonesia Co., Ltd.
- 6 **Vietnam** Samsung Engineering Vietnam Co., Ltd.
- 7 **India** Samsung Engineering India Private Ltd.
- 8 **China** Samsung Engineering Construction (Shanghai) Co., Ltd.
- 9 **Thailand** Samsung Engineering (Thailand) Co., Ltd.

### Middle East & Africa

- 10 **Saudi Arabia** Samsung Engineering Saudi Arabia Co., Ltd.
- 11 **UAE** Samsung Engineering Co., Ltd. Abu Dhabi Office
- 12 **Algeria** Samsung Engineering Co., Ltd. Algeria Office
- 13 **Iraq** Samsung Engineering Co., Ltd. Iraq Office
- 14 **Kuwait** Samsung Engineering Co., Ltd. Kuwait Office

### Europe & CIS

- 15 **Italy** Samsung Engineering Co., Ltd. Milano Office
- 16 **Hungary** Samsung Engineering Hungary Ltd.

# Performance Highlight

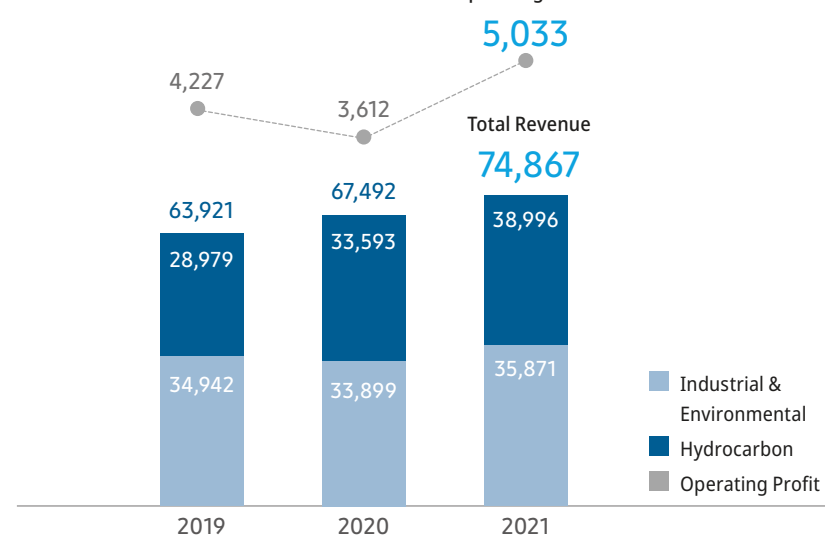
## Financial Performance

Despite the COVID-19 pandemic, Samsung Engineering exceeded our business goals, set at the beginning of the year, by improving our profitability through the repeat orders from our existing clients who put their trust in us and through the innovative solutions we applied in our business execution. As a result, in 2021, we recorded KRW 7.5 trillion in revenue and over KRW 500 billion in operating profit, the highest record in nine years. New orders amounted to KRW 7 trillion, leading to an order backlog of KRW 16 trillion.

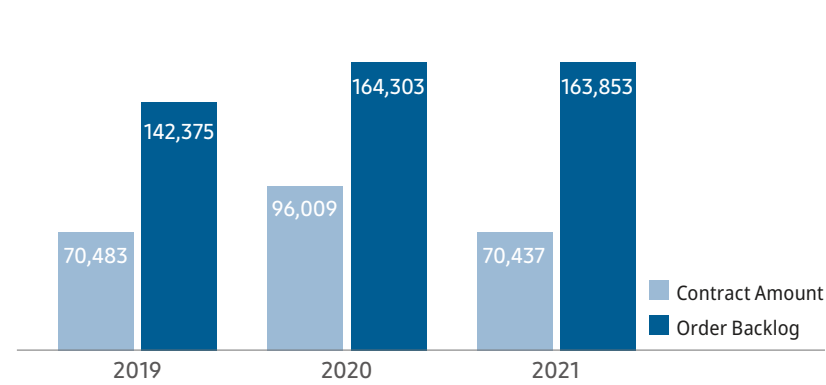
### Financial Performance

#### KEY PERFORMANCE

Revenue by Business Divisions



Contract Amount per Year



\*Revenue, operating profit, contract amount and order backlog are based on the consolidated financial statement while the number of countries where projects unfolded is based on the accumulated number

#### KEY PERFORMANCE

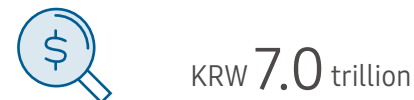
Number of Projects



Number of Countries that Projects Unfolded



Contract Amount as the End of 2021



Order Backlog as the End of 2021



\*Based on the completed and ongoing projects as of the end of 2021

# ESG Performance

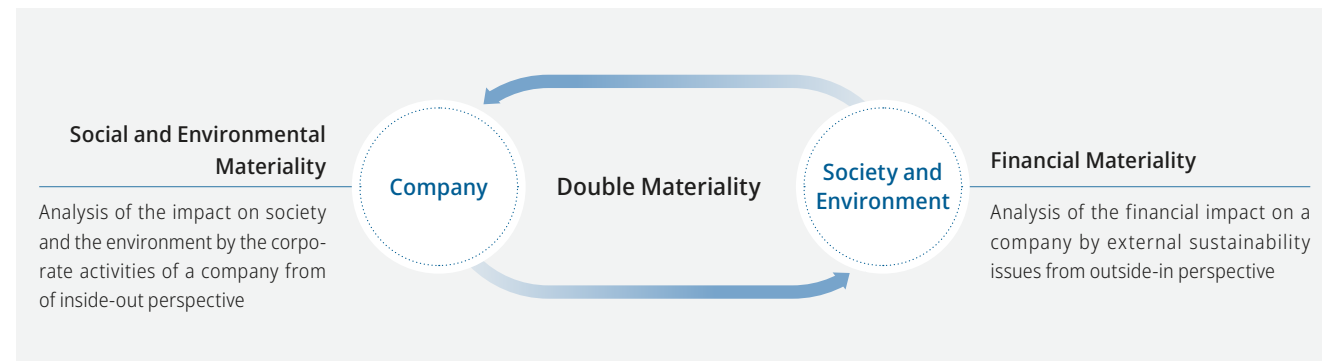
Category	Expectations	KPIs	Link to UN SDGs
 Environmental	<ul style="list-style-type: none"> <li>Reduction of direct/indirect greenhouse gas (GHG)</li> <li>Minimizing energy use</li> </ul>	<b>Direct/Indirect GHG emissions</b> 44,077 tCO <sub>2</sub> e 24.9% decrease compared with the previous year  <b>Energy use</b> 547,830 GJ 13.1% decrease compared with the previous year	• Energy • Innovation and infrastructure • Sustainable consumption and production • Response to climate change
	<ul style="list-style-type: none"> <li>Development of eco-friendly technology</li> </ul>	<b>Environmental R&amp;D expense</b> KRW 5.5 billion 2.4% increase compared with the previous year	
 Social	<ul style="list-style-type: none"> <li>Reinforcement of safety and health leadership</li> <li>Establishment of advanced safety and health culture</li> </ul>	<b>Zero serious incident</b> ISO 45001 verification 100%  <b>Lost Time Incident Rate (LTIR)</b> 0%	• Good health and wellbeing • Quality education • Decent work and economic growth
	<ul style="list-style-type: none"> <li>Realization of zero-defect quality management</li> <li>Enhancement of employee's quality awareness</li> </ul>	<b>Quality score goal</b> 93.8% Internal KPI selected on certain performance indicators related to quality management	• Reduced inequalities • Sustainable cities
	<ul style="list-style-type: none"> <li>Strengthening capability and expertise of employees</li> </ul>	<b>Total training hours of employees</b> 333,964 hours 25.9% increase compared with the previous year	• Partnership
	<ul style="list-style-type: none"> <li>Introduction of new equipment for suppliers</li> <li>Resolving suppliers' financial difficulties</li> </ul>	<b>Financial support to suppliers</b> Total KRW 20.3 billion The amount of loans without interest	
	<ul style="list-style-type: none"> <li>Contribution to local communities and realization of shared growth</li> </ul>	<b>Employees' total volunteering hours</b> 2,190 hours 100% increase compared with the previous year	
 Governance	<ul style="list-style-type: none"> <li>Securing diversity of the Board of Directors (BoD)</li> <li>Reinforcing sustainability management system</li> </ul>	<b>Established the ESG committee</b> Appointed the first female outside director Board of Directors attendance rate 100%	• Gender equality • Sustainable consumption and production
	<ul style="list-style-type: none"> <li>Reinforcing risk management system</li> </ul>	<b>First company in Korea to apply ISO 31000 standards</b>	• Partnership

# Materiality Test

Samsung Engineering conducted a materiality test to select key issues, identify room for improvement, and establish response measures in accordance with the stakeholders' (i.e., clients, shareholders, government, local communities) demands within the framework of sustainability management including economy, society, environment, and governance. To further enhance the credibility of our materiality test in 2021, we applied the concept of double materiality that global standards such as EU's Corporate Sustainability Reporting Directive (CSRD) and GRI Standards highlight to reflect inside-out and outside-in perspectives on the company. In the process of the materiality test, we drew 30 issue pools with consideration of global standards as well as sustainability trends in Korea and overseas, analyzed each issue's social, environmental, and financial level of impact, and selected 12 key issues. These key issues have been disclosed in Environmental, Social, and Governance sections.

## Double Materiality Analysis

Double materiality analysis is the methodology that assesses the importance of ESG issues by determining the impact of a company on society and the environment (outside-in perspective) and the impact of external factors on the enterprise (inside-out perspective).



## Process

STEP 01	<ul style="list-style-type: none"> <li>Identify year-by-year issues by analyzing 2019 &amp; 2020 issue pools and materiality</li> <li>Analyze media reports and articles on Samsung Engineering throughout 2021</li> <li>Modify issue titles in accordance with global standards such as GRI and SASB</li> </ul>
STEP 02	<ul style="list-style-type: none"> <li><b>Analysis of social/environmental impact level</b> Media analysis, Korean &amp; overseas standards analysis, competitors' issue analysis, external stakeholder &amp; employee surveys</li> <li><b>Analysis of financial impact level</b> Survey on employees and stakeholders, ESG disclosure global standards on financial impact, core issues of ESG evaluations, etc.</li> <li>Period of employees and stakeholders survey: from 15<sup>th</sup> of March, 2022 to 18<sup>th</sup></li> </ul>
STEP 03	<ul style="list-style-type: none"> <li>Select prioritized issues based on the comprehensive analysis results of the double materiality test</li> <li>Review by Samsung Engineering and external experts</li> <li>Draft report with the selected issues for the 2021 Sustainability Report of Samsung Engineering</li> </ul>

## Reporting Issues

### The Result of Materiality Test



1 Energy saving and enhancement of efficiency	7 Preemptive risk management
2 Strengthening safety and health	8 Waste generation and recycling
3 Response to climate change	9 Economic value creation and distribution
4 Entry to new business and new market	10 Enhancement of transparency and independence in governance
5 Enhancement of client satisfaction through quality management	11 Strengthening sustainability management of suppliers
6 Innovation of process and technology	12 Recruitment of talents and nurturing specialized experts

## Stakeholders' Participation

Clients	Shareholders & Investors	Employees	Suppliers	Local communities
<b>Key Interests</b>				
<ul style="list-style-type: none"> <li>Quality of products and services</li> <li>Accurate product information</li> <li>Agile response</li> <li>Transparent communication</li> </ul>	<ul style="list-style-type: none"> <li>Financial performance</li> <li>ESG risk management</li> <li>Stable corporate management</li> <li>Transparent disclosure of information</li> </ul>	<ul style="list-style-type: none"> <li>Safe and happy workplace</li> <li>Opportunities for training and growth</li> <li>Welfare and compensation</li> <li>Mental health</li> <li>Labor-management relation</li> </ul>	<ul style="list-style-type: none"> <li>Strategic partnership</li> <li>Fair transaction</li> <li>Shared growth</li> <li>Human rights of workers</li> </ul>	<ul style="list-style-type: none"> <li>Vitalizing local economy</li> <li>Company's social contribution</li> <li>Protecting local community's environment</li> <li>Placing economically active population</li> </ul>
<b>Communication Channel</b>				
<ul style="list-style-type: none"> <li>Client portal site</li> <li>Business divisions, sales and marketing channels</li> <li>Communication network of sales offices</li> <li>Client satisfaction surveys</li> </ul>	<ul style="list-style-type: none"> <li>General shareholders' meeting</li> <li>IR activities: non-deal roadshows and investor conferences</li> <li>Corporate disclosure</li> <li>Official website</li> </ul>	<ul style="list-style-type: none"> <li>SAU Council</li> <li>Employee satisfaction survey</li> <li>In-house-intranet-meetings</li> <li>Anonymous &amp; TALK online bulletin</li> <li>Broadcast, company newsletter, campaign</li> </ul>	<ul style="list-style-type: none"> <li>Partner portal site</li> <li>Online and offline training and support</li> <li>Regular meetings and seminars</li> </ul>	<ul style="list-style-type: none"> <li>Official website/media</li> <li>Operating global offices</li> <li>Regional specialists and market surveys</li> <li>Contribution to the local community</li> </ul>

Response to Key Issues

Key Issues	Reason for Selection	Response Measures	Goals and Performances
 Energy saving and enhancement of efficiency	Efficient use of resources is a prerequisite to maintaining the environment of the Earth clean, calling for strategies to transform the risk of rising energy costs into opportunities through efficient energy use.	Samsung Engineering periodically monitors energy use by establishing energy reduction plans from the early stages of a project. By doing so, we perform various activities to reduce energy by securing electrical grids, using power generators of appropriate capacity, and procuring efficient construction equipment.	<b>2021 Goal</b> Direct/indirect energy use 598,787 GJ, Renewable energy use 5,145 GJ <b>2021 Performance</b> Direct/indirect energy use 543,538 GJ Renewable energy use 4,292 GJ
 Strengthening safety and health	There has been a lot of attention on the safety of not just on-site employees, but also local communities that surround the project sites. In May 2021, the Occupational Safety and Health Act was amended, assigning Korean companies with a heavier responsibility for safety management and prevention of industrial accidents.	Based on our core value of "safety is the first principle of management", Samsung Engineering strives to engage in preemptive safety and health activities and establish a safety culture by setting up three goals - reinforce the measurement of the internal safety culture to enhance safety and health leadership, increase cases of development and application of innovative technology in safety and health, and strengthen execution competency through regular safety and health inspections as well as assessment of business sites - with our employees, clients, suppliers, and local communities.	<b>2021 Goal</b> 0 victims of serious incidents <b>2021 Performance</b> 0 victims of serious incidents
 Response to climate change	The international community puts an emphasis on climate change response as a prerequisite for sustainable growth. Recently, governments around the world have implemented stricter regulations and policies on this matter. As a result, there are increased demands from the market and governments on GHG reduction. Remaining unresponsive to these market changes can lead to business risks while natural disasters stemming from climate change pose great risks corporate management activities as well as the ecosystem.	Samsung Engineering has established a mid to long-term GHG emissions reduction plan at its headquarters and overseas project sites, and is engaged in GHG reduction activities to achieve its goals.	<b>2021 Goal</b> Direct/indirect GHG emissions 57,375 tCO <sub>2</sub> e <b>2021 Performance</b> Direct/indirect GHG emissions 44,077 tCO <sub>2</sub> e
 Entry to new businesses and markets	In uncertain global markets, companies must search for future growth engines by diversifying their business portfolios and entering new markets to achieve stable growth.	Samsung Engineering won large-scale overseas projects with its FEED-to-EPC strategy. We also strive to develop promising new technologies for hydrogen carbon neutrality, and plastic recycling to enter ESG-based new markets and transform them into business models.	<b>2021 Performance</b> Awarded KRW 1.3 trillion worth of Russian Plant EP order
 Enhancement of client satisfaction through quality management	Due to its unique nature, the EPC business is riddled with variable factors. Therefore, capabilities in quality management is directly linked to client's satisfaction. To gain an edge in an increasingly competitive global industry, enhancing competitiveness of quality is a must.	Samsung Engineering expanded the scope of quality management from a construction-oriented one to an EP front-end management and prevention-oriented quality management. We operated an quality information system for the entire EPCC (Engineering, Procurement, Construction, Commissioning).	<b>2021 Goal</b> 94.5% <b>2021 Performance</b> 93.8%
 Innovation of process and technology	The extend of automation and artificial intelligence in the work process enabled through new digital technologies will determine the future value of a company. In addition, there are growing demands for and increasing interests in digital technologies such as remote control, videoconference, and VPN due to the impact of COVID-19.	Samsung Engineering established a system promoting Digital Transformation (DT) to further innovate and strengthen its business execution for each stage of engineering, procurement and construction.	<b>2023 Goal</b> Reduce resource by 50%, on-site work by 50%, schedule by 30% <b>2021 Performance</b> Reduced resource by 33%, on-site work by 39%, schedule by 17%

Key Issues	Reason for Selection	Response Measures	Goals and Performances
 Preemptive risk management	All businesses entail various risk factors such as financial and potential risks. To successfully promote a business, companies must identify potential risks that may arise during projects and establish a risk management system. Recently, tasks related to emerging risks such as climate change, spread of infectious disease, and shifts in international affairs are acquiring more significance as tasks.	For the first time in Korea, Samsung Engineering has applied the ISO 31000, an international risk management standard for risk management systems and risk, analysis and assessment. Furthermore, we established a risk governance system to regularly reflect the risks in the decisions made by the management and the board of directors'. We classify and manage risk factors through risk workshops and risk registration system.	<b>Goal</b> Prevention of problematic projects and preemptive response to project execution risks <b>2021 Performance</b> Targeted 15 projects Discovered risks: 2,482 risks Processed risks: 1,907 risks Managing risks: 575 risks
 Waste generation and recycling	Efforts to minimize waste generation and increase the portion of reuse and recycling is essential in promoting resource circulation and building a foundation for eco-friendly business. Samsung Engineering strives to prevent resource depletion and minimize environmental pollution by increasing the waste recycling rate to realize a circular economy.	Every month, Samsung Engineering manages the waste generated from all projects by type and amount of waste, and processing methods through its internal system known as SEIS (Sustainable Environmental Initiative System). We establish our plans for environment and waste management for all of our domestic and overseas projects by observing the national regulations and guidelines.	<b>Base Year Performance (2012)</b> Ratio of waste generation to revenue (ton/KRW billion): 48.2 <b>2021 Performance</b> Ratio of waste generation to revenue (ton/KRW billion): 26.2
 Economic value creation and distribution	The purpose and role of a company goes beyond the formerly established goals of making profits and maximizing shareholders' values, to further contribute to creating values for all stakeholders including clients, employees, suppliers, local communities, and shareholders. To create values for all stakeholders, companies must engage in the fair distribution of financial values created through business activities and protect the rights of the stakeholders'.	In 2021, Samsung Engineering recorded KRW 7 trillion worth of new contracts, KRW 7.486 trillion in revenues, and KRW 503.3 billion in operating profits. Moreover, we strive to gain clients' trust by applying diverse innovative solutions in order to enhance profitability.	<b>Goal</b> Enhancing profitability through linked contracts and business innovation based on existing clients' trust <b>2021 Performance</b> Accomplishment of highest operating profit in nine years
 Strengthening transparency and independence in governance	Reinforcing transparency and independence of corporate governance are prerequisites to increasing sustainability by gaining stakeholder's trust and laying the foundation for stable growth. Thus, a governance system must be established to enable reasonable decisions making by increasing the expertise and efficiency of the Board of Directors.	To secure the transparency and independence of its board, Samsung Engineering's board of directors includes 7 members of which 3 are inside directors and 4 are outside directors. Furthermore, when operating its six committees (Management Committee, Audit Committee, Outside Director Candidate Recommendation Committee, Internal Transactions Committee, Compensation Committee, and ESG Committee). Except the Management Committee, Samsung Engineering ensures that the majority of members for each committee is composed of outside directors to allow for an independent directors to allow for independent decision making.	<b>Goal</b> Maintaining the ratio of outside directors over 50% <b>2021 Performance</b> Ratio of outside directors: 57%
 Strengthening suppliers' sustainability management	Suppliers are key partners that carry out together the most essential process of our entire business. It is our duty to evaluate, manage, and support their sustainability. Therefore, promoting shared growth with our suppliers is a task that must be prioritized in ESG management.	Samsung Engineering conducts semiannual evaluations on execution capabilities and expertise of our construction partners. Moving forward, we plan to expand our evaluation criteria of our suppliers' sustainability management. This includes giving bonus points if suppliers undergo the ESG evaluation of the Korea Commission for Corporate Partnership. We also plan to acknowledge external credit agencies ESG evaluation of suppliers.	<b>Goal</b> Reinforcing ESG evaluation policies for suppliers through external rating agencies <b>2021 Performance</b> Number of suppliers that underwent sustainability evaluation: 706
 Recruitment and fostering job experts	Samsung Engineering's main business model consists of winning new orders and executing projects. Most of the projects are conducted overseas. Hence, it is crucial for us to recruit regional and job experts who can lead these projects and accomplish relevant tasks.	Through Samsung Group's transparent and fair hiring process, Samsung Engineering recruits new and experienced hires. We also have in place a self-directed learning platform that encourages the self-development of our employees'.	<b>2021 Performance</b> Total training hours of employees: 333,964 hours

# Sustainability Strategy

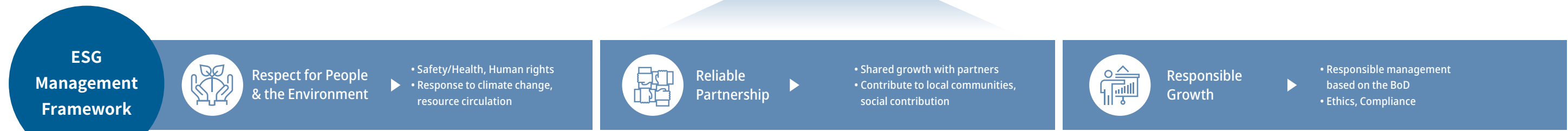
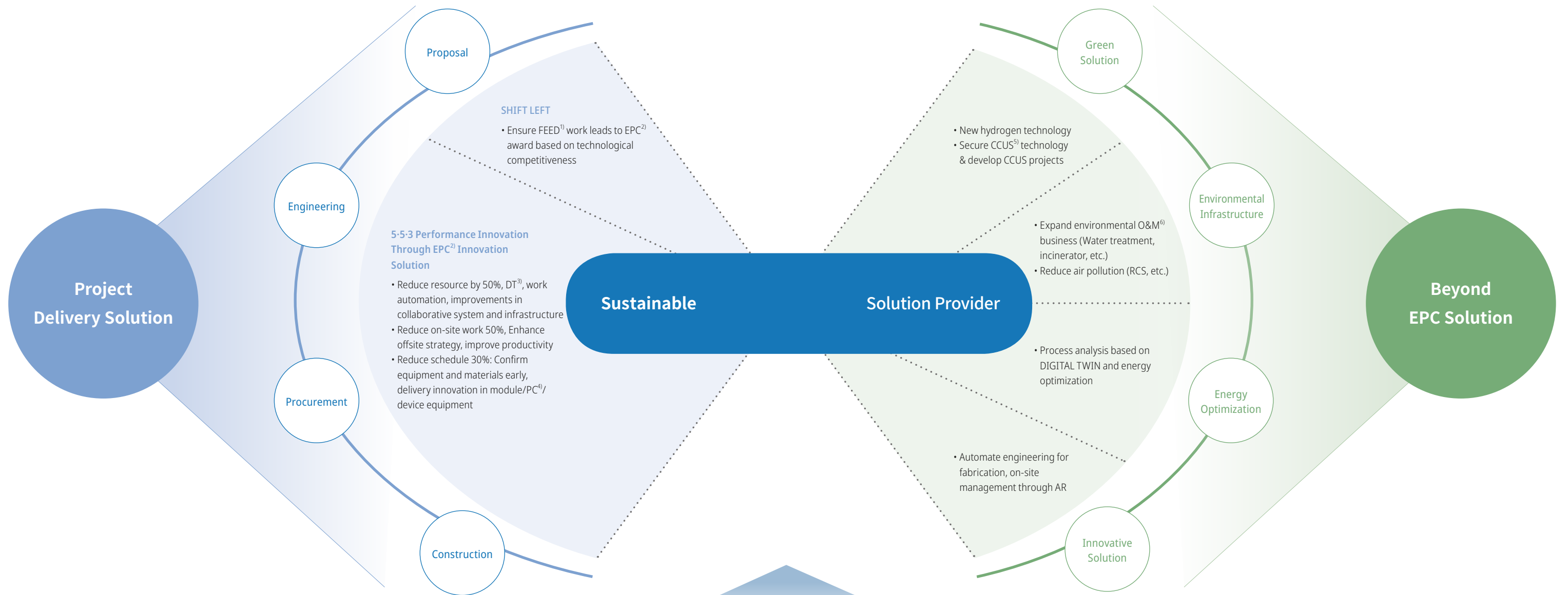
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# Sustainability Strategy

Building on its strong technological process, Samsung Engineering aims to become a Sustainable Solution Provider that leads the global efforts to tackle climate change and supports sustainable growth of various stakeholders. To this end, we are promoting both Project Delivery Solution, a growth strategy in traditional EPC market, and Beyond EPC Solu-

tion, an eco-friendly new business development. We also reinforce ESG management system to respect humans and the environment as well as to pursue shared growth with our partners.



1) FEED : Front End Engineering Design  
 2) EPC : Engineering, Procurement, Construction  
 3) DT : Digital Transformation

4) PC : Precast Concrete  
 5) CCUS : Carbon Capture, Utilization and Storage  
 6) O&M : Operation & Maintenance

# Project Delivery Solution



DBNR Project in Mexico

We have recently witnessed the rise of new technologies that induce innovation and transformation in various industries. As EPC projects are getting bigger, more complex and diversified, there is an increasing need for new ways to manage projects. In addition, the COVID-19 pandemic increased risks in schedule, cost and HSE management in the EPC industry, which requires on-site execution for a long time. Therefore, it is essential to break away from traditional business practice and make a transition to new execution models using digital technologies. In this regard, Samsung Engineering strives to become the leader of EPC industry by creating a new business model with higher efficiency and business automation through digital transformation.



Sarawak Project

## Our Strategy

### Innovating Business Model with Shift Left Strategy

Shift Left refers to a strategy to expand the business scope to the FEL stage, which is in the upstream of the value chain, in order to lay the foundation for EPC project award. Based on its technological competitiveness, Samsung Engineering has been participating in FEED stages and executed all the way through the EPC stages in Mexico's Dos Bocas project, which recorded the biggest ever contract amount since the company's foundation, and Malaysia's Sarawak Methanol project. With a high level of our technological expertise, we won additional

FEED contract for Malaysia's Shell OGP (Onshore Gas Plant for Rosmari Marjoram) project, a subsidiary of Shell, the global energy company. We have also accomplished accomplish the rollover from FEED to EPC thanks to the trust of the client we have earned by successfully executing FEED.

\*Front End Loading

### Securing Distinguished Competitiveness by Executing 5.5.3 Execution Innovation

As one of its mid-term innovation strategies, Samsung Engineering currently promotes 5-5-3 innovation to break away from the existing

EPC execution methods. The 5.5.3 innovation aims to reduce resource by 50%, on-site works by 50%, and schedule by 30% by 2023 compared to its records in 2018. DT(Digital Transformation), work automation, improvements in collaboration system and infrastructure can lead to reducing resource by 50%. Expansion of offsite strategy and dramatic improvement in productivity can also reduce on-site works by 50%. Lastly, early confirmation of equipment and materials, module/ PC (Precast Concrete)/building and equipment can shorten the existing schedule by 30%.

EDP\* secures data's consistency, efficiency, and visibility by connecting various project data into a single platform. EP+F\*\* is the automation business model that separates engineering and procurement from fabrication. Smart Shop is used for automation of pipeline and steel structure work. S-AWP, an advanced project management method that combines our know-how and expertise, improves productivity and helps us meet the schedule. Through these efforts, we achieved reductions in resource by 33%, on-site work by 39%, and schedule by 17% in 2021.

\*Engineering Data Platform

\*\*EP+F : Engineering, Procurement + Fabrication

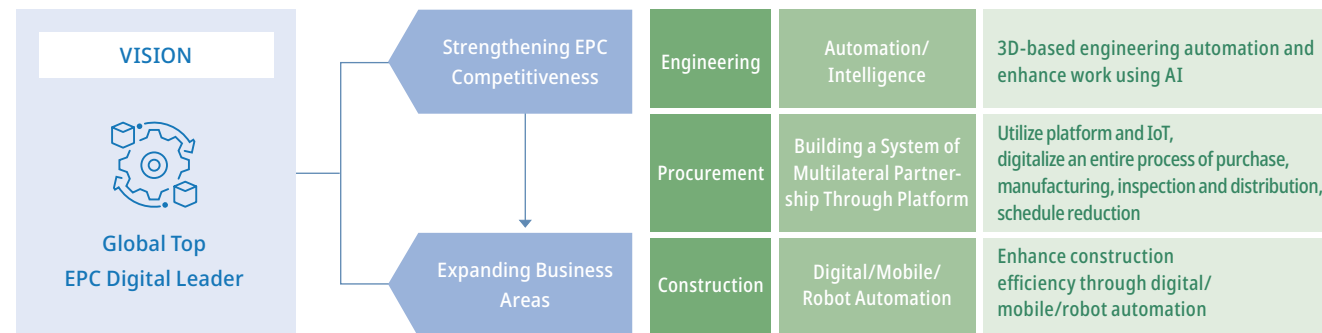


LSP Project in Vietnam

## Digital Transformation Framework

Samsung Engineering is building an EPC platform that converts and automates all areas of the existing business process into digital format. The platform allows the data generated from this process to flow smoothly. At the same time, we are increasing work efficiency by establishing an environment where clients and partners can work on the same platform. To that end, we are promoting overall connectivity through engineering automation, multilateral partnership in procurement, and digital/mobile/robot automation in construction management.

### The Vision of Digital Transformation



### Shift in EPC Industry based on Engineering Data Platform

EDP, which stands at the forefront of Samsung Engineering's EPC innovation, processes various engineering tasks through DT technology and cloud infrastructure based on data. This in turn secures data consistency, efficiency, and visibility. Moreover, EDP is a key to Shift Left strategy and is about forming packages on major hydrocarbon product agenda's licensors equipment and materials. The strategy also connects it to a single platform in accordance with existing work process. As a result, the system is set to provide data immediately from an early phase of EPC execution and create engineering deliverables with high level of accuracy as well as 3D models to shorten construction schedule and contribute to shorten the leadtime.

### Manufacturing Design Automation of X-BAS and Design Capability Internalization

As a part of engineering work automation to achieve 5-5-3 innovation goals, we currently use basic design automation system (X-BAS\*) that was developed by internalizing stationary equipment's\*\* manufacturing design capability. For core devices that consists of 70% of stationary equipment, we drew B/M\*\*\* to order materials for core equipment and create blueprints for equipment manufacturing through BAS. By doing so, we shortened the timeline of engineering and material procurement to dramatically cut overall delivery schedule for the equipment. By applying these outcomes to our most recent projects, we went beyond the existing EPC company's traditional business areas to accomplish tangible results, secured fabrication, design capabilities, and took a step forward to EP+F business.

### Manufacturing Design Automation (X-BAS)



\*BAS : Basic design Automation System

\*\*Stationary Equipment : Vessel, Shell & Tube Heat Exchanger, Tank, Column, etc.

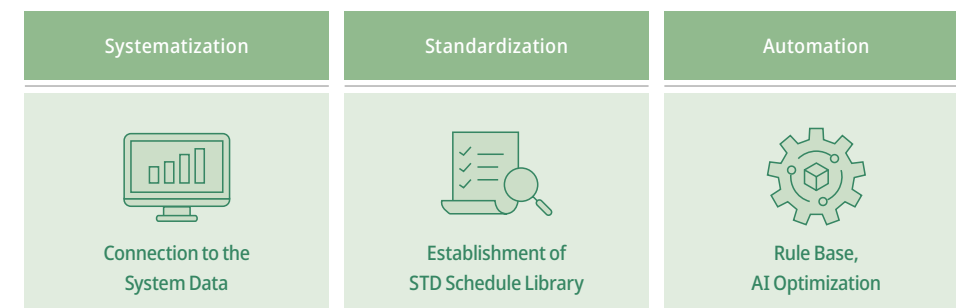
\*\*\*Bill of Material

## Digital Transformation Performance

### SPP(Smart Planning Platform)

Establishing an optimal plan by predicting possible scenarios that might unfold during project execution entails relentless manual work and revisions. Samsung Engineering standardized the overall workflow that includes engineering, procurement, and construction and built SPP (Smart Planning Platform) system where AI can establish plans for projects by applying accumulated data throughout past execution experience. When a planning engineer inputs various environmental factors of a project into the SPP system, it provides an optimal project schedule. Today, we use the system to draft initial schedules at the project's beginning and plan to expand its usage to managing follow-up changes.

### SPP(Smart Planning Platform) System



### Proposal Stage

#### AI-based Analysis Intelligence of ITB Analysis

Samsung Engineering developed an AI platform in 2020 that can automatically discover risk items in ITB (Invitation To Bid) and suggest alternatives. In 2021, we added a function that allows AI automatically index and classify hundreds of PDF files on top of its existing risk analysis capability. With continuous improvements in its analysis function, we dramatically enhanced the AI's accuracy.

### Engineering Stage

#### AI-based Automatic Document Recognition and Digitalization

Samsung Engineering continues to expand digitalization of PDF documents to projects and established a way to process recognized data in addition to targeted linkage. By doing so, we were able to shorten the time spent on data extraction to enable early application of automation task. As a result, the overall schedule for the cost estimation stage was shortened. Through the process, we continue to link and establish an integrated database platform that allows engineering information exchange among engineering disciplines.

### 3D-based Engineering Automation

For successful execution of projects, Samsung Engineering operates 3D-based engineering automation system and applies systems including 3D modeling auto routing system, 3D-based blueprint automation system, and 3D integrated engineering system (SWP3D\*). 3D modeling auto routing system replaces the existing manual work of 3D modeling with computers that automates the job based on the data. In 2020, we advanced the system to enable automatic creation of sample models. In 2021, the system established advanced automation rules and logic to create a detailed engineering model for projects. With consistent upgrades, we maintain the engineering quality and proceed automatic engineering so that it can shorten the project schedule.

\*Smart Work Place 3D

### Procurement Stage

#### 3D Route Simulation based on Automatic Driving

For projects executed at all corners of the world, many employees were in charge of inspecting the status of local roads and transportation routes to make sure that raw materials, half-finished goods, and modules are delivered on time. As a result, most of the work depended upon actual survey, pictures, and maps. However, Samsung Engineering established 3D Route Survey and Auto Simulation system based on automatic driving. By doing so, we halved the time spent on inspections and removed the room for human error. With a vehicle mounted with 3D Lidar Scanner, we uploaded the entire transportation route on the Point Cloud and use the data at the headquarters to build a system that allows various simulations.

### Construction Stage

#### Productivity Improvement Through S-AWP

Samsung Engineering introduced AWP (Advanced Work Packaging), a project management method to improve construction productivity and built S-AWP (Samsung-Advanced Work Packaging) system combined with existing ERP. Since 2019, we have been applying S-AWP not only on global projects at Mexico, Saudi Arabia, Thailand and Malaysia but also on domestic projects starting from 2021. With S-AWP, engineering blueprint and delivered items are managed on the system from the initial phase of the project. On-site construction managers can efficiently manage overall construction procedures from readiness status check to work orders. S-AWP's systemization is our own strength that has been building standard information-based ERP for the long term and plays a key role in improving the productivity by minimizing idle time.

### Removing Risk Factors by Applying Module Construction Method and Creating Technological Competitiveness

Dos Bocas New Refinery (DBNR) project in Mexico builds an oil refinery complex at Dos Bocas Port, south of Tabasco in southern Mexico. Within the complex, Samsung Engineering is currently executing five-unit EPC project that consist of two Diesel Hydro-treating trains producing 720,000 tons (1.44M tons in total) annually, two Naphtha Hydro-treating trains producing 530,000 tons (1.06M tons in total) annually, a Gas-oil Hydro-treating Unit producing 1M tons annually, a Continuous Catalyst Regeneration Unit producing 820,000 tons annually, and a Fluidized Catalytic Cracking producing 940,000 tons annually.

To ensure DBNR project meets the delivery date, we modularized 58 key facilities to effectively manage environmental variables such as supply of manpower and equipment, on-site infrastructure conditions and rainy seasons. The modules were fabricated in four module shops located in Korea and Mexico, transported on sea and ground, and successfully installed at project sites. This amounts to 60% of steel structures and 30% of pipelines among those required for the entire project. With an expansion of module-based project execution, we continue to innovate our businesses by minimizing on-site work that in turn shortens the overall construction schedule.

#### X2 Project of Samsung Electronics in Xi'an, China

Samsung Electronics' X2 project in Xi'an, China, is the project to construct a semiconductor factory that is responsible for over 10% of the global NAND flash memory by producing 250,000 wafers a month. Due to the nature of semiconductor industry, the project requires process management suited for a short-term construction completion. Thus, we applied prefab construction method from the framework to minimize interferences between disciplines and construction activities on site. In particular, we started modularization with large caliber pipelines and applied it to electrical and fire fighting as well, which advanced our modularization technology. To shorten the schedule of large-scale construction projects. We applied PTW (PC Truss Wall) method that fabricates concrete walls in advance and assembles later on. For installing cooling tower that involves large-sized steel frameworks, we applied modularization and improved the productivity. Modularization minimizes risks at construction sites and increases the quality of construction deliverables. By applying optimal modulization engineering, new construction methods, and advanced equipment, we are currently developing a technology to construct a large-scale module over 200 tons.



X2 Project of Samsung Electronics in Xi'an, China

**Application of New Technology and New Construction Methods to Win the Clients' Solid Trust**

**Productivity Improvement by using 3D Printer technology (HUGRS project in Saudi Arabia)**

Saudi Arabia's HUGRS (Hawiyah Unayzah Gas Reservoir Storage) is a project to build a gas reservoir storage in Hawiyah, south of Hofuf, eastern Saudi Arabia. The storage stores gas produced during the winter at existing and new wells, reproduces it during the summer, and supplies gas to existing gas grid.

At Hawiyah, Samsung Engineering is currently engaged in an EPC project that builds an injection facility of 1,500MMSCFD\* and a Reproduction Facility of 2,000MMSCFD.

HUGRS project is a key project of Aramco, a Saudi Arabian company, that applies a wide range of innovative and new technologies. For the first time as an EPC company, we are constructing a radio shelter for hydrocarbon plant (width 6m x length 8m x height 4m) by using a 3D printer technology. Compared to existing installation methods, the new method can reduce required on-site manpower, construction schedule, and construction cost. We continue to promote minimal on-site work and shorter construction schedule by applying innovative technologies.

\*Million Standard Cubic Feet Per Day

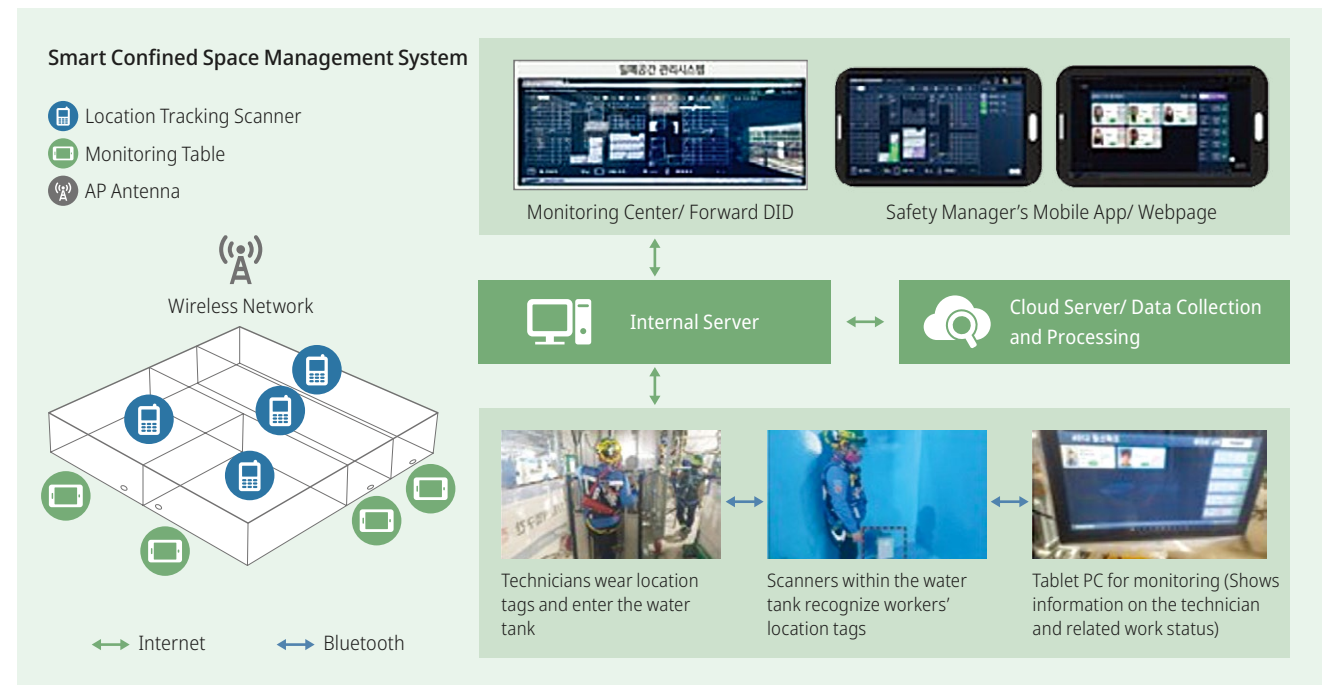
Application of 3D Printer (HUGRS project in Saudi Arabia)



**P3 Green Complex Project of Samsung Electronics**

P3 Green Complex project is a construction project that builds a wastewater treatment facility (total capacity: 81,600m<sup>3</sup>/d) of Godeok project site at Samsung Electronics' Pyeongtaek plant. Samsung Engineering owns the world's best technological capabilities in wastewater treatment facility construction projects. By adopting innovative DT technologies and safety management technologies such as BIM (Building Information Modeling), we identify construction interferences beforehand, use drones, 360-degree cameras, 3D scanners, and smart confined space management system. With these new technologies, we foster solid trust with our clients and continue to award wastewater treatment facility projects.

**Example of DT Technology Applied**



**Maximizing Localization – Global Operation**

Recently, local based EPC executions are required by several clients. Starting with Aramco, the demand for localization in the Middle East is growing. To preemptively respond to changes in the market environment, Samsung Engineering plans to form JVs (Joint Venture) with companies that are willing to expand their business into EPC area. By collaborating with local construction companies, we plan to transfer our innovative solutions and lead with technological capabilities to establish a system of global operations.

Samsung Engineering will first participate in Aramco's National EPC Champion (NEC) program to focus on establishing a JV in Saudi Arabia and making regional investments. The NEC Program is part of a policy to reinforce Saudi localization. Some of the programs' key requirements encompass forming a JV between a global EPC company and a local Saudi company to build capabilities that can handle the entire EPC processes. Furthermore, the program requires hiring local employees to maximize localization efforts.

To establish NEC joint venture, we are collaborating with ARPIC, a Saudi company specialized in energy. In July 5th, 2022, we signed NEC agreements with Aramco and ARPIC. The Saudi joint venture will be formed through joint investments from Samsung Engineering and ARPIC. Moving forward, the joint venture will fetch opportunities to enter Aramco's private contracts. To this end, the joint venture will transfer technology to local employees, provide trainings, employments, and engage with local partners to contribute to the Saudi economy.

Building on the system of global operations that starts in Saudi Arabia, Samsung Engineering plans to expand its system to other regions and nations. In addition, we will focus on marketing and securing project opportunities, strive to discover local suppliers who can build innovative solution-based partnerships, and hire more local talents.



Signing NEC Agreement with Aramco and ARPIC

## Beyond EPC Solution



Suji Respia, Yongin

Samsung Engineering is expanding its business areas into eco-friendly green solutions. Based on our technology and expertise, we will respond to fluctuations in global energy industry by proposing various solutions. In addition, we will successfully promote flagship project development strategy and secure core technologies. In this effort, we aim to become a pioneer in addressing climate change issues by preemptively responding to energy transformation.

### Our Strategy

To reduce the total amount of energy used in existing hydrocarbon and industrial plants, Samsung Engineering proposes energy optimization, CCUS (Carbon Capture, Utilization and Storage) that captures and recycles GHG, and Carbon Free energy implementation based on renewable energy. We are providing carbon net-zero solutions for our planet in active collaboration with Korean oil and chemical companies as well as foreign IOCs (International Oil Company) and NOCs (National Oil Company).

### Diversifying Core Technology

Samsung Engineering strives to secure core technologies in green solution area in order to set itself apart from its competitors. In particular, we formed a KRW 30 billion venture fund with Samsung Venture Investment on March 30th, 2021, to preemptively secure new technologies related to hydrogen and CCUS. This allowed us to invest in venture companies that own promising technologies. In regard to hydrogen extraction and transportation technology, which will become key areas in energy transformation in the future, we are promoting a joint R&D with the government, corporations, and research institutes. In November 2021, we were selected as a contractor for national project that extracts hydrogen from ammonia. As a result, we embarked on a technology development with Korean research institutes, schools, and companies.

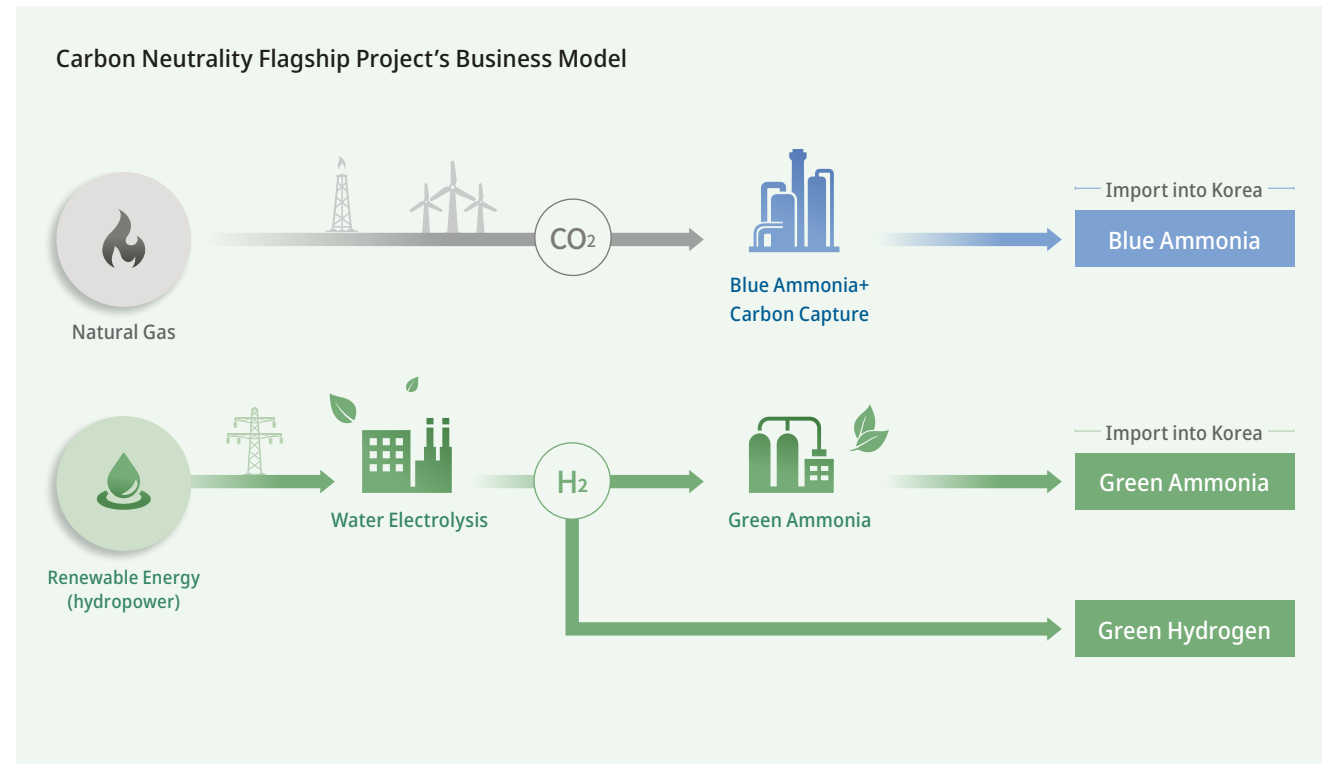


Incineration Plant in Cheonan

## Flagship Project Development

Samsung Engineering is discussing on development of a number of flagship projects in green solution area with various stakeholders. Participating in flagship projects can allow us to become a first mover in the green solution area. We plan to go beyond a mere EPC contractor and directly participate in project development, FEL\*, EPC, and operations through equity investment. Hydrogen flagship projects, encompass overseas production and domestic utilization of hydrogen, as well as, carbon capture in Korea, transportation and overseas storage aimed to accomplish the nation's carbon neutrality target. We are also developing projects with our key clients and partners in order to play a role as an intermediary that connects overseas blue/green hydrogen producers and Korean companies.

\*FEL: Front End Loading



### MOUs to Expand Carbon Neutrality and Hydrogen Business

In 2021, Samsung Engineering signed a memorandum of understanding (MOU) with Baker Hughes, a global energy technology company, to further collaborate on carbon neutrality and hydrogen areas. Both companies will join forces to provide services in CCUS and hydrogen energy use to companies that require GHG emission reduction. In collaboration with Baker Hughes, which owns carbon capture technology and hydrogen turbine required for its production and transportation, we plan to secure core technologies and expand our projects for carbon neutrality.

### Joint Development of Clean Hydrogen Project

In 2022, Samsung Engineering signed an MOU with Lotte Chemical, POSCO, and Malaysia's SEDC Energy (Sarawak Economic Development Corporation Energy) for Malaysia Sarawak H2biscus Clean Hydrogen Project Development. Based on the feasibility study conducted in 2021, the four companies plan to build plants in Sarawak area that produces green ammonia, blue ammonia, green methanol and green hydrogen. The plan will contribute to Korea's goal in achieving carbon neutrality as well as vitalizing hydrogen-fueled economy. Among the products that will be produced throughout the project, clean ammonia except for green hydrogen will be imported to Korea and be provided to Korean companies. Starting 2021, Samsung Engineering, Lotte Chemical, and POSCO have fostered trust by participating in 'Green Ammonia Consultative Body for Carbon Neutrality' and 'Republic of Korea Hydrogen Economy Performance Reporting Conference'. In addition, in August 2022, Samsung Engineering signed a business agreement with Samsung Heavy Industries, Lotte Chemical, GS Energy, SK Energy, SK Earth-on, and Petronas, on the joint development of the Shepherd CCS project, a carbon capture & transport & storage project between Korea and Malaysia.

As this project marks Asia's first CCS hub project, seven companies plan to develop the entire cycle of the CCS value chain from exploring local storage in Malaysia to carbon capture, transport and storage in Korea, based on their technological edge and expertise. Samsung Engineering will continue to build strategic partnerships for hydrogen and carbon neutrality, and secure technology to attract clean hydrogen from overseas sources and to expand our plants business.

### Expansion of Environmental Infrastructure Operation by Applying Eco-friendly Technology

Samsung Engineering applies high-efficiency technology at operation sites and developed an eco-friendly water treatment technology to reduce its operational costs and maximize environmental preservation effect. At Yongin wastewater treatment site, we reduce energy costs by using high-efficiency blowers and air diffusers with high oxygen transfer efficiency. We increase our efficiency based on operational data that we collected. Furthermore, we secure nonchemical wastewater treatment technology and address regulations on effluent quality and scarce water resources. We do this with ammonia removal technology based on electrical oxidation, high-speed condensation precipitation technology, desalination technology that removes SO<sub>4</sub> ion in effluent, and development of wastewater reuse technology. In particular, we reinforced water treatment business by acquiring shares of DNP Water, a Vietnamese water treatment enterprise in June, 2022. Based on our strengths, Samsung Engineering intends to actively promote green environmental infrastructure O&M business centered around wastewater treatment and incinerator operation.

### Project Expansion with RCS, a GHG Decomposition Technology

Samsung Engineering secured a stable GHG decomposition catalyst with a high level of efficiency and developed RCS (Regenerative Catalytic System) Package that proved GHG removal rate of over 90%. Since 2008, we have supplied the package to production lines of semiconductors and displays. We have greatly contributed to reducing GHG emissions for our clients by continuously engaging in performance improvement activities to advance the level of technologies.

**Expansion of Waste to Energy Business – Operation of Eco-friendly Businesses**

Samsung Engineering’s Cheonan Environmental Energy Business Site leads the reduction of GHG and resource reuse. The site is a facility specialized in domestic waste incineration. By using an ammonia included in food wastewater, the facility applied an eco-friendly technology that reduces GHG emission by creating a reaction with nitrogen oxide that is generated during incineration. As the facility treats 570 tons of daily waste, it also reduces GHG emissions by using eco-friendly technology. Furthermore, we also contribute to the production of eco-friendly resources by using high-temperature steam obtained during the cooling process of incineration heat and supplying it to nearby industrial complexes, cultural and sports facilities. In 2021, we expanded nitrogen oxide (NOx) reduction facilities at our businesses to manage air pollution more strictly than legally required.

**Energy Optimization**

Samsung Engineering strives to achieve goals of eco-friendly management including reduction of energy use and carbon emissions. We discover and propose ideas of energy optimization & reduction and optimal operation conditions by analyzing operation data and engineering data and running simulations. This allows reducing energy use and GHG emissions. We have also strengthened our capabilities by signing MOUs in 2020 with AspenTech, a leading software company in process asset solution. Moreover, we are proposing energy optimization solutions not just to clients in Korea but those in the global market based on the accumulated execution references.

**Innovation Solutions**

**Automation of Fabrication at Smart Shop**

From early 2020, Samsung Engineering began automating pipeline spool and steel structure fabrication. Under the names of Smart Piping Shop and Smart Steel Shop, we are promoting to build an automated factory by collaborating with Korean automation developers and fabrication vendors. We combined the semi-automatic fabrication devices used for each fabrication process of cutting, improvement, and welding, and developed robotic fabrication procedures to promote and entirely unmanned fabrication process. We expect the automation will help us ensure consistent quality management and stable fabrication. Resolve the shortage of skilled workers and prevent safety accidents. This will not only improve the competitiveness of EPC business but will have positive impacts on the piping and steel manufacturing markets.

**Commercialization of Innovative Solution**

Samsung Engineering has developed various DT-based automation solutions and construction automation equipment since 2016 and verified them by applying them in projects. Building on these efforts, we started to commercialize our innovation solutions from the early 2021 to secure new growth engines. The main solution to be commercialized is our “DT innovation platform,” which removes work inefficiency and improves productivity. Some of the key features of this business include engineering automation solutions, B2B e-commerce, and 3D-based data management solutions. In 2022, we are planning to develop a digital innovation platform and launch it in the market. In line with these efforts, we aim to pursue more collaboration with leading companies to further promote our innovation solution business. In addition, we made investment and acquired equity of GSIL, a company specialized in smart safety management solutions, which shows our strong commitment to accelerating safety management and elevating our safety standards.

Smart piping manufacturing process



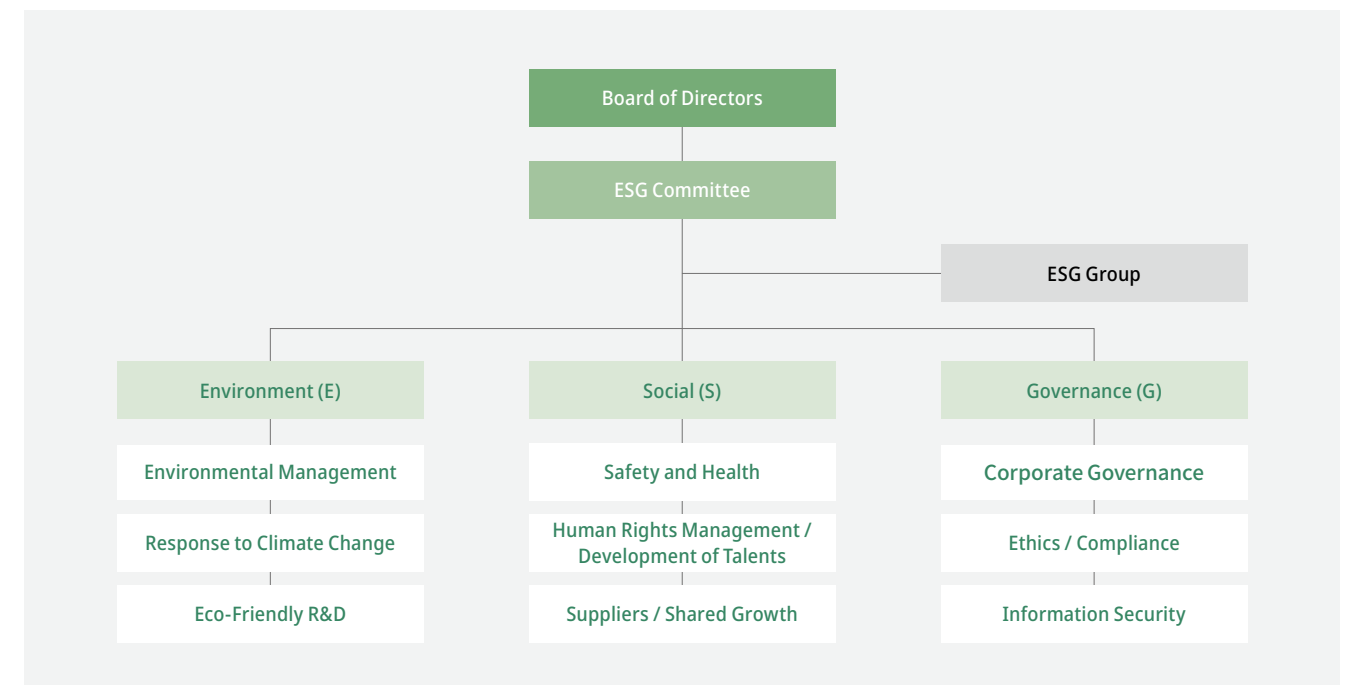
# ESG Management Framework

Samsung Engineering aims to achieve sustainability management that fulfills corporate social and environmental responsibilities along with profit generation for shareholders and investors. To achieve a higher level of sustainability management, we will reduce energy use and carbon dioxide emissions and further faithfully fulfill corporate social responsibilities and obligations as a responsible member of the mankind society. Based on these principles and standards, we continue to work hard to achieve tangible results by forming a dedicated organization for sustainability management and implementing various activities to realize common values with all stakeholders.

In order to practice sustainability management, Samsung Engineering set key directions for sustainability management based on ‘environment’, ‘society’, and ‘governance’. By doing so, we constantly discover sustainability management issues, improve existing areas, and diagnose sustainability management capabilities every year. As a result, we are widely acknowledged for our remarkable annual performances.

**Sustainability Management Governance**

Samsung Engineering established a sustainability management decision-making system to strengthen relevant capabilities on ESG major issues. In March 2022, an ESG committee consist mainly of outside directors was established to enhance shareholder value and spark discussions on social responsibility. In addition, the ESG Group, a dedicated ESG organization, was established to support the ESG committee, integrate ESG strategies and implementation systems across the company, and plan and execute ESG work. To discuss the direction of ESG strategy and lead to concrete implementation, we established an ESG consultative body to draw improvements for each ESG area while solutions are established through collaboration between organizations within the consultative body during ESG risk checkup.



# Environmental

38 Environmental Management

46 Environmental R&D

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ENVIRONMENTAL

# Environmental Management

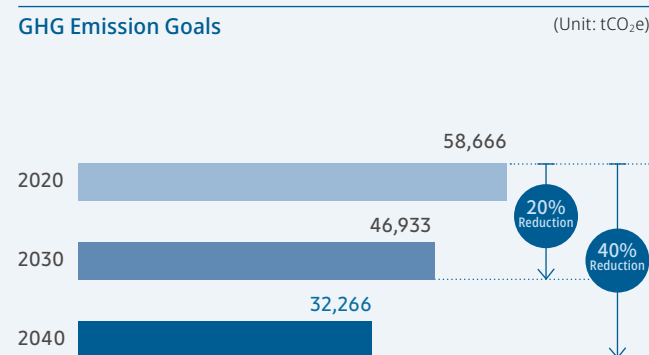


Samsung Display Asan Air Pollution Prevention Facility Project

## Environmental Management Goals

Under its vision of 'Building a sustainable society based on eco-friendly activities across all EPC processes', Samsung Engineering is managing various indicators to reduce environmental impacts that may emerge in the process of its business activities. Furthermore, we set mid-term goals for 10 years by selecting key indicators and engage in a wide range of eco-friendly activities to achieve them. As a result, we exceeded our goal in reducing both waste generation and GHG emissions for 2021 that was set based upon 2020 performance figures. For a strengthened climate action, we set the reduction goal for 2030 from the existing goal based on emissions per sales revenue to the emission goal in absolute amount. Samsung Engineering aims to accomplish net-zero by 2050 with phase-by-phase GHG emission reductions in absolute figures; 20% by 2030 compared to 2020, and 45% by 2040. To accomplish net-zero by 2050, we are currently establishing specific plans pertaining to GHG emissions reduction and renewable energy transition.

Based on mid to long-term GHG emissions reduction goals, Samsung Engineering periodically monitors GHG emissions at business sites in Korea and overseas as well as its headquarters. To accomplish GHG reduction goals, we are also expanding our activities directly related to GHG emission reduction including construction of eco-friendly



facilities. This includes energy-saving activities such as maintaining adequate indoor temperature at our headquarters, managing lights-out hours, and minimizing working off-sites as well as business trips. For overseas projects that require longer generator usage, we first identify key facilities that uses energy. We then secure electrical grids during initial stages and install generators during the planning stage to engage in GHG reduction activities.

## Environmental Policy

Samsung Engineering gives environmentally friendly management its top priority and implements environmentally sound solutions throughout its overall business activities. We recognize we have a duty of care to ensure that environmental, social and governance factors are embedded in our processes enabling us to carry out eco-friendly projects with the necessary diligence in ESG management. In doing so, we will minimize our environmental impact, reduce our contribution to global warming and preserve biodiversity.

As a Green Solution Provider, all employees of Samsung Engineering are committed to action as follows:

- Operate the environment management system and make continuous improvements in accordance with ISO 14001
- Understand and ensure compliance with environmental laws, regulations, the needs and expectations of all our stakeholders and any other applicable environmental obligations at home and abroad
- Identify environmental impact caused by our business activities and take mitigation measures to protect the environment and pollution
- Set out concrete environmental goals and implementation plans and strive to achieve the goals.
- Actively develop and apply environmentally-friendly and efficient design and technology
- Prioritize the purchase and use of eco-friendly products and strive to minimize consumption of energy, water and natural resources
- Avoiding waste generation, maximize reuse and recycling and minimizing the disposal of waste to landfill, and reduce greenhouse gas emissions
- Provide environmental training to all employees and share best practices with all parties to raise awareness about environment
- Minimize potential environmental hazards associated with partner companies by conducting prior inspection

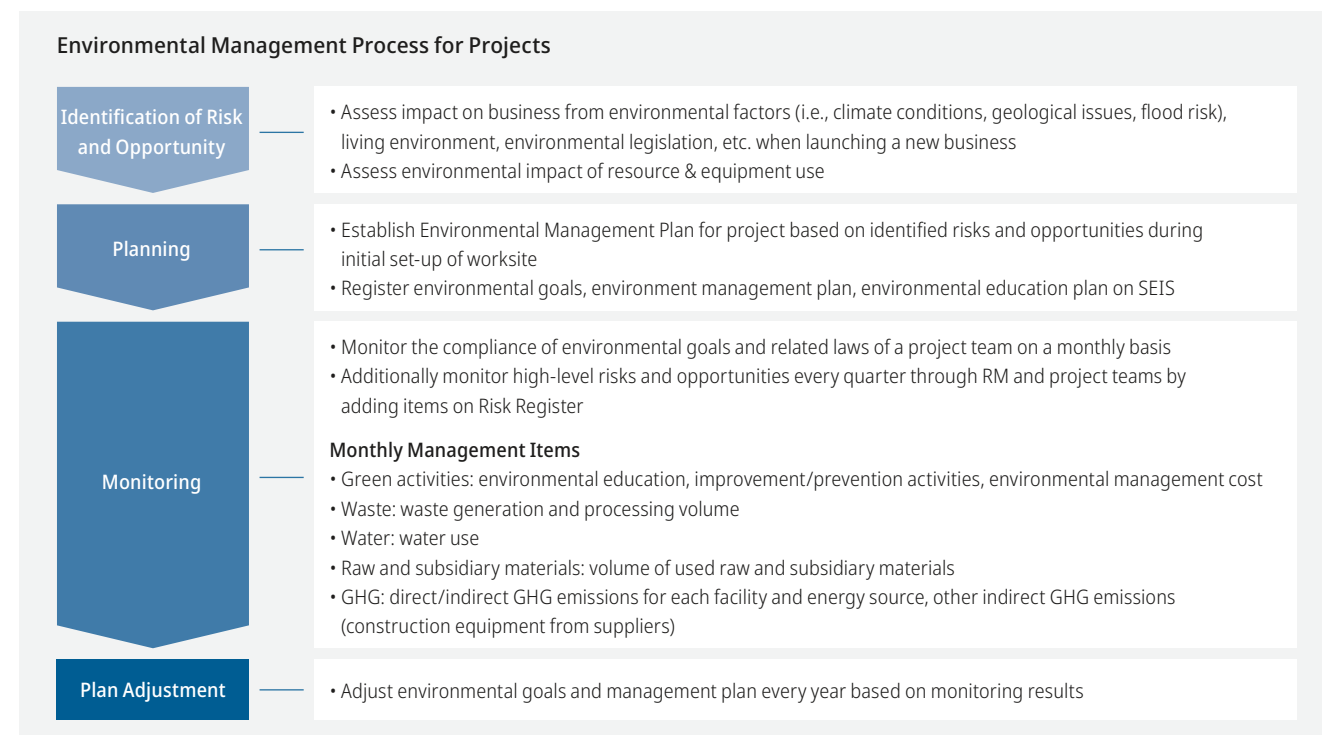
This Policy is implemented under the responsibility of Samsung Engineering top management. Samsung Engineering is committed to engaging in eco-friendly activities together with all employees, partner companies and other players of the EPC supply chain, thereby bringing the greatest value to stakeholders and realizing sustainable growth.

### Environmental Management Governance

Samsung Engineering's top executives recognize climate change as a major issue in regards to the company's management. Thus, the CEO is in charge of company-wide environment management and supervises the company's response to climate change. The CFO is responsible for establishing environmental policies and directions to effectively accomplish company-wide environment goals while monitoring achievements to execute environmental management. To promote responsible environmental management, we reflect the top executives' environmental performance to their management objectives where a company-wide response activities regarding climate change can follow suit. In the meantime, we plan to execute environmental strategies through the ESG committee where we will proactively establish climate change response management strategies and promote real-world practices by accelerating ESG-based new businesses schemes across the company. In addition, the Environmental Management Group directly under the Chief Safety Officer (CSO) drives environmental management actions as a general managing body in charge of all environmental affairs at the company-level. Furthermore, Samsung Engineering's headquarters, overseas corporations, project sites in Korea and overseas operate in accordance with ISO 14001:2015.

### Environmental Management System

Samsung Engineering assesses and manages project-level risks and opportunities by each project team and relevant functional teams. Every month, we enter environmental data regarding both domestic and overseas sites into SEIS (Sustainable Environmental Initiative System). SEIS is an internal site environment management system where employees in charge of project environment enter and manage data on waste disposal and water usage every month. Based on ISO 14001, SEIS is split into EMS (Environment Management System) for planning, site management, and monitoring. There's also GMS (Greenhouse Gas Management System) for collecting GHG emissions and GPI (Green Performance Indicator) for analyzing environmental management performance. Environmental risks and opportunities per project are managed and evaluated by each project team and relevant functional teams. At each phase of the project, we devise strategies to minimize environmental impact to establish action plans and execute based on management plans.



The Percentage of Sites Operated by the ISO 14001 Standard **100%**

### Environmental Training

Samsung Engineering provides environmental training to all hands at our business sites, including employees of our suppliers. In particular, we provide tailored training for site employees regarding management of waste, dust, and chemicals. To ensure whether sufficient training was provided to the employees, we manage number of hours spent on environmental training for each employee. Furthermore, we encourage our employees to partake in environment improvement activities by reflecting the number of activities participated for improving the environment as a major index. In addition, we offer environmental training and manage training results for our suppliers once every month on waste classification, disposal methods, and ways to reduce dust that are applicable on sites.

### Employee Environmental Education and Results of Participating in Improvement Activities

Category	Classification	Unit	Year		
			2019	2020	2021
Environmental education	On-site education hours	hours	168,815	133,702	96,915
	On-site environmental education	hours/person, month	0.5	0.3	0.3
Environment improvement activities	Numbers of activities participated	cases/person, month	0.3	0.3	0.3

### GHG Emissions Management

Samsung Engineering sets mid to long-term goals to reduce GHG emissions at business sites in Korea and overseas as well as our headquarters. We establish action plans to achieve these goals and participate in activities to reduce emissions. Among six major GHGs, we manage and control the emissions of three types of GHGs (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O<sub>3</sub>). To enhance the accuracy of measured emissions data, we proceed validation of data from external evaluators.

### GHG Emissions Reduction

Through consistent efforts to reduce GHG emissions, we strive to become an eco-friendly company. Up until 2020, we maintained our GHG emission goals based upon emissions compared to sales revenue. Starting 2021, however, we switched the basis of GHG emission reduction goal and planning into an absolute number to highlight our tenacity to reduce emissions by an absolute figure. In 2020, we exceeded our existing goal of 20% reduction in comparison to 2012 revenue. In 2021, we accomplished the achievement of 24.9% reduction of emissions compared with the emissions of previous year even with the reinforced GHG emission reduction goal based on the absolute GHG emission standard. Our plan is to reinforce GHG emissions monitoring through eco-friendly facility construction and energy conservation activities at the headquarters.

### Absolute GHG Emissions

**24.9% reduction**  
Compared to 2020

### Scope 1&2 GHG Emissions

Classification	Unit	2019	2020	2021
Scope 1 <sup>1)</sup>	tCO <sub>2</sub> e	18,308	27,058	28,106
Scope 2 <sup>2)</sup>	tCO <sub>2</sub> e	20,746	31,608	15,971
Total GHG emissions (Scope 1, 2)	tCO <sub>2</sub> e	39,054	58,666	44,077
On-site auxiliary facilities	tCO <sub>2</sub> e	18,322	24,007	18,760
Headquarters	tCO <sub>2</sub> e	10,757	10,368	11,104
Construction equipment	tCO <sub>2</sub> e	4,398	16,276	6,140
Vehicles	tCO <sub>2</sub> e	5,577	8,016	8,073
Direct/indirect GHG emissions amount per sales revenue	tCO <sub>2</sub> e/KRW billion	6.1	8.7	5.9

1) 2021 Scope 1 emission goal: 26,463

2) 2021 Scope 2 emission goal: 30,912

**Scope 3 GHG Emissions**

Classification	Unit	2019	2020	2021
Total scope 3 emissions	tCO <sub>2</sub> e	181,221	203,752	217,357
Contractors (on-site construction equipment)	tCO <sub>2</sub> e	106,013	138,722	151,592
Logistics (raw materials transport)	tCO <sub>2</sub> e	17,831	15,742	16,584
Employee commute (shuttle bus)	tCO <sub>2</sub> e	365	397	417
Business trips (overseas flights)	tCO <sub>2</sub> e	9,168	2,331	2,529
O&M facilities <sup>1)</sup>	tCO <sub>2</sub> e	44,415	43,166	42,974
Downstream leased assets	tCO <sub>2</sub> e	3,429	3,394	3,261

1) O&M facility figures refer to GHG emissions caused by operating sewage/wastewater treatment facilities and incineration facilities

**Efficient Energy Management**

Samsung Engineering engages in activities to reduce energy usage at its headquarters as well as project sites in Korea and overseas by setting goals and subsequent action plans.

**Energy Consumption**

Classification	Unit	2019	2020	2021
Total energy consumption	GJ	423,179	630,625	543,538
Direct energy consumption <sup>1)</sup>	GJ	263,835	391,800	408,558
Gasoline	GJ	54,136	73,917	80,535
Diesel	GJ	178,966	297,373	305,571
Kerosene	GJ	9,834	113	965
LNG	GJ	20,867	20,376	21,456
LPG	GJ	32	21	31
Indirect energy consumption <sup>1)</sup>	GJ	154,685	233,892	130,688
Electricity	GJ	142,931	222,543	118,498
Heat and steam	GJ	11,754	11,349	12,190
Renewable energy consumption <sup>2)</sup>	GJ	4,659	4,933	4,292
Solar power	GJ	49	18	13
Geothermal power	GJ	4,610	4,915	4,279
Total energy consumption per revenue	GJ/KRW billion	66.5	93.4	73.2

1) 2021 non-renewable energy(direct/indirect) consumption goal: 598,787

2) 2021 renewable energy consumption goal: 5,145

**Violation of Environmental Regulations**

Classification	Unit	2019	2020	2021
Number of violations	cases	0	0	0
Fines	KRW million	0	0	0

**Energy Consumption**

**13.1% reduction**  
Compared to 2020

**Waste**

To expand waste recycling and reduce waste generation, Samsung Engineering calculates the amount of waste generated by each waste type and the amount disposed by each waste disposal method every month through SEIS (Sustainable Environmental Initiative System). For projects in Korea, we achieved a 100% recycling rate through zero waste to landfill. As of now, we are pursuing a zero waste to landfill certification for projects in Korea during 2022. For overseas projects, we are establishing plans to increase recycling rate and reduce waste generation by 20% of sales revenue compared to 2020 by 2030.

**Waste Management**

We observe laws, regulations, and other requirements in advance at all locations where our projects in Korea and overseas are taking place. We then devise environment management plans and waste management plans within the boundaries of law. For domestic projects, we observe waste disposal companies' internal regulations including their technical expertise when we select our partners. When an agreement is reached through a standard contract, we conduct periodic inspections. For overseas projects, we select qualified waste disposal companies with legitimate waste disposal methods, after which we conduct management and monitoring on a regular basis.

**Total Waste Generated and Disposed**

Category	Unit	2019	2020	2021
Waste generated	ton	192,114	175,020	196,070
Construction waste	ton	187,564	169,295	184,653
Business site waste	ton	3,622	5,405	10,520
Hazardous waste	ton	928	320	897
Waste disposed	ton	192,114	175,020	196,070
Landfilled	ton	115,436	52,546	118,071
Incinerated	ton	8,973	22,887	9,062
Recycled	ton	67,705	99,587	68,937
Ratio of generated waste to sales revenue	ton/KRW billion	30.2	25.9	26.2
Waste recycling rate <sup>1)</sup>	%	39.9	70.0	40.0

1) Refers to the amount of recycled waste out of total waste generated. Includes incinerated waste to recover waste heat

**General Waste**

Category	Unit	2019	2020	2021
General waste disposed <sup>1)</sup>	ton	191,186	174,700	195,173
Landfilled <sup>1)</sup>	ton	115,431	52,505	117,967
Incinerated <sup>1)</sup>	ton	8,861	22,828	9,013
Incinerated with energy recovery <sup>1)</sup>	ton	8,861	22,828	9,013
Incinerated without energy recovery <sup>1)</sup>	ton	0	0	0
Recycled <sup>1)</sup>	ton	66,894	99,367	68,193

1) Goals for general waste management in 2021

- Goal for waste disposed: 173,000
- Goal for waste landfilled: 52,000
- Goal for waste incinerated: 22,600

- Goal for waste incinerated with energy recovery: 9,013
- Goal for waste incinerated without energy recovery: 0
- Goal for waste recycled: 100,360

**Hazardous Waste**

Category	Unit	2019	2020	2021
Hazardous waste disposed <sup>1)</sup>	ton	928	320	897
Landfilled <sup>1)</sup>	ton	5	41	104
Incinerated <sup>1)</sup>	ton	112	59	49
Incinerated with energy recovery <sup>1)</sup>	ton	112	59	49
Incinerated without energy recovery <sup>1)</sup>	ton	0	0	0
Recycled <sup>1)</sup>	ton	811	220	744

1) Goals for hazardous waste management in 2021

- Goal for waste disposed: 317

- Goal for waste landfilled: 41

- Goal for waste incinerated: 58

- Goal for waste incinerated with energy recovery: 49

- Goal for waste incinerated without energy recovery: 0

- Goal for waste recycled: 242

**Protecting Biodiversity****Biodiversity Protection Policy**

To maintain and restore the nature's ecosystem and to protect biodiversity, Samsung Engineering stipulates the protection of biodiversity within its environmental guidelines. Our biodiversity protection guideline applies to suppliers and contractors as well. Based on project sites, we investigate international standards and local requirements beforehand to identify potential impact of a project to the biodiversity in vicinity. We continuously monitor the crucial impact factors preemptively derived from the planning process to protect biodiversity before commencing construction so to minimize environmental impact in surrounding areas.

**Protecting Biodiversity at Business Sites**

Samsung Engineering conducted biodiversity protection activities as Duqm in Oman, where our project is currently underway, was designated as an IBA (Important Bird Area) as it serves an important seasonal home for wading birds such as gulls and coastal migratory birds. Among 120 species that pass through the area, – 115 from IBA and 5 from OBRC (Oman Bird Records Committee) – most are migratory birds or coastal birds. As a result, we performed an EIA (Environmental Impact Assessment), investigated species that are subject to protection, and devised ecological management execution plan in accordance with IFC PS (International Finance Corporation Performance Standard). In particular, we invited Omani government employees in charge of biodiversity protection to special lectures and collaborated with Oman's Public Authority for SEZ (Special Economic Zone) for activities to clean up the coastline. Through various campaigns and training programs, Samsung Engineering is directly involved in biodiversity protection.

**Forest Protection Policy**

Samsung Engineering bans damaging the nature such as forest destruction, prevents environmental pollution, and comply with relevant regulations on environment protection. Through stipulations on our code of conduct, we ban business activities that violate environment protection. With Risk Register system, we monitor risks relevant to environmental protection and regulation when we plan on business projects.

**Water Management**

To keep using sustainable water resources and minimize environmental impact, we perform 3R (Reduce, Reuse, Recycle) activities in all our projects around the globe. We also strictly measure water consumption by its type. Out of all usage, municipal water takes up the highest portion. There were no intake activities found that affected surrounding environment and ecosystem.

**Water Consumption**

Category	Unit	2019	2020	2021
Total water consumption <sup>1)</sup>	ton	942,473	975,260 (1,593,249) <sup>2)</sup>	982,359
Surface water	ton	0	3,234	12,950
Underground water	ton	0	0	28,647
Municipal water	ton	787,749	833,544 (1,451,533) <sup>2)</sup>	831,085
Recycled water	ton	154,724	138,482	109,677
Ratio of water consumption to sales revenue	ton/KRW billion	148.0	155.9 (236.1) <sup>2)</sup>	131.2

1) Goal for water consumption in 2021: 797,709

2) Water consumption dramatically increases if we include the amount of water consumption in 2020 at Oman Duqm project's test drive. To allow more accurate comparison, we separately indicated the total water consumption within the parentheses

**3R (Reduce, Reuse, Recycle)**

Samsung Engineering estimates water consumption that is need for each project and establish water supply plans during the project planning phase. Many of our sites are located in regions where water supply is scarce, like the Middle East. Therefore, we reuse underground water discharged during excavation, rainwater, and once-used domestic sewage for sprinkling, gardening, and cleaning.

ENVIRONMENTAL

# Environmental R&D



Samsung Engineering Environmental Technology Development Center

## Roadmap

Samsung Engineering is promoting environmental R&D with mid- to long-term perspective to secure technological competitiveness for cost reduction and energy independence, create new business opportunities by specializing in ESG-linked technologies and preparing for future businesses, and secure O&M competitiveness by automating sewage treatment processes.

Classification	2022	2023	2024	2025	2026	2027	2028	2029	2030
Environmental Infrastructure	Secure of <b>Mid to Long-Term</b> Core Capability and Technology Differentiation					Widening the Gap of <b>Long-Term</b> Technology			
	<ul style="list-style-type: none"> <li>Securing equal level of technology to competitors through technology differentiation</li> <li>Cost reduction by 10%, energy independence by 60%</li> </ul>					<ul style="list-style-type: none"> <li>Securing the global top level of technology through technology differentiation</li> <li>Cost reduction by 15%, energy independence by 90%</li> </ul>			
New Business	Secure of <b>Mid-Term</b> Core Capability					<b>Long-Term</b> Technology Differentiation			
	<ul style="list-style-type: none"> <li>Examination of technology level in the waste sector and discovery of detailed agenda items</li> <li>Energy and resource recovery from waste based on sewage treatment</li> </ul>					<ul style="list-style-type: none"> <li>Securing equal level of technology to competitors through technology differentiation</li> <li>Extension of the area for energy and resource recovery from urban waste</li> </ul>			
Smart O&M	Wider Use of Automation for <b>Short-Term</b>			<b>Mid to Long-Term</b> Completion of Automation					
	<ul style="list-style-type: none"> <li>Automation of core processes within sewage treatment</li> <li>60% automation of sewage treatment processes</li> </ul>			<ul style="list-style-type: none"> <li>Securing equal level of technology to competitors through automation of all processes within sewage treatment</li> <li>100% automation of sewage treatment processes</li> </ul>					

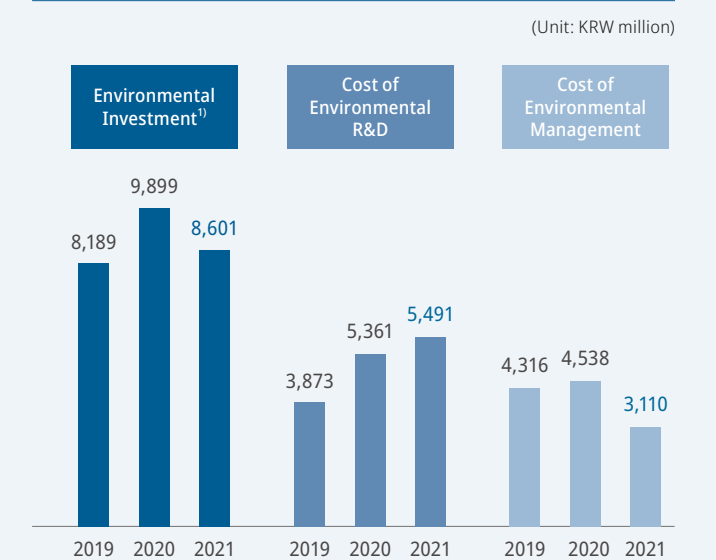
## Status of Eco-Friendly R&D Investment

Samsung Engineering establishes annual environment investment schemes under the leadership of the Environmental Technology Development Center and Safety & Health Team to reduce environmental impacts during operations and make contributions in improving the environment. The environmental investment costs consist of eco-friendly R&D and management costs. Through environmental R&D activities aim to develop eco-friendly and future oriented core technologies. Environmental management activities include on-site environment preservation efforts such as operation of dust and water pollution prevention facilities. Environmental R&D cost for 2021 recorded about KRW 5.5 billion, which is a 2.4% increase from the previous year.

### Eco-Friendly R&D Investment Goals

By 2030, Samsung Engineering aims to develop more than six eco-friendly R&D technologies. We intend to expand our eco-friendly R&D investment so to reduce costs of electricity and chemicals, collect resources, and develop eco-friendly R&D technology. Moving forward, we will continue to invest in expanding eco-friendly businesses.

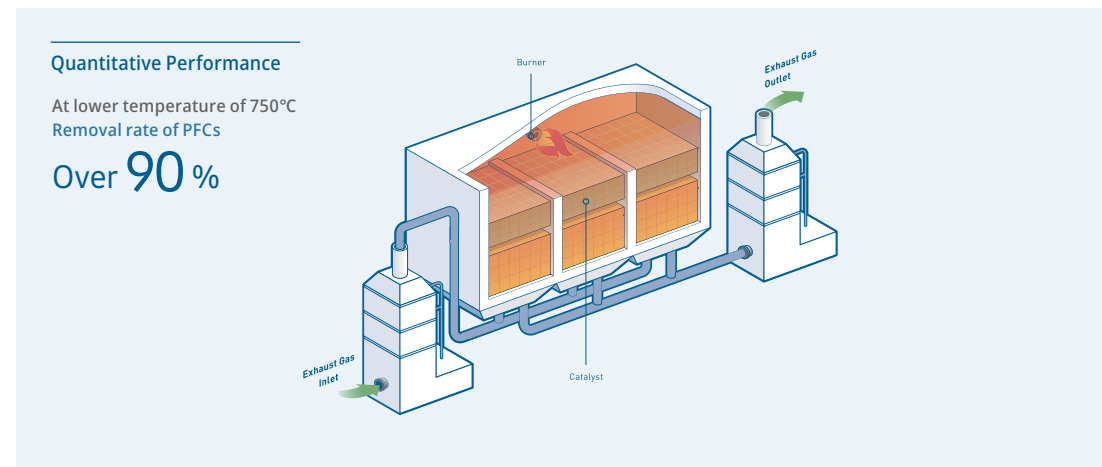
## Status of Environmental Investment



1) Environmental investment cost consists of eco-friendly R&D cost and management cost

### RCS (Regenerative Catalytic System), a Low-Energy, Large Amount GHG Emissions Decomposition Technology

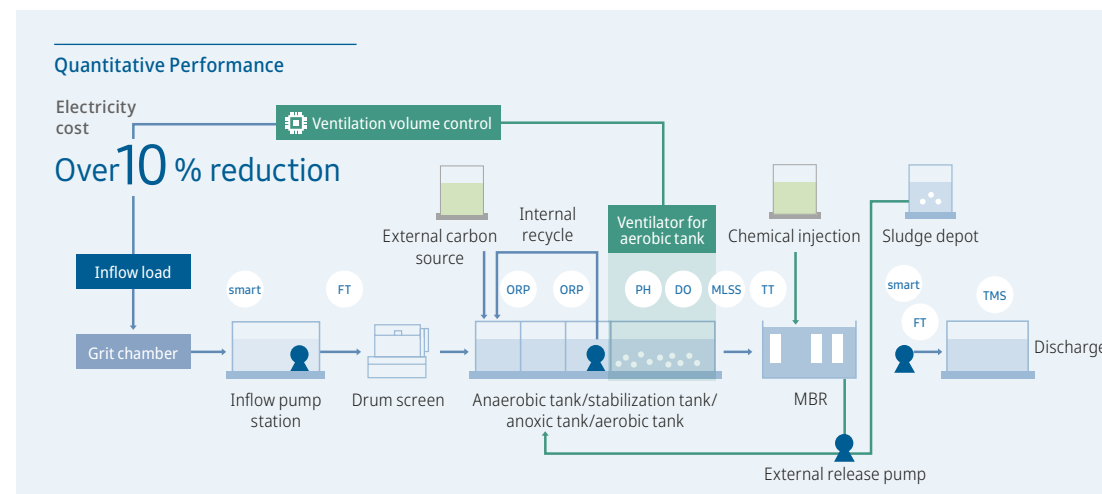
In semiconductor and display manufacturing processes, GHG that contains fluorine including PFCs (Perfluorinated Chemicals) are generated. Such GHG requires a decomposition temperature over 1,200°C and leaves a highly concentrated HF (hydrofluoric acid) afterwards, which makes the treatment even more difficult. Samsung Engineering secured a stable and highly efficient GHG decomposition catalyst which uses less energy at 750°C, a lower temperature than existing GHG decomposition method. Based on this catalyst, we developed an RCS package that demonstrated over 90% removal rate of GHG. Since 2008, we have supplied it to semiconductor and display production lines. With constituent efforts to improve functions, we were able to elevate the package's technical expertise and made significant contributions to our clients' GHG emissions reduction.



### Development of AI-MBR Autonomous Driving Platform

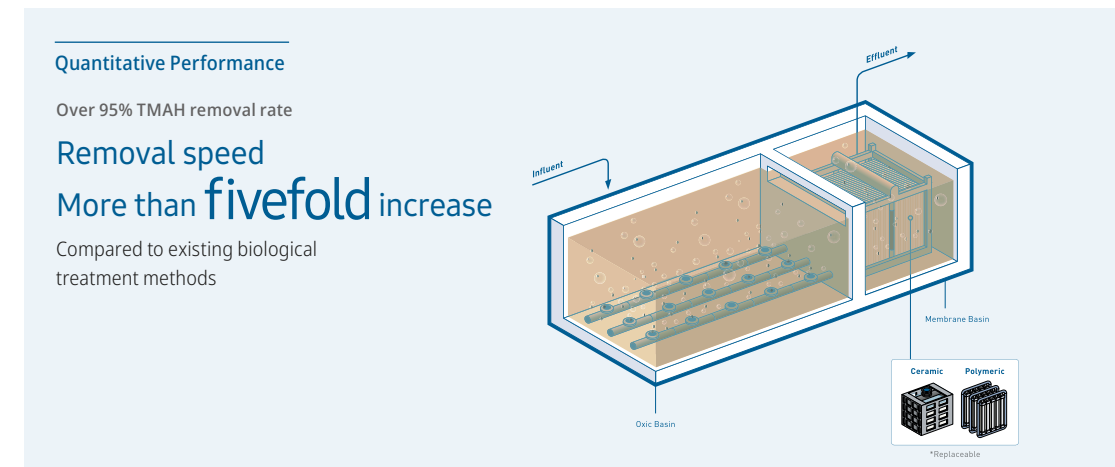
Sewage facilities are essential to protect biodiversity. However, there are certain sewage treatment facilities that exceed treated water quality standard and use excessive amount of electricity and chemicals due to operational errors and inadequate response to issues. In September 2020, the Korean government announced smart sewage treatment facility promotion plans and seeks to remove such inefficiency.

As a response, Samsung Engineering developed AI-MBR (Artificial Intelligence-Membrane Bioreactor) technology, an optimal management technology that uses big data and artificial intelligence to make sewage treatment facilities smarter. The technology is currently in a verification stage at on-site sewage treatment facilities. AI-MBR breaks away from existing operators' level of expertise and uses an AI that executes data-based decision-making to cut electricity cost, which takes up over 20% of operational cost, by more than 10%. In turn, the technology can contribute to GHG emissions reduction. Samsung Engineering is continuing its development efforts to fully automate the sewage processing facility.



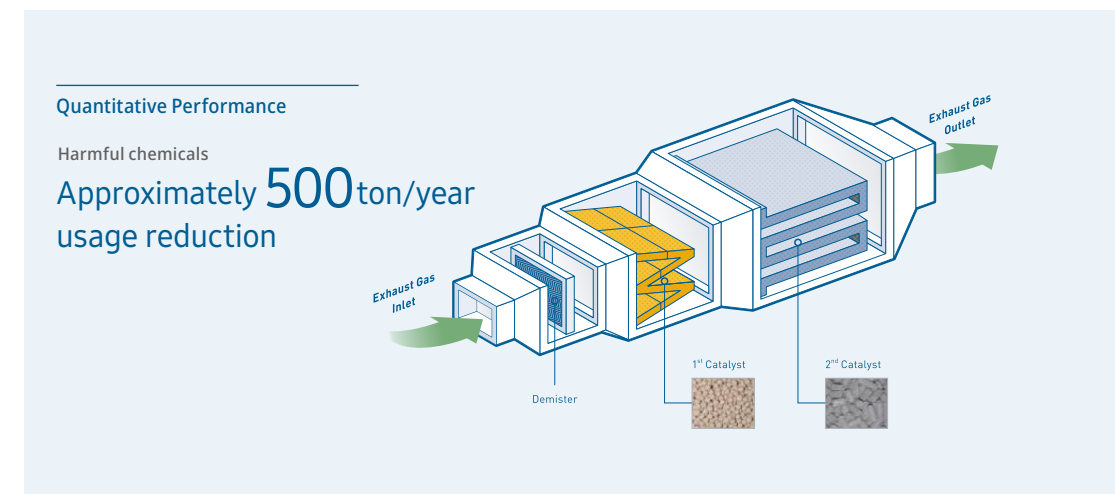
### High-Concentration TMAH Treatment Technology

To protect the water ecosystem and the safety of workers, we strive to secure technologies that treat toxic materials. As a part of its effort, Samsung Engineering developed a technology that treats TMAH (TetraMethyAmmonium Hydroxide). During manufacturing processes in high-tech industries including semiconductor and display, a highly toxic TMAH is emitted. Wastewater that contains highly concentrated TMAH is extremely toxic and therefore lowers the efficiency of wastewater treatment sites. On the other hand, wastewater treatment sites that applied Samsung Engineering's TMAH treatment technology treated the substance in advance and drastically improved the operational stability of the treatment sites.



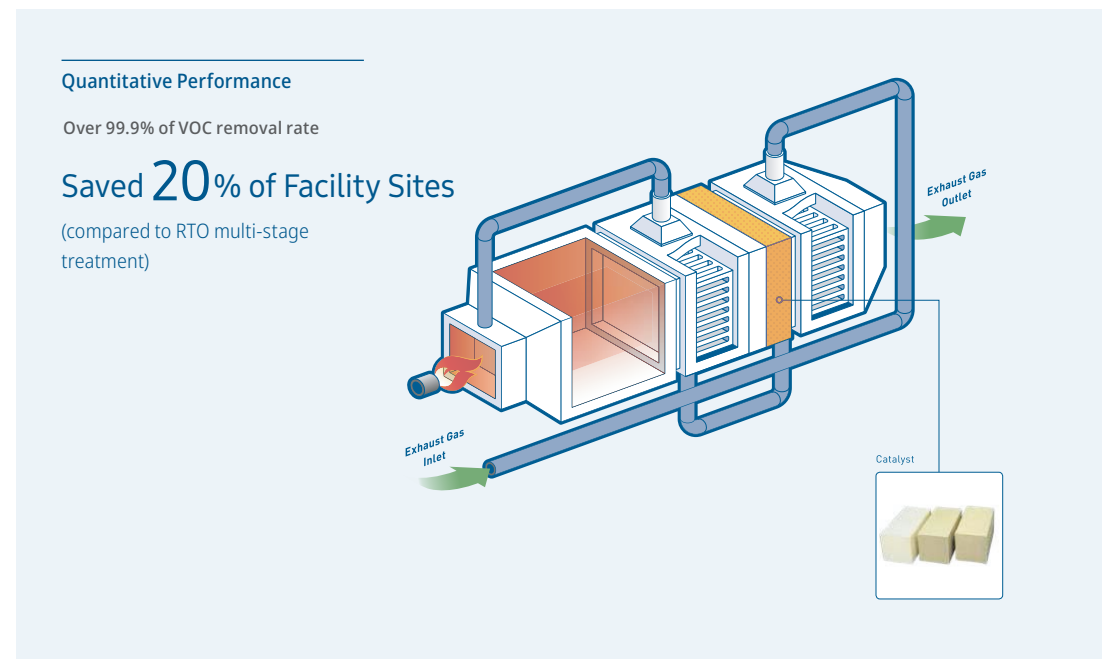
### Development of Multi-Functional Catalyst Process for Stench Removal at Wastewater Treatment Sites

The importance of deodorization system at wastewater treatment sites is growing as a part of an effort to coexist with local communities. The existing deodorization system induces a large amount of wastewater and had a problem of requiring harmful chemicals such as sulfuric acid and caustic soda. Samsung Engineering's ionic catalyst deodorization technology is an eco-friendly dry treatment technology that neither uses harmful chemicals nor generates wastewater. The development of this technology was completed in December 2019 and underwent an upgrade in 2020 to become a multifunctional catalyst through consistent R&D. Through pilot drive (July 2020 – June 2021) on sites, the technology verified its deodorization function and long-term stability, and a preparation is underway for on-site installation in 2022. The technology avoids using 500 ton/year worth of harmful chemicals (NaOH, NaOCl, etc.).



### Treatment of Organic Exhaust Gas with Oxidation Technology

VOCs (Volatile Organic Compounds) contained in industrial facilities' exhaust gas are harmful to human body, causes smog and destruction of ozone layers, and even has a stench. RTO (Regenerative Thermal Oxidation), an existing treatment facility for VOCs, is structurally limited to remove stench due to remaining VOCs. The TCO (Thermal Catalytic Oxidation) technology developed by Samsung Engineering can remove VOCs and applies the oxidation catalyst method to remove stench. By applying highly efficient optimal thermal exchanger and a catalyst, it operates as a single facility and therefore requires less space.

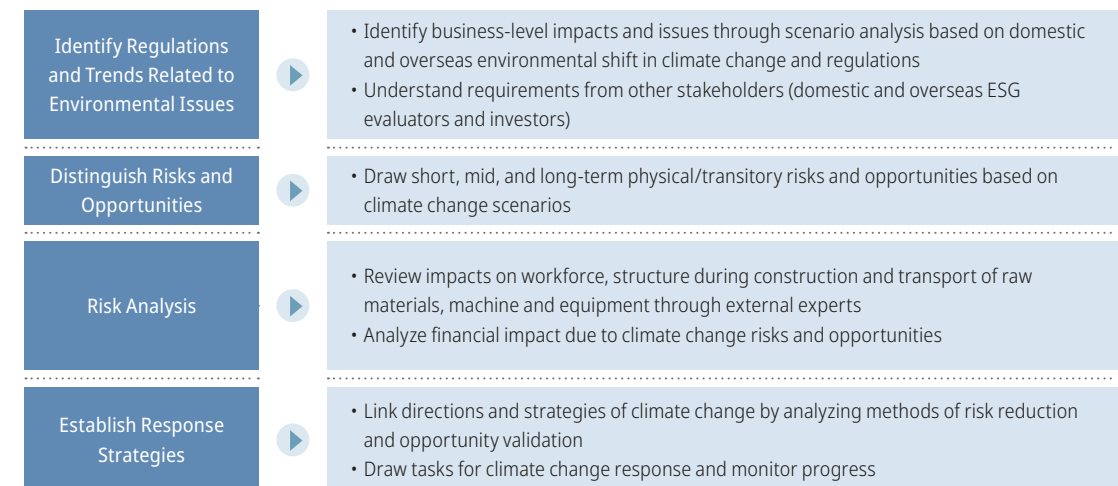


## Response to Climate Change

To address unusual climate due to a rapid climate change and respond to demands on eco-friendly business management policies as well as our clients' requests, Samsung Engineering conducted a comprehensive analysis on climate change risk factors and impact to our businesses. We then devised a systematic response strategy to offset climate change risk.

### Process to Manage Climate Change Risks and Opportunities

Samsung Engineering implemented a process to manage company-wide risks and opportunities on climate change so that we can better identify and respond in advance.



### Analysis of Financial Impact due to Climate Change

Samsung Engineering identifies potential risks and opportunities to its businesses in short, mid, and long-term perspectives by conducting a global climate change scenario analysis. To identify physical risks and impact of these risks, we reviewed two scenarios – RCP\* 4.5 and 8.5. Additionally, we conducted scenario analysis by applying Korea's Nationally Determined Contribution (NDC\*\*) for comprehensive analysis of transition risks and impacts.

\*Representative Concentration Pathways  
\*\*Nationally Determined Contribution

#### Analysis of Financial Impact from Climate Change

	Risk Factors	Category	Level of Impact	Financial Impact
Physical risk	Unusual climate (Extreme heat, heavy snow, drought, heavy rain, flood, cold wave)	Project sites	High	Financial loss from physical and management damages to facilities including project timeline extension, facility collapse or damage, water pollution, and delays in transportation of equipment and materials
		Supply chain or value chain	Medium	Financial loss from delays in transportation of materials and raw materials supply
Transition risk	Clients' increased needs for eco-friendly business	Products and services	High	Loss of eco-friendly business opportunities if the clients' request regarding independent GHG emissions reduction effort and eco-friendly infrastructure service remain unanswered Weaker global competitiveness in eco-friendly market Increase in overall R&D cost as investment in eco-friendly R&D becomes more active
		Stricter policies and regulations on climate change	R&D investment	Medium

### Short·Mid·Long-Term Risks and Opportunities & Countermeasures

Samsung Engineering analyzes risks and opportunities emerging from climate change that are relevant to the overall management of company and our projects. By doing so, we identified key transition and physical risks that impact our businesses. For short-term risks, there are increased client needs on eco-friendly business and unusual climates such as heavy rain and heavy snow. For mid to long-term risks, there are GHG emissions trading scheme, rising sea level, and rise in average temperature due to an extended period of climate change. For opportunities, we selected lower operational cost due to an increased resource efficiency, market competitiveness in eco-friendly market with an expansion of eco-friendly products and services, and enhanced response capabilities in climate change based on a higher climate change resilience. As a result of these selections, we established and executed action plans accordingly.

Risk Type	Category	Impact	Business Impact	Response Plans
Transition risk	GHG emissions trading scheme	Mid to long-term	Increase in emissions reduction cost when selected for a emissions trading enterprise	<ul style="list-style-type: none"> <li>Expand the use of renewable energy</li> <li>Establishment and execution of GHG reduction goals, conduct monitoring</li> <li>Perform GHG reduction activities (change lights-out hour, increase efficiency in air conditioning and heating, manage company vehicles, etc.)</li> <li>Manage Scope 3 emissions (provide GHG emissions calculation tool for construction equipment of suppliers, manage emissions from employee business trips, commute, and logistics)</li> </ul>
	Increased client needs on eco-friendly business	Short-term	Increase in costs of eco-friendly product development and R&D expenses	<ul style="list-style-type: none"> <li>Develop low energy, decomposition technology for a large amount of GHG</li> <li>Expand eco-friendly R&amp;D investment with an aim to develop over 6 eco-friendly R&amp;D technologies by 2030</li> </ul>
Physical risk	Heavy rain, heavy snow, extreme heat	Short-term	Damages to production and employees from extreme heat	<ul style="list-style-type: none"> <li>Distribute supplies to prevent heat-related illnesses</li> <li>Real-time weather forecast at each site to prevent risks in advance</li> <li>Establish work hour adjustment policies under hot weather and unusual climate</li> </ul>
			Facility damage	<ul style="list-style-type: none"> <li>Quarterly facility checkup in preparation of heavy rain, extreme heat, and heavy snow</li> <li>Construction insurance</li> </ul>
	Rise in sea level, average temperature, average rainfall	Mid to long-term	Delays in raw materials supply and transport	<ul style="list-style-type: none"> <li>Diversify supply chain channels to prevent construction delays</li> <li>Devise handling and storage guidelines for transportation of raw materials</li> <li>Prepare on-site raw materials handling and storage guidelines</li> </ul>
			Flood on site, limits on the number of workdays for employees	<ul style="list-style-type: none"> <li>Arrange climate change response manuals at each site through regular climate data monitoring and analysis</li> <li>Secure workdays by automating on-site work</li> </ul>

### Opportunities

Type	Business Impact
Increase in resource efficiency	<ul style="list-style-type: none"> <li>Decrease operational costs through GHG reduction activities</li> <li>Lessen waste disposal costs resulting from reduced waste generation and increased recycling</li> </ul>
Provision of eco-friendly products and services	<ul style="list-style-type: none"> <li>Increase the number of global projects by developing eco-friendly construction methods/processes</li> <li>Develop new infrastructure service through innovation and R&amp;D</li> <li>Increase demands on carbon capture and expansion of hydrogen business</li> </ul>
Resilience	<ul style="list-style-type: none"> <li>Develop response plans to mid to long-term risks and enhance capabilities by participating in global initiatives regarding climate change/renewable energy</li> <li>Reinforce risk management capabilities in environmental sectors such as GHG reduction and energy management by responding to the global initiatives including CDP (Carbon Disclosure Project) and providing responses to external evaluations</li> </ul>

**KEY RESPONSE CASE 1**

**GHG Reduction Through Waste Incineration**      Cheonan business site, which is an incineration facility for domestic waste, applied eco-friendly technology that reduces GHG by creating a chemical reaction between ammonia included in food wastewater and nitrogen oxide generated during incineration.

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**KEY RESPONSE CASE 2**

**Partnership for Carbon Neutrality and Expansion of Eco-Friendly Business**      In April 2021, Samsung Engineering signed a partnership agreement with Lotte Chemical to make good use of both companies' expertise and experiences in order to achieve goals for carbon neutrality and eco-friendly businesses. Both parties will collaborate to invest in and develop eco-friendly technologies, and create eco-friendly businesses. In particular, Samsung Engineering will use extensive experience and expertise in engineering, procurement and construction to establish a green ecosystem.

# Social

- 56 Safety
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- 92 Local Community



SOCIAL

# Safety

## WORKING TOGETHER FOR OUR SAFETY



### Safety Management Philosophy

Samsung Engineering prioritizes the safety and health of our clients, employees, and local communities and does its best to prevent accidents. At all levels of our business conducts, we plan and execute objectives and action plans based on safety and health management system and principles. Through regular monitoring, we continue to make improvements by sharing information with employees, suppliers, and workers.

### Safety Management System

To build a sustainable society alongside with our employees, clients, suppliers, and local communities, Samsung Engineering established 'Enhancing leadership, applying innovative technologies, and strengthening execution in safety and health' as three main goals. Under these goals, we are promoting various tasks to prevent serious accidents and to elevate the level of safety culture. By complying with ISO 45001, which is the international standards, and Korea Occupational Safety & Health Agency's Occupational Safety and Health

Management System (KOSHA MS), we fortified the management's leadership in safety and health and their willingness to take actions. We also strive to establish a culture of advanced safety and health with our suppliers through shared growth and participation from employees.

basis. In addition, we operate quarterly Safety & Health Committee to discuss on topics relevant to safety and health with top executives attending the meeting, including the CEO and CFO. To internalize the culture of safety management and instill the importance of safety and health control into the management through recognition and practice, we included safety and health goals to executives' evaluation index. During the period of one month from February to March of 2022, all executives including the CEO conducted safety inspections on sites in Korea to engage in safety and health leadership. We also continue to improve our safety and health awareness by listening to voices from the sites, including those of our workers.

### Safety Management Governance

For a systematic safety management, Samsung Engineering appointed a Chief Safety Officer (CSO) as the chief executive for safety and quality management and discusses issues related to safety and health with the board members and the executives on an annual



### Safety Management Goals 2022

We will strive to build a sustainable society in tandem with employees, clients, suppliers, and local communities.

Safety and Health Goals	Specific Category	Target
Leadership Boost for Safety and Health	Safety Culture Assessment Result	65 points
Implementation of Innovative Technology for Safety and Health	Development and Application of Innovative Technology	48 cases
Stronger Actions for Safety and Health	Audit Evaluation Score	80 points

Prevention of safety and health accidents begins from our participation and action.

1. We pledge to prioritize safety and health in all processes.
2. We pledge to comply with work-related safety and health regulations and procedures.
3. We pledge to actively hold Tool Box Meetings and safety and health inspections.
4. We pledge to participate in all safety and health activities, and act safely.
5. We pledge to actively interfere in unsafe actions or cases of violations.
6. We pledge to report every accident and carry out measures to prevent recurrence.

## Safety & Health Policy

### Safety and Health Policy

Samsung Engineering puts top priority on safety and health of our clients, employees and local communities and makes the utmost efforts to prevent any incidents. We operate safety and health management systems in all stages of our business and take the following actions for improvement:

- Establish and implement safety and health management systems in order to prevent safety incidents and mitigate health hazards, managing manpower and budget in consideration of characteristics and scale of projects
- Comply with standards and principles and put safety and health first in all our business processes in order to eliminate hazards and minimize risks
- Comply with safety and health-related laws and regulations to ensure safe project execution; establish internal safety and health standards reflecting feedback from stakeholders including site workers, and make sure everyone complies with these internal standards
- Promote safety and health awareness among all employees of Samsung Engineering and our partner companies and encourage active participation in order to establish a culture of ethical, empowering and enabling safety management
- Select partner companies equipped with verified capacity and capabilities, that will enable them to implement the safety and health management process of Samsung Engineering
- Consult with members of Samsung Engineering and partner companies including site workers regarding safety and health management activities and encourage their active participation
- Prevent Safety and Health incidents through innovative technology, enhanced construction methods.
- Decrease Safety and Health incident risks through simulating the manufacturing process as Modularization and Automation and so on in EPC
- If any incident occurs, develop-improvement actions to prevent such incidents from happening again and ensure all project sites implement these improvement actions
- Provide a clean and safe working environment and continuously take actions to promote safety and health

In accordance with this Policy, each team and project shall set their own safety and health goals and develop plans to achieve them. They shall also monitor their progress on a regular basis and share the results with all employees of Samsung Engineering, partner companies and site workers for continuous improvement.

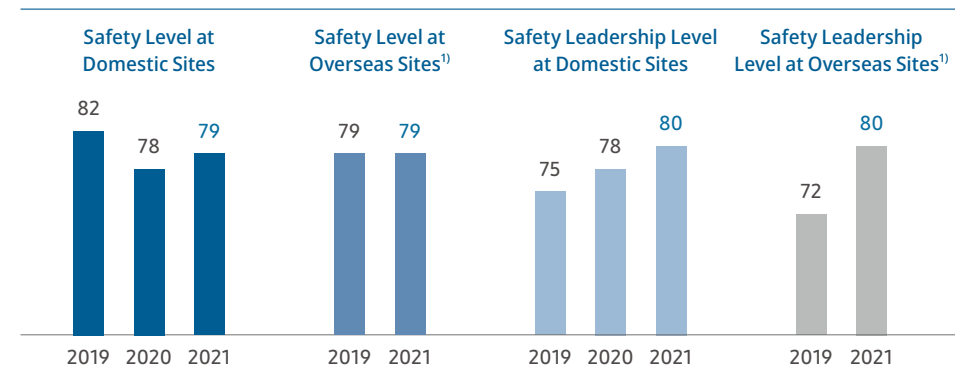
## Safety Management Activities

### Strengthening Safety Compliance at Project Sites

In 2021, Samsung Engineering conducted safety inspection on 20 Korean and 12 overseas project sites. The inspection included safety leadership assessment and participation from PM (Project Manager), CM (Construction Manager), and construction SI (Superintendent) and spanned across process, monitoring, and site management. Due to COVID-19, we implemented a non-contact oversight support system. As a result, the overall safety leadership at domestic sites improved in 2021.

For plants, we implemented a real-time video sharing monitoring system. At industrial environment, we conducted a videoconference with overseas sites once a month. Subsequently, we conducted non-contact HSSE Audit for 12 overseas projects once a month and an additional monthly Follow-Up Audit after one month since the last HSSE Audit.

(Unit: points)



1) On-site inspection of the leadership safety level in 2020 was not conducted due to the spread of the COVID-19 virus

### S-CAR (Safety-Corrective Action Request) – Safety Accident Prevention Activities at Project Sites

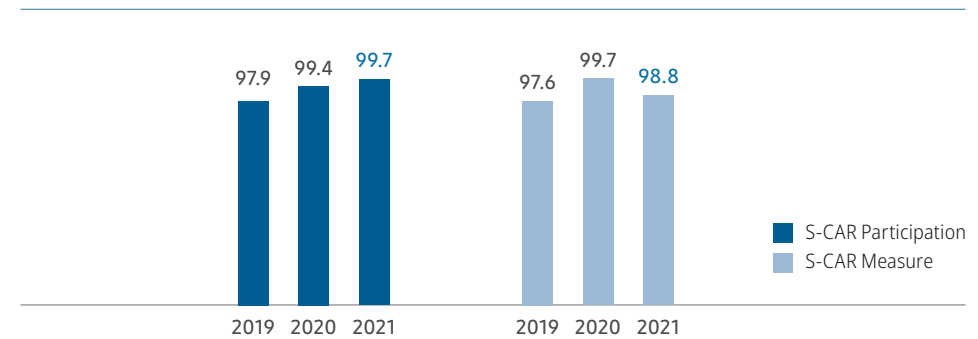
Through S-CAR, Samsung Engineering takes swift actions by identifying safety and health status of employees, suppliers, and workers to discover potential risk factors. Furthermore, we select Best S-CAR cases every month and awarded 639 cases to encourage employees' participation in discovering potential risks on site. In 2021, we encouraged further active participation from the employees by creating Head of Division Award for quarterly nominations. To celebrate distinguished cases that won the Head of Division Award, we created a semiannual CEO Award. At the moment, S-CAR participation and action rates are maintained at an identical level compared to those of last year. Our Safety & Health Team developed a mobile application to build an efficient infrastructure, manage and analyze data. We also plan to operate a mobile platform to further expand our suppliers' participation.

### Award BEST S-CAR Prize

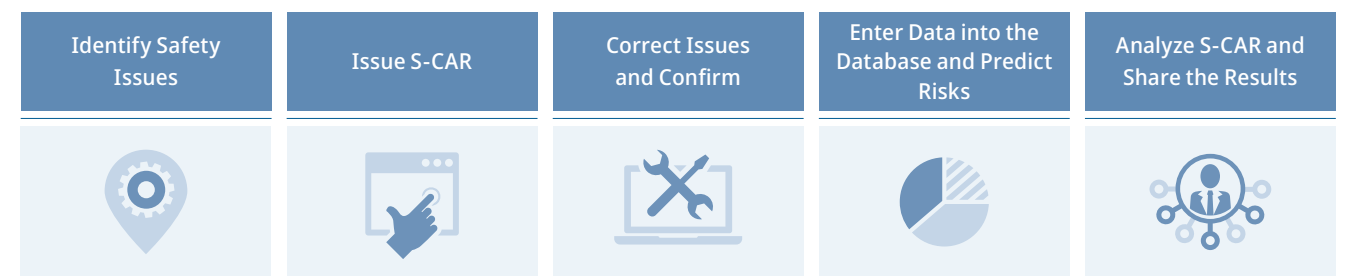


### S-CAR Participation and Measure Rates

(Unit: %)



### S-CAR Process



### Incident Rate Management

Samsung Engineering manages incident rate by analyzing business sites' safety management performance alongside problematic situations and monitoring. In 2021, our employees recorded 110 million MH (Man Hours) of work exposure time while LTIR decreased compared to the last year. The number of cases for high-risk potential level was similar to the last year's according to TRIR and internal standards. There were no incidents of serious incidents such as employee death incidents.

#### Status of Incident Rate

Category	Classification	Unit	2019	2020	2021
Incident and fatality rates	Total fatality	persons	0	0	0
	Employee fatality	persons	0	0	0
	Supplier fatality	persons	0	0	0
	LTIR (Lost Time Incident Rate) <sup>1)</sup>	Lost Time Injury/Manhour x 200,000	0.0518	0.0524	0.0293
	LTIR (Employees)	Lost Time Injury/Manhour x 200,000	0	0	0
	LTIR (Suppliers)	Lost Time Injury/Manhour x 200,000	0.0518	0.0524	0.0293
	TRIR (Total Recordable Incident Rate) <sup>2)</sup>	Recordable Incidents/Manhour x 200,000	0.2131	0.2413	0.2649

1) Total human accident rate at all domestic and overseas project sites including employees and suppliers (LTIR, Lost Time Incident Rate) = Lost Time Injury / Manhour x 200,000 (Includes all human incident rate for employees and suppliers at all domestic and overseas project sites)  
 2) TRIR (Total Recordable Incident Rate) = Recordable Incidents / Manhour x 200,000

### Safety Management Investment

To secure the safety of our employees and suppliers, Samsung Engineering invested KRW 398 million in HSE Audit module development and KRW 935 million in development of mobile safety management system as its safety investment schemes in 2021. In addition, in case of safety investment expenses at domestic sites (suppliers), the expenses are calculated according to the Standards on Appropriation and Use of Funds for Occupational Safety and Health Management for Construction Industry so to manage usage plans and execution records under the responsibility of respective directors at each site.

Category	Classification	Unit	2019	2020	2021
Safety management investment expense (HQ)	Safety education & training <sup>1)</sup>	KRW 10K	223,735	5,483	13,330
	Safety facility investment	KRW 10K	1,296,378	918,014	856,362
Safety management investment expense (suppliers)	Safety protective gear investment	KRW 10K	793,363	600,288	623,842
	Safety education & training <sup>2)</sup>	KRW 10K	45,230	17,763	32,545
	On-site audit <sup>3)</sup>	KRW 10K	83,662	78,049	94,779
	Others <sup>4)</sup>	KRW 10K	304,449	185,253	161,956

1) Safety Experience Center, consignments, development of training courses (2019), development, operation, and uploading of online training course (2020), uploading online training course (2021)  
 2) Expenses incurred for training/events  
 3) Safety diagnosis expenses  
 4) Health-related expenses

### Safety Training

Education Program	Content
Safety Culture Education	Education for all employees in company to settle safety-centered culture and emphasize the importance of safety management
Safety Education for Deployed Employee	On and offline safety and health principles and standards education for all employees to be deployed to overseas sites
Emergency Drill	Drill to set up a contingency plan for a swift, organized response to protect human lives and assets from various disasters
'Safety Talk'	All employees in company gather by department before working hours every day to join the Safety Talk, discussing safety and/or environment

#### Status of Employee Safety Training

Category	Classification	Unit	2019	2020	2021
Employee safety training	Employee safety management training <sup>1)</sup>	persons	196,269	153,011	141,114
	Supplier safety management training	persons	90,771	23,017	5,176

1) Safety Experience Center (2019, 2020, 2021), Online Safety Training (2020, 2021), cumulative data on employee participation

#### Fostering TBM Leader Instructors and JMJ Consulting – Enhancing HSE Leadership

Starting 2019, Samsung Engineering has been implementing JMJ Consulting's IIFTM program to enhance voluntary safety leadership of various stakeholders within projects. In 2021, we selected projects that require consulting and designed applicable programs according to each project overview. As a result, we selected three sites in Mexico, Saudi Arabia, and Pyeongtaek, Korea and provided detailed program designs as well as consulting services in 2021 and 2022. To establish a high-level safety culture through professional safety training, Samsung Engineering performed TBM (Tool Box Meeting) leader instructor training program. In the second half of 2020, we completed the development of safety culture internalization model. In 2021, we conducted safety leadership workshop targeting PM (Project Manager) and safety team leads. In addition, we provided in-house instructor training program for construction and safety managers on two separate occasions. As a result, a total of 20 managers completed from the instructor training program. We further enhanced the safety leadership through advanced coaching sessions and five sessions of qualitative TBM level diagnosis.



JMJ Consulting

**3 projects**  
 Mexico, Saudi Arabia, Pyeongtaek






Completion of In-House Safety and Health Instructor Training

**20 persons**  
 Construction and safety managers from 7 projects

## Reinforcement of Response Management on Potential Danger and Serious Accidents

In preparation of the enforcement of Serious Accidents Punishment Act in 2022, Samsung Engineering conducted major response activities for each theme. Specific activities include support and training for suppliers, intensive inspections on serious accident concerns, securing personnel, organization improvements, safety and health standards reorganization, and emergency response scenario rearrangements. To prevent serious accidents, we plan to remove potential risks and actively promote necessary response activities.

### 2021 Response and Prevention Activities to Serious Accidents

Task Name	Content
 <p>Support and Training for Suppliers</p>	<ul style="list-style-type: none"> <li>• Provided training to 154 CEOs from suppliers regarding Serious Accidents Punishment Act</li> <li>• Distributed Serious Accidents Punishment Act guidelines to domestic project sites and suppliers</li> </ul>
 <p>Intensive Inspections on Serious Incident Concerns</p>	<ul style="list-style-type: none"> <li>• Conducted analysis on accidents that occurred in the past five years and site inspection to establish action plans for respective accident causes and confirmed practices</li> </ul>
 <p>Securing Personnel and Organization Improvements</p>	<ul style="list-style-type: none"> <li>• Secured full-time personnel by forming a hiring TF</li> <li>• Improved safety management organization and built HSE platform to enhance work efficiency</li> </ul>
 <p>Safety and Health Standards Reorganization</p>	<ul style="list-style-type: none"> <li>• Reorganized delegation decision regulations for the top executives</li> <li>• Analyzed concerning causes for serious civil disasters / established and executed improvement plans for each cause</li> </ul>
 <p>Emergency Response Scenarios Rearrangements</p>	<ul style="list-style-type: none"> <li>• Elevated the proportion of safety in executive evaluations from 5% to 10%</li> </ul>

## Preemptive Safety Activities with the Application of DFS (Design For Safety)

Samsung Engineering assures preemptive safety from the engineering phase through DFS. In 2021, we provided training per product to 98 employees on 7\* different products through DFS comprehension program. Additionally, we implemented KPIs on goals of selected items to qualitatively improve DFS. In 2021, a total of 319 items were selected, exceeding the existing goal of DFS selection (292 items) by 109%. Out of 711 items that were discovered in 2021, we proposed 164 items to the engineering team. 66 items were accepted as a result and 57 items were eventually reflected to the engineering phase. Moving forward, we plan to operate DFS TF (Task Force) in collaboration with construction, engineering, and safety divisions for each product so that we can promote preemptive safety management system. We will also do our best in drawing DFS items and reflecting them on the engineering through various efforts such as hosting workshops to build a database.

\* Project products (filtration plant, air pollution prevention, ultrapure, Green Complex, UT, 154kV, Reuse)

### DFS Performance

Classification	2020	2021	Notes
Items discovered	1,113 cases	711 cases	
Items proposed for engineering	209 cases	164 cases	
Items accepted for engineering	90 cases	66 cases	
Items reflected in engineering	41 cases	57 cases	Safety (40 cases)
SGR*	-	113 cases	Fell from height (41), fell down (29), plunged (14), fire (10), electrified (1), others (18)
DFS standardization	-	10 cases	

\*Safety Ground Rules

## High-Risk Monitoring System – Development of HSE Platform

Samsung Engineering developed a mobile HSE platform to carry out preemptive safety management amid the rapidly changing awareness around safety accidents and development of a seamless safety management system with our suppliers. The HSE platform allows existing PC-managed systems to be accessed from mobile devices for better utility, including operation permit, high-risk monitoring, dangerous locations assessment module, heavy equipment risk detection, TBM, and S-CAR. In particular, our high-risk monitoring system can identify and manage real-time operation status on a dashboard, in terms of managing the 10 dangerous operations that Samsung Engineering pays particular attention on. Processing type, supplier, operation type and other status items can be identified swiftly from PCs and mobile devices. Operation locations can also be found on the Plot Plan. The HSE platform also offers a checklist for individual high-risk categories so that whenever an item is reported as inadequate, the platform immediately connects itself to a S-CAR system for improvement requests and enhance safety awareness by providing safety learning materials to the operator. Samsung Engineering acquired a patent in 2021 by developing this system, and we plan to continue investment in making safety and health operations more efficient by phased development of AI and IoT sensor technologies.



High-Risk Monitoring System Patent

Cases of Securing Safety Through Innovation

CASE 1 | Minimizing High-Altitude Operations by Improving Engineering and Construction Method



Project in Duqm, Oman is a business to provide utility and storage tank to a refinery complex that processes 230,000 barrel of oil per day. We assessed that the workers at the site comparatively lacked safety awareness and experiences and therefore minimized high-altitude work by changing the existing engineering design of five Flare Stacks to one. Additionally, we pre-installed a platform at each connection point after producing nine modules on land and reflected hoist engineering to minimize unnecessary scaffolding installation and heavy lifting operation for materials transport. Through these actions, we could drastically reduce accident risks. This led to less high-altitude operations and crane's heavy-lifting operations, which in turn decreased the input of employees and equipment by 55%. In monetary terms, this equals to a decrease in cost of KRW 3 billion. We reduced high-altitude operations by 95% in installing the Tank Roof through Roof Air Rising and cut the cost by 87% from KRW 410 million to KRW 50 million. With a scaffolding-free construction method, we shortened the construction period by 35 days, reduced employee input by 95%, and cut cost by 56%. Based on these innovative efforts that led to minimal high-altitude operations, we won an Overseas Excellence Award in 2021 Samsung Safety Environment Award.

CASE 2 | Development of Safety Management System for Template-Based Workers



At P3 Green Complex of Samsung Engineering, we developed a safety management system that provides a real-time monitoring of technician's location within the closed area at wastewater treatment facility, environmental information, and construction information. Through a web-based and mobile real-time monitoring system, we can continue our monitoring without spatial constraints. In case of emergency, a swift announcement allows us to rescue disaster victims within the golden hour. The system immediately alerts us when unapproved operations in confined spaces are underway and increases the workers' response capabilities by building a connection to emergency response trainings. In addition, we were able to prevent excessive input of manpower and time by efficiently managing complicated operation procedures in confined spaces. Through these innovative efforts, we received a certificate of patent on April 8th, 2021.

CASE 3 | Development of Pipe Fusion Machine Set Attached with Safety Sensors and Emergency Switch



At P3 Green Complex of Samsung Engineering, we improved fusion machine operations based on lessons learned from the existing P2 Green Complex. Workers were exposed to the danger of having their fingers stuck at body slide while operating the existing fusion machines. Furthermore, there were dangers of musculoskeletal diseases and burns when treating a large hot plate for pipelines over 450A, while a lack of communication may leave the workers exposed to potential risks. To improve these issues, we attached a safety sensor and an emergency switch on the Body to prevent fingers being stuck and lightened specific parts by using aluminum (280kg → 211kg). In addition, we removed unnecessary portions of heater and holder, and installed springs to prevent burns. We achieved operational efficiency by allowing the users to freely make engineering changes to best suit their needs on the controller through the development of PLC (Programmable Logic Controller). With these innovative efforts, we received a certificate of patent on April 8th, 2021.

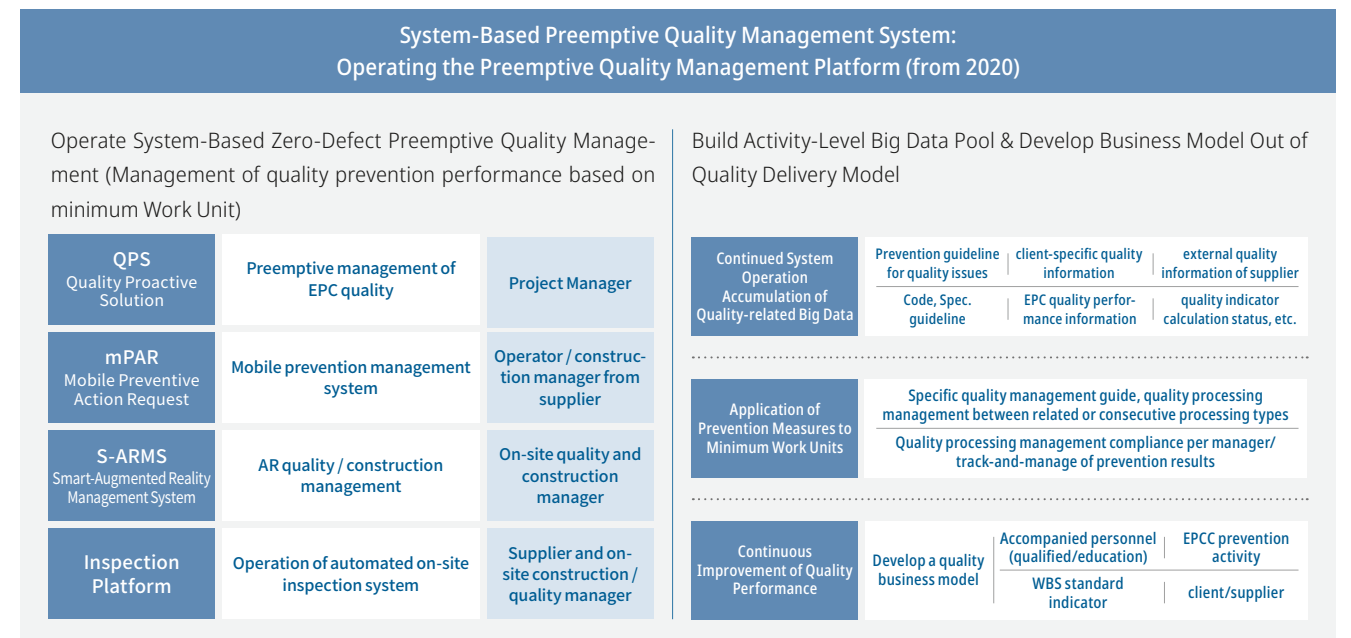
Quality

Strengthening Quality Management

Samsung Engineering strives to do its best to address our clients' needs by executing zero-defect quality management. We apply preemptive quality management platform that encompasses engineering, procurement, construction, and commissioning phases to enhance quality and achieve internalization. Through active improvement activities, we prevent quality-related issues in advance.

Quality Management

With continuous improvements in its quality system, Samsung Engineering minimized quality issues through preemptive quality management encompassing EPCC (Engineering, Procurement, Construction, Commissioning). In addition, we enhanced our overall project management efficiency with prevention-focused quality management and will strive to manage projects efficiently in terms of a company-wide quality management.



Quality Goals

Samsung Engineering raises employee's awareness on quality recognition by setting and promoting quality goals. Every year, we set challenging goals and strive to accomplish them. Furthermore, we set 7 company-wide quality goals and conducted evaluations based on project, organization, and periodic performance data. The result shows that our level of quality is continually rising largely due to our employee's high level of quality awareness.

Category	Classification	Unit	2019	2020	2021
Quality management status and goals <sup>1)</sup>	Quality goals	%	93.0	93.0	94.5
	Quality performance	%	91.5	93.7	93.8

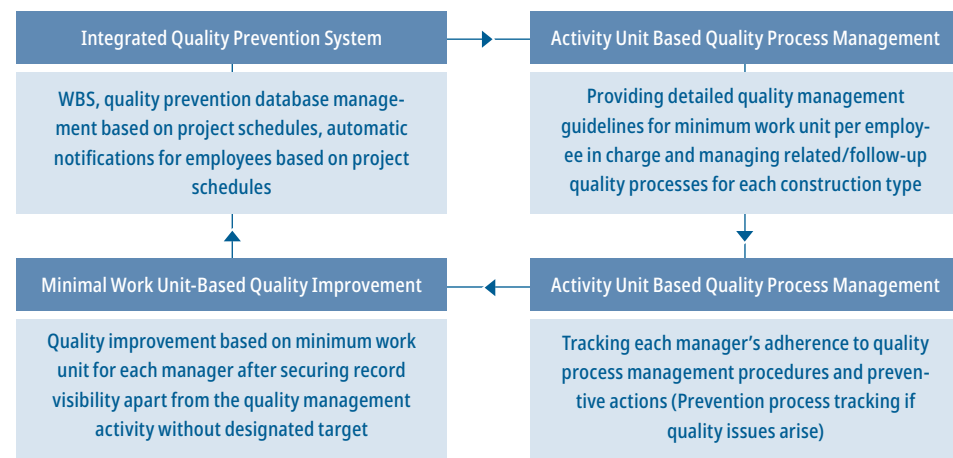
1) Internal KPI calculated based on specific performance indicators related to quality management

### Preemptive Quality Management Platform

In 2021, Samsung Engineering developed a preemptive quality management platform. Based on the platform, we currently operate four types of quality-centric systems: QPS, mPAR, S-ARMS, and Inspection Platform. The systems target different operational objects and build preemptive quality prevention activities at each stage of a project, which consists of pre-performance, before, during, and after the construction. By doing so, the systems contribute to minimizing quality-related issues. With a goal of application to all projects in 2022, preemptive quality management platform is continuing and expanding its operations.

#### EPC QPS (Quality Proactive Solution) System

In order to prevent recurring quality issues during a project, EPC manager identifies required preventive action based on minimum work activity standard derived from experience assets. To make sure that proper measures are applied at the right moment, we provide a notice prior to two weeks before the release of specific activities and performance outcomes. Through this, we are fundamentally shutting off repeated quality issues.



#### Mobile Preventive Action Request (mPAR)

To block repeated quality issues, we operate a real-time quality prevention management system which uses mobile devices known as mPAR. We establish a checklist of prevention items per each type of repeated quality issues and use a mobile system to allow both operators and suppliers to independently conduct verification and action plans to fundamentally prevent on-site disqualifications. From May 2021 to April 2022, we prevented 38,582 disqualifications including 13 industrial/environmental projects, 262 supplier managements, 6 hydrocarbon projects, 63 suppliers.

#### Building S-ARMS (Smart Augmented Reality Management System)

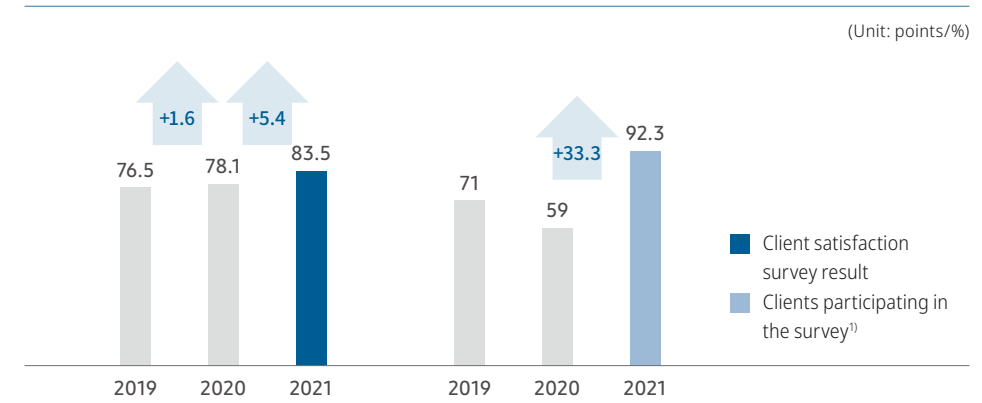
Through S-ARMS's mobile system, the on-site management system utilizing AR (Augmented Reality), Samsung Engineering controls defects and issues during constructions, and uses AR to identify and compare the progress of pipe construction to the real construction site in real-time. By using the system, we comprehensively manage all data on construction and quality.

#### Building an On-Site Inspection Platform

To secure on-site inspection efficiency, Samsung Engineering built the Inspection Platform to carry out on-site inspection more efficiently without separate inspection documents and blueprints. The information of inspection progress is uploaded through real-time datafication whilst generating Handover Dossier automatically. Through this process, we could optimize inspection document works.

### Clients Satisfaction Survey

Samsung Engineering conducts annual client satisfaction survey in accordance with ISO 9001's requirements. Based on the survey, we identify clients' needs and perform immediate improvement activities. In 2021, we surveyed 105 clients from 22 projects (29 respondents from 9 hydrocarbon projects, 76 respondents from 13 industry environment projects). Respondents consist of our suppliers' PM, CM, key process engineers, and QC personnel. Compared to the response rate from last year, we saw a 33.3% increase with overall satisfaction point of 83.5. This is 5.4 points increase compared to 2020's 78.1 points.



1) The ratio of the revenue from clients who participated in the survey to the total revenue

### Advancement of Experience Asset Management

#### Operating a Systematic Experience Asset Management System

Samsung Engineering creates a database for experience assets that the company obtains from all stages of projects and connects it to QPS, a part of preemptive quality management platform. QPS is a system that provides experience asset in the form of data to employees at the right time, which in turn allows employees to predict and prevent quality issues during the project to block the source of repetitive quality issues.

#### CUBE KM (Knowledge Management) Contents Status (As of April 2022)

Experience Assets	Number of Registrations	Category
Practice	265	Function/Construction Type/Estimate/Execution
Core Lessons Learned	298	Function/Construction Type/Estimate/Execution/ Nation State/ Licensor/
CTQ (Cost Time Quality)	1,339	
SWAT*	261	PMC**/Activity/Inconsistency/Cause/Item/Estimate Stages/ Execution Stages
General Best Practice, Lessons Learned	10,307	Product/Client/Nation State/Standard Document Classification Code
Execution plans, termination reports for each function, JPR (Job Performance Report), etc.	5,566	
Submitted documents to ordering organization	12,322,800	By Department/By Type
Samsung Engineering's standard documents	2,762	
Knowledge Q&A	748	By Construction Type

\*Samsung Wisdom Alliance Team  
\*\*Project Management Consultant

# Employees

## Human Rights Management

### Establishing and Implementing Human Rights Guidelines

Samsung Engineering shares its human rights policies and guidelines with various stakeholders including partner companies and suppliers through the company's and the suppliers' codes of conduct as well as employees' pledge for a culture of mutual respect. We laid a foundation to enable the culture of respecting human rights to take root across the company. Additionally, we officially support and comply with global human rights standards from various organizations, including the Universal Declaration of Human Rights, UN Guiding Principles on Business and Human Rights, and ILO (International Labour Organization) Conventions. We identify potential human rights issues across our business operations including supply chains and overseas sites, and do not tolerate any actions that are subject to human rights violations.

#### Policies on Respecting Human Rights within the Code of Conduct

We respect human rights based on international organizations' human rights protection and labor standards including the Universal Declaration of Human Rights, UN Guiding Principles on Business and Human Rights, and ILO Declaration on Fundamental Principles and Rights at Work. We do not tolerate any actions that violate human rights.

- We guarantee the labor based on a free will. We ban forced labor deriving from mental or physical detention including slave work or human trafficking.
- We strictly ban child labor in all domestic or overseas sites and do not hire children and teenagers under the age of 15. In case of hiring underaged persons defined by respective national law, we do so by complying with local regulations and adhering to law of labor relations with an agreement from either a parental authority or a guardian. We ban underaged persons from engaging in dangerous or harmful work.
- Working hours and wages observe national or regional regulations. We observe lawful standards on the minimum wage, overtime payments, insurance membership, rest, and vacations.
- We do not discriminate employees or applicants based on their gender, race, nationality, religion, age, disability, and marital status.
- We guarantee the freedom of association and the right to collective bargaining and do not impose disadvantages on the grounds of membership, activities, and formation.

#### Duty of Observance (Zero tolerance to discrimination)

- Employees who violate the policy will be subject to disciplinary actions in accordance with the company regulations and procedures, and the parties concerned assume responsibility for their actions.

### Pledge to Practice a Culture of Mutual Respect

Samsung Engineering prohibits sexual harassment, verbal abuse, assault, and discrimination among employees in the workplace. Accordingly, all employees sign pledges to prevent human rights violations and practice mutual respect.

#### Pledge to Practice a Culture of Mutual Respect

I pledge to practice the following to establish a culture of mutual respect.

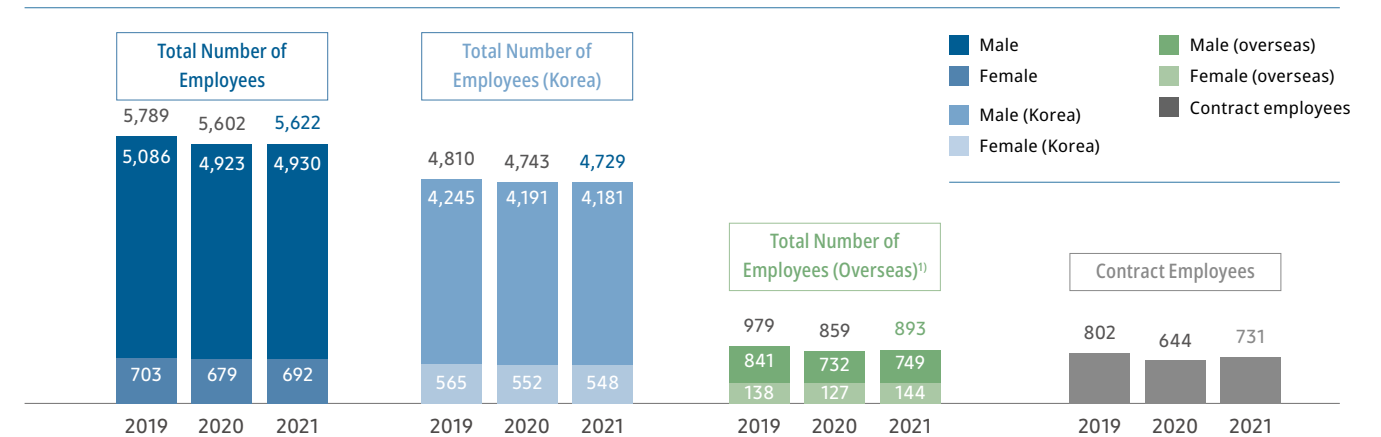
1. I will respect seniors, colleagues, and juniors as human beings.
2. I promise to eradicate sexual harassments based on my consciousness on gender equality.
3. I will not verbally abuse or assault under any circumstances.
4. I will abide by the company's drinking guidelines.
5. I will not commit harassments such as unfair work instructions and violation of personal characters that inflict physical and mental pain to others.
6. I will always abide by the "Safety Golden Rules" so that I will not engage in any activities that harm the safety of myself and colleagues around me.

If I violate the pledge above, I will take full responsibility and bear with punishment. I promise to create a healthy organizational culture and maintain my dignity as an employee.

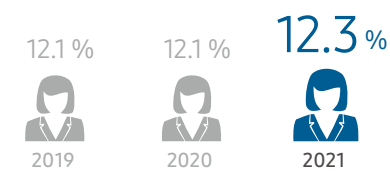
### Diversity and Inclusion

As a global company, Samsung Engineering respects diversity within the organization. We do not discriminate employees based upon nationality, gender, religion, or race. We advocate and provide fair and equal opportunities to contribute to job creation and reducing social inequality.

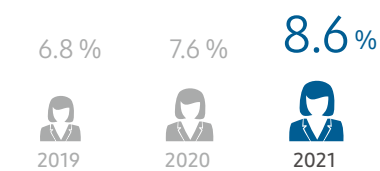
### Employee Status



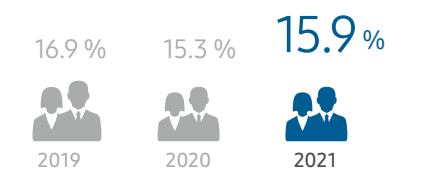
#### Percentage of Female Employees<sup>2)</sup>



#### Percentage of Female Managers<sup>3)</sup>



#### Percentage of Overseas Employees



1) Based on the number of employees with nationality other than Korean

2) Target female employee ratio in 2021: 12.3%

3) Includes both mid-level and junior managers

## Employees by Contract Type

Category	Classification	Unit	2019	2020	2021
Employees by contract type	<b>Korea</b>	persons	4,810	4,743	4,729
	Permanent	persons	4,131	4,099	4,017
	Contract	persons	679	644	712
	<b>Overseas</b>	persons	979	859	893
	Permanent	persons	856	859	874
	Contract	persons	123	0	19

## Number of Employees by Position

Category	Classification	Unit	2019	2020	2021
Employees by position (total)	Executives	persons	63	59	57
	Mid-level managers	persons	1,131	1,206	1,252
	Junior managers	persons	2,232	2,369	2,508
	Staffs	persons	2,363	1,968	1,805

Category	Classification	Unit	2019	2020	2021
Employees by position (Korea)	<b>Executives</b>	persons	63	59	57
	Male	persons	63	59	57
	Female	persons	-	-	-
	<b>Mid-level managers<sup>1)</sup></b>	persons	1,129	1,204	1,251
	Male	persons	1,111	1,176	1,217
	Female	persons	18	28	34
	<b>Junior managers<sup>2)</sup></b>	persons	2,072	2,221	2,358
	Male	persons	1,870	1,985	2,079
	Female	persons	202	236	279
	<b>Staffs</b>	persons	1,546	1,259	1,063
	Male	persons	1,201	971	828
	Female	persons	345	288	235
	<b>Contract employees</b>	persons	679	644	712
	Male	persons	653	612	683
	Female	persons	26	32	29

1) PL4 (principal)

2) PL3 (senior)

Category	Classification	Unit	2019	2020	2021
Employees by position (overseas)	<b>Percentage of overseas managers<sup>1)</sup></b>	%	4.7	4.1	4.0
	<b>Percentage of managers out of overseas employees<sup>2)</sup></b>	%	16.5	17.4	16.9
	<b>Executives</b>	persons	0	0	0
	Male	persons	0	0	0
	Female	persons	0	0	0
	<b>Mid-level managers</b>	persons	2	2	1
	Male	persons	2	2	1
	Female	persons	0	0	0
	<b>Junior managers</b>	persons	160	148	150
	Male	persons	148	136	136
	Female	persons	12	12	14
	<b>Staffs</b>	persons	817	709	742
	Male	persons	691	594	612
	Female	persons	126	115	130
	<b>Contract employees</b>	persons	123	0	19
	Male	persons	110	0	17
Female	persons	13	0	2	

1) (Overseas executives and managers)/ (total executives and managers) \*100

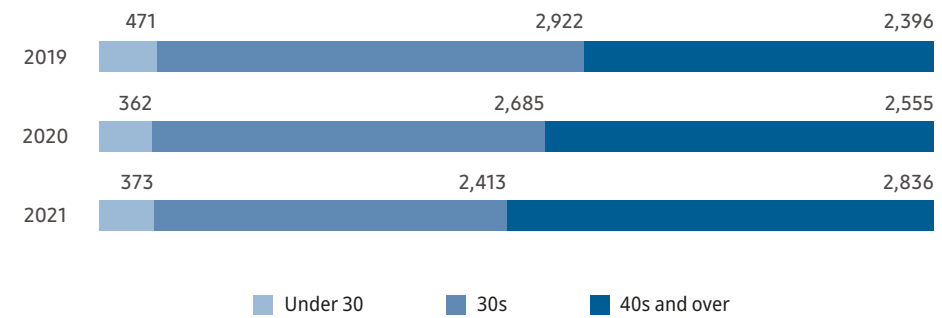
2) (Overseas executives and managers)/ (overseas employees) \*100

## Number of Employees by Country

Classification	Unit	2019	2020	2021
Korea	persons	4,810	4,743	4,729
Asia (excluding Korea)	persons	835	732	762
India	persons	645	542	560
Thailand	persons	152	149	161
China	persons	35	38	38
Middle East	persons	89	79	80
Americas	persons	46	39	43
Europe and Africa	persons	9	9	8

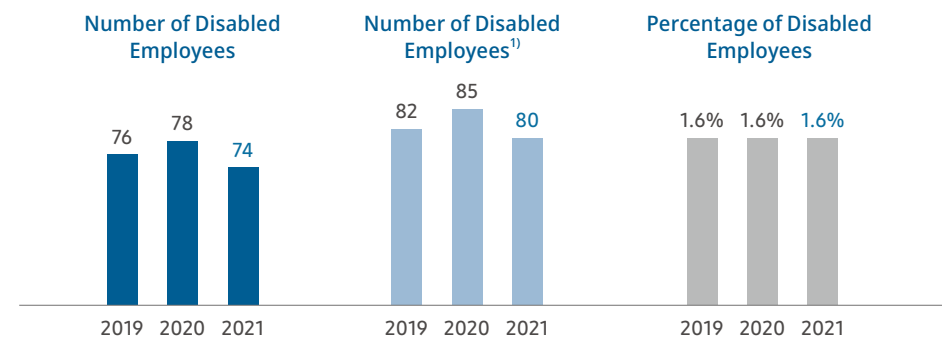
**Number of Employees by Age**

(Unit: persons)



**Status of Disability Hires**

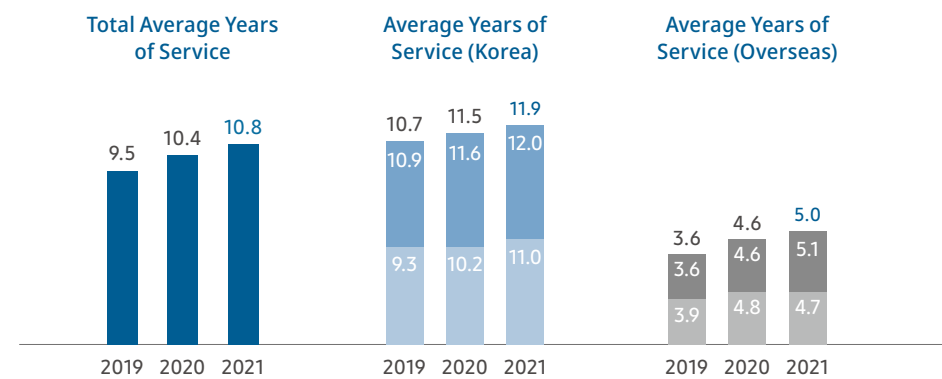
(Unit: persons/%)



1) Number of employees based on the assessment of employment expenses for persons with disabilities for domestic businesses

**Average Years of Service by Gender**

(Unit: years)

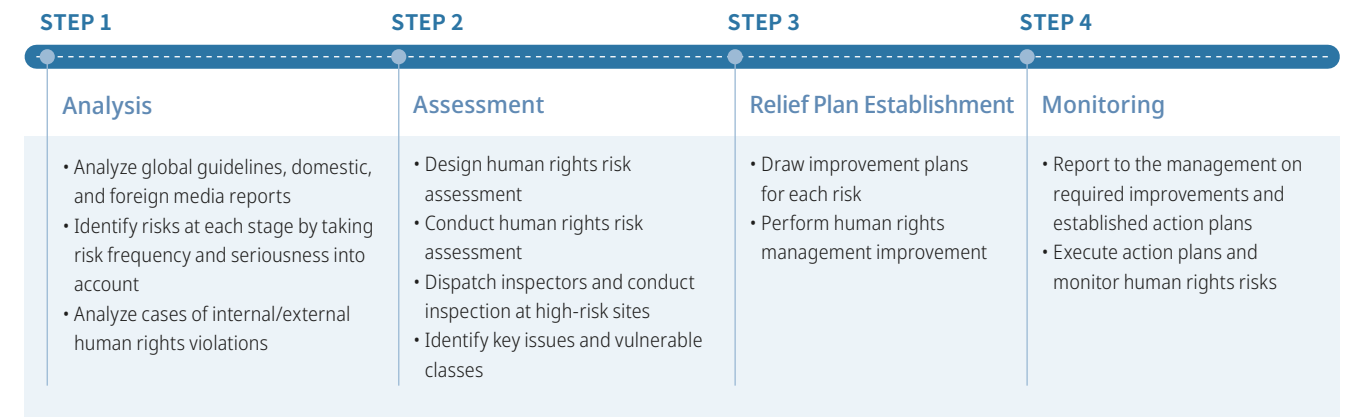


■ Average years of service – male (Korea)   
 ■ Average years of service – female (Korea)  
■ Average years of service – male (overseas)   
 ■ Average years of service – female (overseas)

**Managing Risks of Human Rights**

Samsung Engineering preemptively identifies and prevents human rights violation factors and annually conducts potential human rights risk identification, site inspections, and monitoring to properly execute human rights-related policies. Based on the risk assessments, we establish relief plans surrounding key human rights risks and publicly announce subsequent improvements.

**Human Rights Risk Management Process**



**Human Rights Risk Assessment**

**Identification and Specific Mitigation Plan of Human Rights Risk**

Human Rights Risks	Vulnerable Groups	Mitigation Plans	Remediation Measures
Discrimination and equal pay	Employees, female	Establish a culture of banning sexual harassments and discrimination against employees	<ul style="list-style-type: none"> <li>Provide anti-sexual harassment and discrimination training for all employees</li> <li>Manage human rights violations reporting channel</li> <li>Operate workplace harassment/sexual harassment review committee occasionally</li> </ul>
		Improve gender pay gap	<ul style="list-style-type: none"> <li>Perform company-wide analysis and monitoring of data on gender pay gap and establish action plans</li> </ul>
Collective bargaining rights, Freedom of association	Employees	Establish labor unions, guarantee membership and activities	<ul style="list-style-type: none"> <li>Establish a new labor union</li> </ul>
Forced labor, Child labor		Site inspections on suppliers and contract workers	<ul style="list-style-type: none"> <li>Distribute guidelines for suppliers and contract workers</li> <li>Devise policies to guarantee workers' recess</li> <li>Conduct site inspections and interview suppliers (engineering, procurement, subcontractors, and on-site contractors)</li> <li>Operate human rights violation reporting channel</li> </ul>
Discrimination	Suppliers, third party contractors		
Industrial accident		Reinforce safety and health management of suppliers	<ul style="list-style-type: none"> <li>Assess safety risk level and improve risks drawn</li> <li>Form a guideline to prevent job-related illnesses</li> <li>Obtain safety and health certification (ISO 45001)</li> </ul>
Violation of environmental rights	Clients, residents, local communities	Establish environment management system	<ul style="list-style-type: none"> <li>Reinforce environmental management system by obtaining ISO 14001 certification</li> <li>Execute detailed action plans on carbon neutrality</li> </ul>

### Inspection of On-Site Labor and Management

We regularly visit our sites in Korea and overseas to hold meetings and announce improvements in key policies, gather employees' opinions on benefits, and listen to their grievances. We also identify human rights risks and take necessary steps through the inspection of on-site labor and management every year. The inspection is a systematic process that consists of document inspection, interview, on-site inspection, feedback, and follow-up measures. In March 2021, we inspected 13 domestic sites to inspect our suppliers' compliance of labor-related laws and regulations.

Category	Classification	Unit	2019	2020	2021
Inspection of on-site labor and management	Number of sites inspected <sup>1)</sup>	number	21	13	13
	Number of inspection participants	persons	1,069	1,060	883

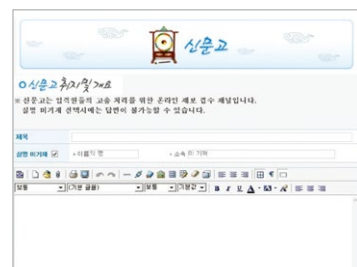
1) Domestic sites only for 2021

### Human Rights Protection Channel

To protect the human rights of our employees, Samsung Engineering operates Employee VOC Report, an intranet reporting channel for employees, and a channel of Report on Unethical Activities on our website. We guarantee the reporting employees' anonymity by providing principles of processing their reports and guidelines on anonymity protection. Furthermore, we operate HUE Counseling Center to provide psychological counseling for our employees.



Report Channel on Unethical Activities



Employee VOC Report

### Handling Employee Grievances

Samsung Engineering operates Deliberation Committee on Workplace Harassment to observe 'Prohibition against Workplace Harassment (Labor Standards Act).' The members of SAU Council and in-house attorneys participate in the Committee to decide whether each case corresponds to harassment, deliberate on actions for both perpetrators and victims, and establish prevention plans. SAU Council was established based upon Act on the Promotion of Employees' Participation and Cooperation. The council represents entire employees and seeks mutual interests of the company and the employees through participation and cooperation. The members of the council are elected through a direct and anonymous election from each division and plays the role of formulating an excellent working environment as well as maintaining various forms of grievances handling process. By doing so, the members grasp employee's opinions regarding human resources and benefits to make improvements in relevant agenda.

### Status of Human Rights Grievances and Handled Cases

Classification	Unit	2019	2020	2021
Number of cases handled by Deliberation Committee on Workplace Harassment	cases	3	3	7
Number of human rights grievances reported <sup>1)</sup>	cases	10	7	10
Number of human rights grievances handled	cases	10	7	10
Policy improvements	cases	30	17	39

1) Handled by Employee VOC and persons in charge

### Status of On/Offline Employee Grievances Handling

Classification	Unit	2019	2020	2021
<b>Number of offline communication sessions</b>				
Lunch meetings at the HQ	cases	468	392	464
On-site meetings in Korea	cases	38	43	55
On-site meetings in Korea	cases	26	14	16
Meetings at overseas sites & global offices	cases	10	7	7
Counseling at SAU Council Room	cases	394	328	386
<b>Number of online communication sessions</b>				
VOCs reported on the SAU Council website	cases	317	468	391
VOCs reported on the SAU Council website	cases	221	340	303
Cases sent to the head of the council's, head of women's council's, and the council's email account	cases	96	128	88

### Managing Suppliers' Human Rights Risks

Within the suppliers' online Partner Portal, we operate VOC (Voice of Customer) where unfair transactions, unethical activities, and other items can be reported. The system provides answers from office in charge.

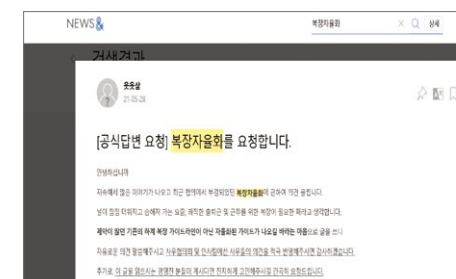
### Human Rights Risk Management for Suppliers



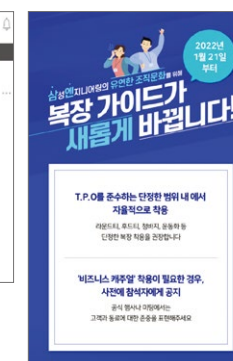
File VOC → Office in charge designated (by Communication Team) → Response and actions from office in charge → VOC Completed

### Anonymous Online Bulletin Board, &TALK

With guaranteed anonymity and official responses provided by the company, our Anonymous Online Bulletin Board reinforces communication within the company and plays a pivotal role in creating a healthy organization. Employees share their thoughts regarding issues within the company and use the board as a direct communication channel with the management to lead changes in organizational culture. We plan to further fortify the board's role as an official communication channel by drawing various ideas that can increase its use.



Example of Employee Request (Dress Code Casualization)



Implementation of Dress Code Casualization

### Human Rights Training

Samsung Engineering provides regular human rights training to foster human rights sensitivity and practice human rights management among our employees. In 2021, we conducted 'essential training for employees to practice mutual respect' online under the themes of 'workplace harassment,' 'workplace sexual harassment,' and 'improving awareness on the disability.'

Category	Classification	Unit	2019	2020	2021
Organizational culture training <sup>1)</sup>	Number of participants	persons	6,156	5,421	5,252
Human rights training	Number of human rights education hours per employee	hours	2	3	3
	Completion rate for prevention of sexual harassment training	%	100	100	100

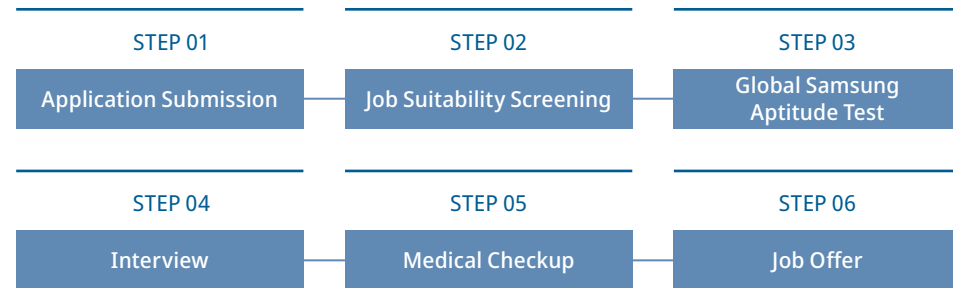
1) Includes courses on diversity management and communication methods to overcome organization's discriminatory factors (gender, nationality, status, age, etc.)

### Strengthening Employee's Expertise and Management Capabilities

#### Hiring Competent Talents

Samsung Engineering hires talents through transparent and fair hiring procedures based on Samsung's belief that 'a company refers to its people.' Based on our belief in talents, we believe all people possess great talents with unique capabilities and potential and serve as a momentum that can shift the world.

#### Hiring Process for Entry-Level Staffs



#### Status of Hiring

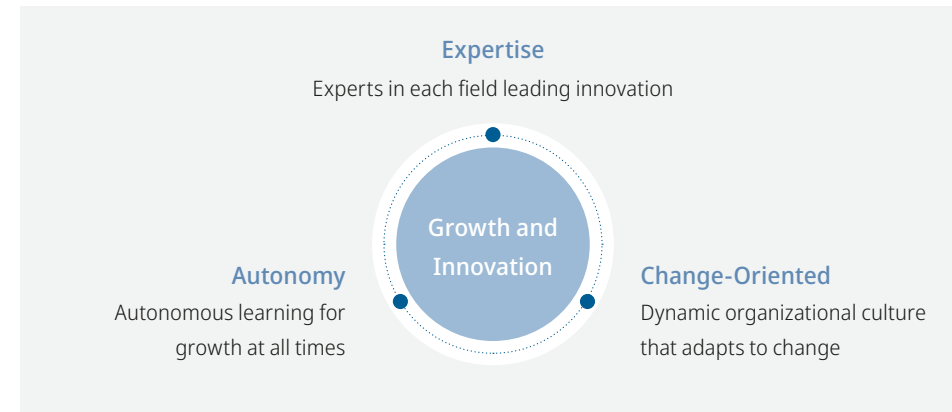
Category	Classification	Unit	2019	2020	2021
New hires (by gender)	Total new hires <sup>1)</sup>	persons	138	77	99
	Male	persons	117	71	91
	Female	persons	21	6	8
New hires (by position)	Total new hires <sup>1)</sup>	persons	138	77	99
	Executives	persons	1	1	0
	Mid-level Managers	persons	5	10	6
	Junior Mangers	persons	36	23	39
	Staffs	persons	96	43	54

1) New hires at domestic (Korean) sites

### Hiring and Management System

Through Samsung Careers, Samsung Engineering systematically manages job postings, applicant status, and hiring appointments. With a system that handles personal records such as employee evaluation and promotion, we oversee hired employees' career trajectory, place, and hire the best-suited talents at the right position. Starting from 2021, we have been operating Global Human Resource Policy (GHRP) to manage employees at overseas project sites based on individual roles and functions regardless of their nationality or race.

#### Directions of Talent Fostering



### Employee Training System

Samsung Engineering manages a systematic training course to help employees to become top professionals in their field of expertise through consistent self-development. For new hires, we help their early landing to the company and their work through entry trainings. We established a system of trainings for each job function's growth trajectory to strengthen necessary capabilities to become leaders. In addition, we preemptively secured organizational management and performance management capabilities for strategic growth classes including project and team leaders. We currently operate training programs to foster leadership capabilities required for each class. In 2021, the total hours of training amounted to 333,964. Total training expenses were KRW 2.48 billion.

Category	Classification	Unit	2019	2020	2021
	Education & training expenses	KRW million	1,927	1,103	2,487
	Training expenses per person	KRW /persons	338,189	192,060	445,276
Employee training <sup>2)</sup>	Total education hours <sup>1)</sup>	hours	165,809	265,193	333,964
	20s~30s (20~39) <sup>3)</sup>	hours	-	-	164,616
	40s (40~49) <sup>3)</sup>	hours	-	-	105,743
	Over 50 <sup>3)</sup>	hours	-	-	63,605
	Education hours for male employees	hours	-	-	289,760
	Education hours for female employees	hours	-	-	44,204
	Education hours per person	hours/persons	29	46	60

1) Training on organizational culture includes diversity management and communication methods to overcome discriminatory (gender, nationality, status, age, etc.) factors within the organization

2) Contractors are excluded from training performance and personnel counts

3) Education hours by age are counted from 2021

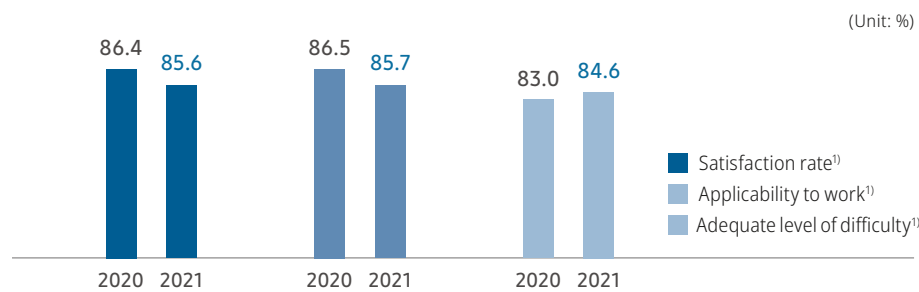
Employee Training Programs

New Employee	In-Depth Job Courses	Project Leader	Leadership	Global Capability Development
<ul style="list-style-type: none"> <li>• Entry-level employee training</li> <li>• Experienced employee training</li> <li>• Global Talents training</li> </ul>	<ul style="list-style-type: none"> <li>• EPC Faculty</li> <li>• Job Experts</li> <li>• On-the-job training at site</li> </ul>	<ul style="list-style-type: none"> <li>• PM Academy</li> <li>• Courses fostering PM, CM, PCM, P/CM</li> </ul>	<ul style="list-style-type: none"> <li>• One-on-one executive coaching</li> <li>• Leadership at each level (Manager holding post, Manager, Staff)</li> </ul>	<ul style="list-style-type: none"> <li>• Global HRD</li> <li>• Business English</li> <li>• Global Mindset</li> </ul>

Reinforcing Online Training

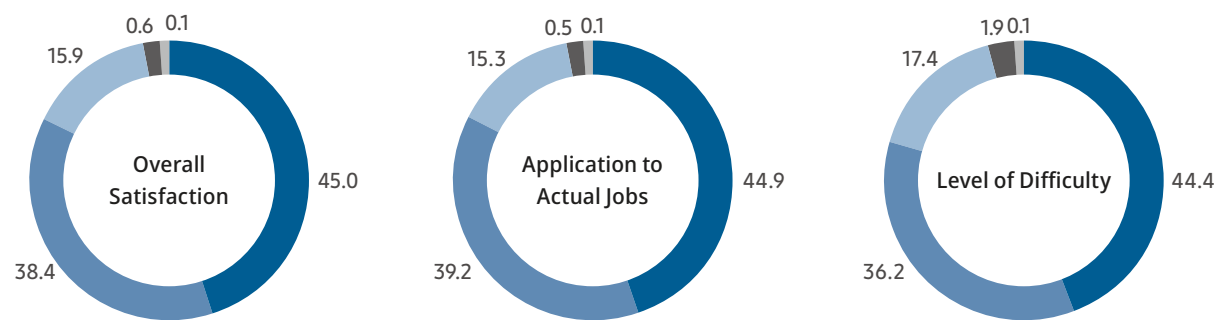
With an ongoing COVID-19, Samsung Engineering reorganized online training platform with intentions to practice social distancing and build a self-paced training system. We also expanded various online contents in and outside of the company and developed online EPC job courses. In particular, employees can take online EPC job courses anywhere and anytime they want. The course consists of practical contents including the theory, real-life project cases, and engineering tool practice so that trainees can immediately apply the contents to their job functions. With Micro Learning Contents format, we enhanced the convenience of learning. In 2020, we developed 81 contents in engineering sector. In 2021, we developed 71 contents encompassing marketing, project, procurement, and construction. We plan to expand employees' learning opportunities by consistently developing online contents regarding industrial environment and new project sectors.

Evaluation Outcome on EPC Online Job Course



1) Result of adding 'Agree' and 'Very much agree'. The survey started after 2020. No data on 2019.

Satisfaction with Online EPC Job Courses (Unit: %)



Satisfaction survey results: ■ Very satisfactory ■ Satisfactory ■ Okay ■ Unsatisfactory ■ Very unsatisfactory

Process of Fostering Project Leaders

Samsung Engineering runs programs to foster project leaders who will play key roles in successful project execution. Every year, we select talents with high growth potential and provide necessary functional and leadership trainings through four subdivided courses (PM, CM, PCM, P/CM). Trainees receive practical trainings on project performance engineering, procurement, key management points in construction, and interface management with other functions. The programs provide broader perspectives for future project leaders and offer interactive learning opportunities such as team-based assignments to ponder upon their roles.

Leadership Training Course

Samsung Engineering defines required leadership capabilities across all employee positions based on job functions and provides leadership training course accordingly. In 2021, we provided a total of three leadership courses for team leaders, group leaders, and new group leaders respectively. The leadership courses highlighted leaders' level of impact and led to staffs' participation in the company's overall direction as well as innovation and instilled their responsibility.

Fostering Global Talents

By supporting training management at global offices, Samsung Engineering fosters global talents to bring synergy into local project operations. Based on the traits of respective offices and sites, we provide training programs to enhance local staffs' job function capabilities. For outstanding employees, we relocate them to other sites so that they can grow into global managers in the future. Additionally, we provide practical business English course and global mindset program for employees working in Korea. This allows our employees to enhance their English communication skills and enables cross-border communication as well as mutual respect between employees in Korea and overseas.


Number of leaders who completed the training in 2021



Case of Employee-Led Training Course

**SWAT, a Collective Intelligence Alliance**

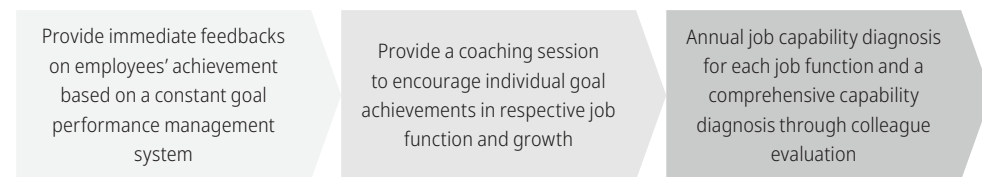
Since its first meeting on January 2015, SWAT (Samsung Wisdom Alliance Team) holds weekly meetings and shares the discussion results of items proposed by the managers, PDs, and PMs. SWAT categorized total 261 results up until 2021 and established a database that provides search functions based on subdivided categories to build a set of system. By doing so, the alliance aims to improve accessibility to accumulated experience assets and further improve project useability as well as their practical effects.



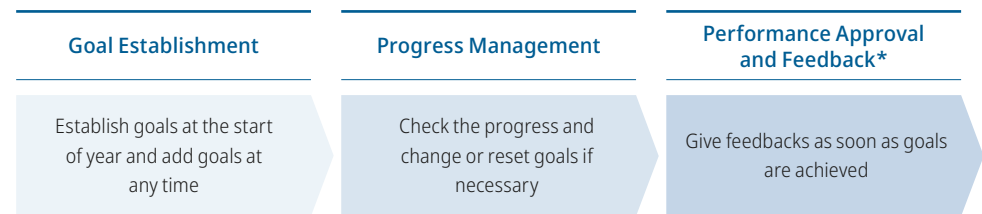
## Fair Assessment and Compensation

Samsung Engineering operates a fair and objective evaluation system based on work performance and capability. Our evaluation system is composed of ‘capability evaluation to assess mid to long-term growth potential’ and ‘performance evaluation to assess short-term achievements’, both of which are respectively conducted once a year. As to performance evaluation, we introduced a constant performance management system to provide feedbacks on the performance as soon as goals are met. Through the system, we also provide consultations on individuals’ achievements and personal growth. In addition, we perform annual diagnosis that measures detailed job-related capabilities. Based on our core value system, we also conduct comprehensive capability diagnosis on job functions and colleague evaluation where colleagues assess other individuals. With respect to this, we aim to help our employees develop capabilities that they lack and assess themselves from the eyes of their superiors and colleagues. With diagnosis results, employees can develop their capabilities while the company can make use of the results from various angles to make the evaluation system even fairer.

### Performance Management Process



### Around-The-Clock Goal Performance Management Process



### Compensation Process

Samsung Engineering has an annual salary system for each employee that reflects individual capabilities and evaluation results to the compensation. To strengthen long-term compensation through differentiation in compensation level, we pay incentives depending on how well each employee fulfilled their roles and duties. This includes post allowance, performance-related incentives, target achievement incentives, overall performance incentives, project incentives, new order incentives, and innovation incentives. Furthermore, hourly wages for entry-level employees who just graduated from college is about 1.5 times higher than the legal minimum wage. We offer equal wages regardless of gender.

### Welfare Benefits and Equal Pay Status

Category	Classification	Unit	2019	2020	2021
Welfare benefits	Employee welfare benefits	KRW million	108,179	109,169	116,208
	Employee pension (retirement benefit) <sup>1)</sup>	KRW million	315,947	358,519	411,266
Equal pay among men and women	Gender pay gap among executives	%	0	0	0
	Gender pay gap among managers <sup>2)</sup>	%	93.8	94.7	95.3
	Gender pay gap among non-managers <sup>2)</sup>	%	101.7	101.9	103.1

1) Sum of DB (Defined Benefit) & DC (Defined Contribution)

2) (Average female base salary)/(Average male base salary) \*100

\* Managers: principal (higher than PL4)

## Establishing a Healthy Organizational Culture

### SAM&TALK

Samsung Engineering is operating SAM&TALK that allows direct communication between employees and CEO. SAM&TALK started to run twice a month from January 2022. Every employee can register and participate. Thus, it takes a significant role in strengthening communication by offering a place in which employees talk to CEO regarding any subjects.

### Managing Change Agent Program

Samsung Engineering introduced Change Agents at each division who plan and implement activities to create a healthy organizational culture. In 2021, 50 Change Agents performed a total of 88 wide-ranging activities such as building slogans and work principles, launching innovative cultural activities and campaigns to improve work culture, and managing stress and mental health. In 2022, we elected a total of 71 Change Agents by expanding their range of application to the project level. The elected agents promote activities on improving organizational culture, draw and distribute basic manners for work life through workshops. The agents plan to actively expand their activities to the entire company, divisions, and projects.

### Change Agent



### Number of Change Agent Activities in 2021

Category	Contents	Number of Cases
Work culture improvement	<ul style="list-style-type: none"> <li>Building a division's slogan</li> <li>Campaigns and innovative cultural activities</li> <li>Survey on team members' satisfaction rate</li> <li>Distributing books to strengthen work-related capabilities</li> </ul>	31
Activities to boost communication	<ul style="list-style-type: none"> <li>COVID-19 comfort gifts and activities</li> <li>Communication workshops</li> <li>Stress/mental health management</li> <li>Welcoming new hires/ farewell events for retirees</li> </ul>	37
Combined activities	<ul style="list-style-type: none"> <li>Combining work culture improvement and communication promotion activities</li> </ul>	20

#### Case of Work Culture Improvement

[Layout & Piping Engineering Team]  
PIPE (Pride in Piping Engineering) campaign

#### Case of Promoting Communication

[Civil & Architectural Engineering Team]  
Issues Monthly CA Letter, built a division-wide communication community

### Employee Satisfaction Rate

Samsung Engineering surveys on employees' satisfaction rate every year. In 2021, the survey showed a higher level of satisfaction rate compared to 2020 through various support activities including Change Agent.

Category	Classification	Unit	2019	2020	2021
Satisfaction rate (by gender)	Employee satisfaction rate <sup>1)</sup>	points	87	84	87
	Male	points	88	86	88
	Female	points	76	69	79
Satisfaction rate (by position)	Mid-level managers <sup>2)</sup>	points	95	92	93
	Junior managers <sup>3)</sup>	points	86	84	86
Employee satisfaction rate survey	Staffs <sup>4)</sup>	points	80	75	83
Response rate <sup>5)</sup>		%	82.0	82.2	75.9





1) Based on the percentage of employees who gave more than 50 points to the section "Enjoying work (taking initiatives, job satisfaction, and work stress)" in the SCI (Samsung Culture Index)  
 2) PL4 (Principal)  
 3) PL3 (Manager)  
 4) PL1~2 (Staff & Assistant Manager)  
 5) The response rate of the survey refers to the percentage of respondents out of total employees in Korea and global offices

## Creating a Healthy Working Environment

### Flexible Working Hours

Samsung Engineering provides flexible working hours that allow employees to autonomously manage their hours and schedules on a monthly basis that best suit individual and organizational circumstances. By doing so, we observe the legal requirement of the 52-hour work week. Starting 2018, we adopted flexible working hours for employees at the headquarters. Excluding the mandatory working hours between 10AM and 3PM, we allow employees to choose their own hours. As a result, we were able to enhance work efficiency and execution with an atmosphere that allows employees to work flexibly based on individual needs.

### Work Environment Support Program

 In-house cafeteria at the headquarters building (breakfast, lunch, and dinner available)	 Shuttle bus is provided for employee's convenience during the commute
 Gym at the HQ building	 Counselling service provided for mental health of employees

### Supporting Work-Life Balance

Samsung Engineering acknowledges the importance of work-life balance and is expanding a wide range of policies for our employee's healthy family life and maternity protection.

#### Support Programs

Work-life balance support program	Work from home	• Due to COVID-19, work from home allowed for pregnant women, persons with underlying diseases, and employees required to provide care for their family
	Shortened work hours and part-time work	• Employees with infant care may use shortened work hours • The headquarters apply core time in accordance with 1~5 shortened work hours, Domestic sites apply shortened billing time during fixed hours. Family care, personal health, retirement preparation, or academic reasons are all possible reasons for shortened work hours
	Childcare facilities	• Daycare center at the headquarters and children school expense support
	Breastfeeding facilities	• 'Mom's Room' is available for pregnant women and mothers for the purpose of breastfeeding and rest
Extended support programs in 2021	Maternity leave	• Maternity leave available for employees who are to raise and provide care for their children
	Wider scope of use for maternity leave	• Starting May 2021, the limit of children's age for maternity leave is lifted
	Wider scope of use for family care vacation	• Starting May 2021, extended the family care vacation for employees with family members' illnesses, accidents, and ageing.
	Wider scope of use for fertility leave	• Starting May 2021, extended the fertility leave for employee or the spouse who require leave for fertility treatment
	Wider scope of use for spouse's miscarriage and stillbirth leave	• Starting May 2021, extended the spouse's miscarriage and stillbirth leave

#### Use of Childcare Leave

Classification	Unit	2019	2020	2021
Childcare leave	persons	142	136	160
Male	persons	59	55	71
Female	persons	83	81	89
Rate of working a minimum of 12 months after return to work <sup>1)</sup>	%	92	88	84
Male	%	85	82	68
Female	%	99	94	100
Return rate after leave	%	93	96	95
Male	%	86	91	92
Female	%	100	100	98

1) Changed 2019 figures due to a change in the data collection method

#### Meetings for Maternity Protection Recipients

The Women's Council of Samsung Engineering holds meetings for those subject to maternity protection and those raising young children. Due to COVID-19, we directed pregnant employees (either currently pregnant or less than six months since the baby's birth) to work from home.

#### Supporting Improvement of Employees' Health

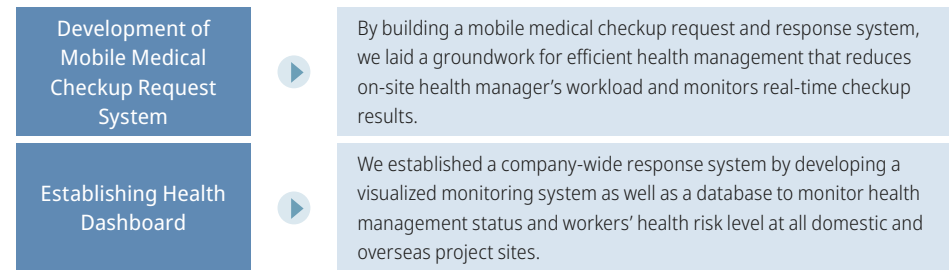
Every quarter, Samsung Engineering conducts medical checkups for employees working at Korean and overseas sites and continues to run health improvement programs. We perform regular medical checkups for employees and their spouses. As COVID-19 stretched out in 2021, we provided an immune booster package for the health of overseas workers. In addition, we collaborate with the Counseling Center to measure employees' stress level and operate stress-releasing program. All in all, we strive to create physically and mentally healthy project sites.

#### Meeting of the Women's Council



**Enhancing Health and Safety by Implementing Smart Health Management System**

Samsung Engineering switched from an on-site health management system that was led by a health manager to a more active system that both health managers and workers participate.



**Caring Mental and Physical Health of Overseas Site Workers**

Every year, Samsung Engineering holds on-site meetings at sites in Korea and overseas. Due to prolonged COVID-19 in 2021, however, we collected grievances from workers at overseas sites through remote counseling and listened to their psychological challenges. 96 workers at ten sites located in UAE, Saudi Arabia, Hungary, and Vietnam participated in remote counseling sessions, where we made efforts to look after their mental health.

**Strengthening Health Management at Korea and Overseas Sites to Respond to COVID-19**

To prevent the spread of COVID-19, Samsung Engineering joined the vaccination project and collaborated with Ministry of Employment and Labor, Korea Disease Control and Prevention Agency, and local clinics to vaccinate our employees on three occasions. By boosting the vaccination rate of our employees, we greatly contributed to the disease prevention not just in our project sites but at the local and national level. Under the pandemic, we increased our work efficiency by taking advantage of company infrastructure to boost work-from-home and non-contact conferences. We also engaged in preventive activities such as providing COVID-19 rapid testing kit, minimizing domestic and overseas business trips, banning outsiders' visit to the company, identifying movement routes of visitors, installing thermographic camera for pre-screening, and preemptively recognizing those who made close contacts with confirmed COVID-19 patients. If we had confirmed cases at the company, we built an emergency medical system and provided adequate sick days to help them recover and return to work faster. We will maintain and improve our system to prevent the spread of infectious disease among the employees and local communities by immediately activating the infectious disease response protocol.

**Enhancing Quality of Life**

Samsung Engineering provides various benefits to improve employees' quality of life and stability of livelihood.

Family	Housing and Life	Leisure
<ul style="list-style-type: none"> <li>• Congratulatory gifts for children starting schools</li> <li>• Scholarship for children</li> <li>• Comprehensive medical checkup for spouses</li> <li>• Daycare center at work</li> </ul>	<ul style="list-style-type: none"> <li>• Support for medical checkups and expenses</li> <li>• Support for family events</li> <li>• Counseling center</li> </ul>	<ul style="list-style-type: none"> <li>• Condominium</li> <li>• Support club activities</li> </ul>

**Leave for Long-Term Dispatchers**

Samsung Engineering provides a one-month sabbatical leave for employees who have worked for more than a year at sites in Korea or overseas to give them time to fight off the cumulative fatigue. In addition, we run Healing Camp program for employees who are dispatched to sites for longer terms as well as their families to help them refresh and enhance their sense of belonging. The program, which is held at Samsung's Yeongdeok Training Center, consists of meditation session such as meditating in the forest, family empathy meditation, healing sessions such as star observation, music concert, and reading sessions to provide them with opportunities to experience peace and happiness. Due to COVID-19 restrictions applied on the facility use, a total of 10 long term dispatchers participated in the Healing Camp with their families in 2021. Starting 2022, we plan to expand the program for greater number of employees.

**Online Meditation Program, TAP MySelf**

To cope with 'corona blue', we introduced an online meditation program named TAP MySelf in 2021 for domestic dispatchers. This three-day program consists of introduction to meditation and its experiences, stress management, and family participation sessions. A total of 48 employees participated in the program to ruminate on themselves and take care of their mental health. The participants provided positive feedbacks and expressed a high level of satisfaction towards meditation. We plan to increase the number of participants in 2022.

**Caring the Retirees**

Samsung Engineering operates a number of programs to help retirees prepare for next chapters in their lives and stability that comes with it. We provide life planning education twice a year and operate Career Consulting Center that matches employees with ample experiences, expertise, and verified job skills to companies that seek such talents. This provides opportunities for reemployment. Also, we adopted the DB\* plan as retirement pension plan to safely manage employees' retirement funds. For employees who are close to retirement, we provide DC\*\* plan by applying the salary peak system.

\*Defined Benefit  
\*\*Defined Contribution

Category	Classification	Unit	2019	2020	2021
Retirement rate by gender	Total retirement rate	%	3.6	2.6	4.3
	Male	%	3.1	2.2	3.9
	Female	%	0.5	0.4	0.4
Retirement rate <sup>1)</sup>	Total retirement rate	%	3.6	2.6	4.3
	Voluntary retirement rate	%	3.5	2.6	2.4




1) The retirement rate is based on the annual average number of permanent employees of the headquarters in Korea and includes resignation at the request of employees and retirement.

# Suppliers

## Supplier Support and Communication

To realize shared growth through the best partnership with suppliers, Samsung Engineering is engaged in voluntary monitoring related to fair transactions and improvement activities. We also provide a wide range of support activities including technological, educational, and financial support to boost our suppliers' capabilities.

### Directions of Supplier Support

 <p><b>Financial Support</b></p> <ul style="list-style-type: none"> <li>Loans without interest support</li> <li>Improved terms of conditions for payment</li> <li>Preemptive payment to suppliers for holiday periods</li> </ul>	 <p><b>Technological Development Support</b></p> <ul style="list-style-type: none"> <li>Joint development and technological development expenses support</li> <li>Technology contest operation</li> </ul>
 <p><b>Overseas Expansion Support</b></p> <ul style="list-style-type: none"> <li>Offering opportunity to participate in bidding for suppliers that wish to expand sales to overseas</li> </ul>	 <p><b>Recruitment and Education Support</b></p> <ul style="list-style-type: none"> <li>Online/offline job fair</li> <li>Online education befitting COVID-19 situation</li> </ul>

Classification	Category	2019	2020	2021
Financial support	Number of suppliers financially supported (number)	52	56	42
	Shared growth fund and loan support (KRW million)	23,736	20,768	20,262
Technology development support	Agreed amount for technology development support (KRW million)	21	11	33
Overseas market entry support	Number of construction suppliers entered foreign markets (number)	8	6	14
	New foreign construction amount (KRW million)	12,012	23,510	146,309
Hiring support	Suppliers' new hires (persons)	23	9	4
Supplier training	Trainees from suppliers (persons)	390	412	359
	Training expenses for suppliers (KRW million)	9	9	9

### Financial Support

Every year, Samsung Engineering provides financial support to suppliers in need of funds to purchase new facilities and equipment or overcome business difficulties. In 2021, we granted KRW 20.3 billion worth of loan to 42 suppliers without interest. For the New Year and Chuseok holidays, we prepaid KRW 11.8 billion to subcontractors seven or ten days earlier than due dates. All of our subcontracting payments are made in cash to small and medium-sized suppliers. Moreover, we plan to provide the ESG specialized training and support the expenses for ESG certification in order to strengthen ESG capabilities of our suppliers. Moreover, we supported suppliers with extension of loan terms, prepayment for subcontractors, and supporting COVID-19 test and self-quarantine expenses of workers during the COVID-19 pandemic.

### Technological Development Support

Samsung Engineering receives technological suggestions from suppliers and performs internal assessment. For selected suppliers through the assessment, we conduct joint development and provide support for their technology development. Every year, we host technology contests so that jointly developed technologies can be applied in reality. In 2021, we selected one case of technical suggestion and participated in a joint development. In 2020, we provided KRW 33 million to two selected cases of technology development.

### Overseas Market Entry Support

For suppliers that wish to enter overseas market and expand their business, Samsung Engineering provides bidding opportunities to suppliers and supports signing new contracts. In 2021, 14 suppliers participated in 23 projects and signed KRW 146.3 billion worth of new contracts.

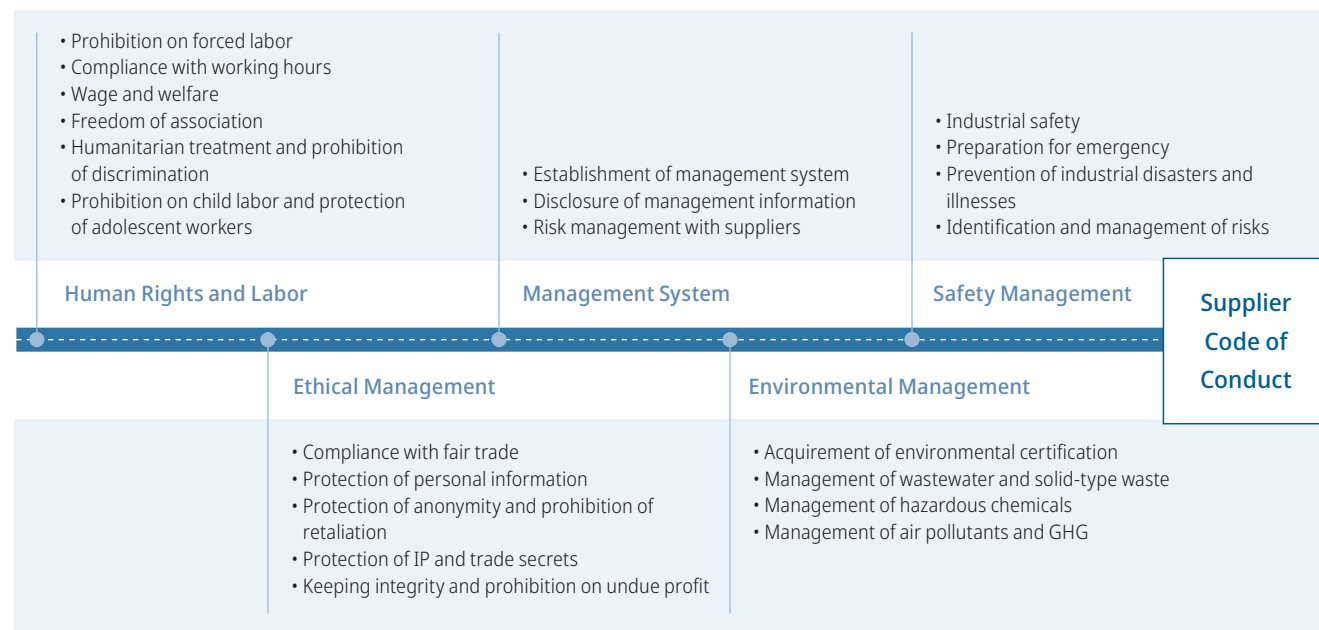
### Employment and Training Support for Suppliers

We invited our suppliers to participate in a total of 12 hiring programs hosted by external organizations including on/offline job fair. As a result, four people were hired by the suppliers. Furthermore, we provided free online course on business management, technology, and foreign language to 218 employees of suppliers and also offered free offline training on BIM (Building Information Modeling) and smart factory construction for 141 employees working for suppliers.

## Supplier Code of Conduct

By enacting a Supplier Code of Conduct, Samsung Engineering strives to observe internationally certified responsibility of sustainability management alongside suppliers. We walk in step with the global trend of sustainability management by establishing and developing a system of respecting environmental and social values with our suppliers. By closely collaborating with the suppliers, we truly realize the value of accompaniment. To do so, we conduct comprehensive assessments on suppliers' environmental and social aspects. In 2017, we established and shared the Supplier Code of Conduct to improve suppliers' working environment and strived to generate a common value in all processes of our business promotions. The Code of Conduct is commonly applied to all suppliers related to all products and services encompassing engineering, procurement, construction, and subcontracting. In its code of conduct, Samsung Engineering stipulated that it may visit suppliers to evaluate their observance to the code.

### Activities to Comply with Supplier Code of Conduct



### Communication Systems per Suppliers' Function

Samsung Engineering categorizes its suppliers by function and maintains a system of communication tailored to characteristics and needs of each function. We collect suggestions from our suppliers and reflect them to our decision-making processes promptly and fairly.

#### Vendors

As for vendors, we listen to their voices and look for collaboration ideas through general meetings and informal meetings of Seongjohwoe, the alliance of Korean vendors that have worked with us for a long time. And we hold procurement seminars to share the information about the EPC industry and markets of key materials with them.

#### Construction Suppliers

In the case of construction suppliers in Korea, Samsung Engineering holds the Partners' Day event at the beginning of every year for suppliers with excellent performance in order to boost a sense of belonging and partnership as suppliers to Samsung Engineering and to encourage stronger competitiveness between suppliers through more communication.

#### Detail Engineering Suppliers

In engineering sector, each team establishes annual plans for shared growth activities with suppliers to improve suppliers' quality competitiveness and strengthen communication. This includes meetings, quality case sharing, and technical trainings.

#### Increased Communication with Suppliers

##### Listening to VOC via Supplier Satisfaction Survey

To support project performance in the engineering sector, we listen to our suppliers' VOC by conducting a satisfaction survey throughout the course of project execution timelines including start, middle, and end of each project. We then reflect the survey results on trainings and meetings to ensure that suppliers can continue to carry out their duties without issues.

#### Shared Growth Activities with Suppliers

##### Preemptive Management of Construction Payments

As a part of its shared growth policies, Samsung Engineering preemptively manages suppliers' overdue payments through direct construction payment system (nomubi.com).

##### Incorporating Shared Growth Activates with Suppliers into Executive Evaluation

Samsung Engineering urges executives to take lead in compliance and shared growth activities by reflecting the performance into executive evaluation.

#### Pursuit of Share Growth Through Sharing Advanced Technology with Suppliers

For Samsung Electro-Mechanics' Vietnam (SEMV) project, we construct production facilities for FC-BGA type semiconductor package circuit boards required for system semiconductors through layout change within specific sections. The facilities are located at the Yen Binh Complex of Thai Nguyen, Northern Vietnam as Plant 1 (total floor area: 38,940m<sup>2</sup>) and Plant 2 (total floor area: 15,840m<sup>2</sup>). With the firm belief that suppliers' growth is directly connected to our capability development, we implemented a wide range of advanced safety and construction management systems to the project for the first time in Vietnam.

In safety management section, we strengthened our safety managers' capabilities through trainings provided by external consultants and managed VR Safety Academy to provide safety training for high-risk tasks. In addition, we established a system that allows workers to check safety guidelines and communicate in real time by developing Smart Safety App.

To improve the productivity of our suppliers in construction management, we simplified tasks through document signings for construction management under the theme of Working on the Platform. In addition, we added Vietnamese translation for all functions of safety and construction management to facilitate local workers' level of understanding. Samsung Engineering will continue to pursue shared growth with its suppliers by implementing advanced safety systems and changes in the way we work.



SEMV Project

**Global Value Chain**

**Forming a Global Network of Suppliers**

Samsung Engineering’s suppliers can be categorized into detail engineering suppliers for engineering field, tools and materials manufacturer for procurement field, and construction suppliers in construction field. By establishing a differentiated global value chain as a global engineering company, we are adding competitiveness to our business operations and contributing to the growth of local economy.

**Number of Suppliers**

(Unit: number of companies)

Classification	2019	2020	2021
<b>Detail engineering companies<sup>1)</sup></b>	197	139	142
<b>Vendors</b>	4,268	4,267	4,375
Korea	1,736	1,729	1,767
Asia (excluding Korea)	715	939	969
Americas	361	385	398
Europe & Africa	538	595	608
Middle East & Others	918	619	633
<b>Construction suppliers</b>	5,909	4,849	4,874
Korea	873	818	869
Asia (excluding Korea)	1,624	1,735	1,681
Americas	712	519	482
Europe & Africa	759	667	598
Middle East & Others	1,941	1,110	1,244

1) All detail engineering companies are Korean companies.

**Fair Transaction**

**Establishing Fair Transaction System**

Samsung Engineering improves its transaction practices and policies so that the contracts with suppliers are signed and implemented in a fair and reasonable manner based on mutual respect. Specifically, we prevent unfair transaction practices through self-monitoring, improvements, and internal inspections. We published ‘Business Guideline’ on our website and Partner Portal to encourage all employees and suppliers to partake in a culture of fair and clean transactions.

**Transparent Selection and Evaluation of Suppliers**

Based on fair and transparent supplier selection evaluation procedures, we strive to find competitive suppliers and establish strategic partnerships. We use our Partner Portal, an online platform, to publicly recruit suppliers and receive individual applications for suggestions. This lowers entry barriers for new suppliers seeking to register and makes new companies seeking registration register more freely. When selecting suppliers, each team evaluates the candidate suppliers based on strict criteria such as expertise and business management capability. We especially review whether a company has a dedicated organization for safety environment, manuals, and certifications for evaluating safety environment. Once suppliers are registered, we recognize them as long-term partners and participate in projects collaboratively. For overseas constructions that require registration for bidding or orders, we ask suppliers’ evaluation data entry on our system. After the suppliers pass the evaluation, they are free to register. Also, we analyze supplier risks every year through regular and occasional evaluations and strive to establish a sustainable supply chain.

**Integrated Evaluation Items on Suppliers**

Category	Evaluation Criteria
<b>Detail engineering companies</b>	<ul style="list-style-type: none"> <li>Basic capability evaluation: execution capability (80), financial capability (20)</li> <li>Additional evaluation (bonuses and minuses): performance quality/ level of cooperation, interest, incentives &amp; disciplinary actions</li> </ul>
<b>Vendors</b>	<ul style="list-style-type: none"> <li>Project management (80): order management (25~40)/delivery management (30~40)/quality management (10~15)</li> <li>Corporate management (20): business stability (16)/quality, safety, and environment management (4)</li> </ul>
<b>Construction suppliers</b>	<p><b>Domestic construction subcontractors</b></p> <ul style="list-style-type: none"> <li>Registration evaluations: technology/financial/management and ESG evaluation (safety, labor/human rights and compliance)</li> <li>Performance evaluations: construction/quality/safety/environment (semiannual)</li> </ul> <p><b>Overseas construction subcontractors</b></p> <ul style="list-style-type: none"> <li>Bidding evaluations: quotation performance (50), schedule management (20), level of quotation participation (15), level of cooperation (15)</li> <li>Order evaluations: quotation integrity (40), quotation competitiveness (40), level of cooperation (20)</li> <li>Performance evaluations: construction (60), safety (20), quality (10), suppliers’ manager (10)</li> <li>Payment evaluations: construction wrap-up (40), payment (40), level of cooperation (20)</li> </ul>

**Building a Foundation for Suppliers’ Sustainability management**

**Evaluating Suppliers’ Sustainability Management**

Samsung Engineering conducts a semiannual evaluation on suppliers to objectively assess and diagnose suppliers’ performance capabilities and expertise. This comprehensive evaluation consists of construction, safety, quality, and environment and provides feedbacks to open a door of growth opportunities for our suppliers.

This includes adding bonus points if suppliers undergo Korea Commission for Corporate Partnership’s ESG evaluation. External credit agency’s ESG evaluation is also part of our expansion plan.

**Result of Suppliers’ Sustainability Management Evaluation**

(Unit: number of companies)

Classification	2019	2020	2021
Suppliers subject to evaluation	831	796	765
Number of evaluated companies	358	581	706

**Operating GPA (Global Partnership Agreement) Suppliers**

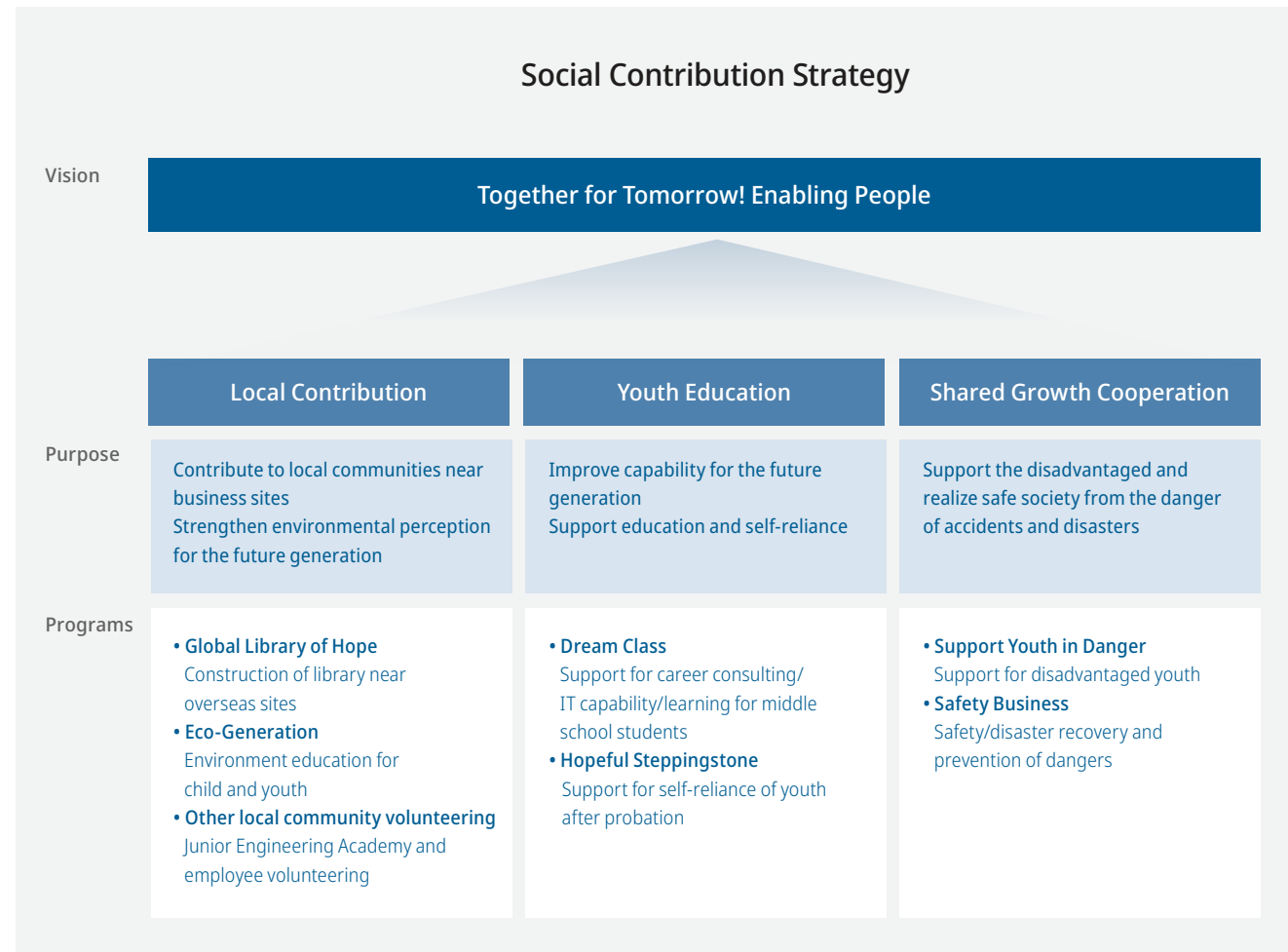
Samsung Engineering endeavors to build a long-term partnership with suppliers based on mutual trust and shared growth. Starting 2017, we have been classifying suppliers with excellent evaluation results as GPA suppliers. We provide GPA suppliers with bidding opportunities and project performance incentives based on a set of grades. Through GPA supplier system, we will do our best to secure competitiveness by building trust with suppliers.

# Local Community

## Social Contribution Vision

Under the social contribution vision of 'Together for Tomorrow! Enabling People', Samsung Engineering promotes social contribution programs with top priorities on 'local contribution', 'youth education' and 'shared growth cooperation'. Our signature social contribution programs reflect the nature and traits of our business: Global Library of Hope, Eco-Generation, and Junior Engineering Academy. Through a wide range of support activities including these programs, we help both youths in Korea and overseas to possess necessary qualifications to become next-generation leaders.

Starting 2022, we plan to launch several programs including Dream Class, an education program for low-income youths, and Hopeful Steppingstone, an initiative to support social settlement and self-reliance of youths who face termination of status protection. To protect the disadvantaged, we plan to launch new social contribution projects such as Youth in Danger and new social contribution business on safety for supporting disaster recovery and prevention activities. These new programs will be based upon our employee's ideas and created in alliance with social welfare experts and professional NGOs.



## Global Social Contribution Programs

### Global Library of Hope

Samsung Engineering started to build Library of Hope in vicinity of overseas project sites to let all youths to dream of bright and healthy future through reading books. Starting from India in 2012, we built 21 libraries in 10 countries including Iraq, Bolivia, and Vietnam. Back in August 2021, we opened Mexico's Library of Hope at Ceiba village located in Dos Bocas of Eastern Tabasco state. 'Dos Bocas Refinery Project' is one of our representative projects that is currently underway in Dos Bocas, Tabasco, Eastern Mexico. This project pertains to constructing an oil production facility with a daily capacity of 340,000 barrels. Through the project, we remodeled two deteriorated public libraries and donated about 1,000 books as well as equipment including desks, computers, and air conditioners. In the opening ceremony, government officials including Mexico's Minister of Energy and state government personnel participated to commemorate the opening of Mexico's Library of Hope.

### Educational Environment Improvement Program

In 2022, following the global Library of Hope, we remodeled nearby Escuela Celerina Oropeza de Gonzalez elementary school and donated textbooks and equipment. The school facilities were severely deteriorated due to the lack of government funding. In addition, the school was exposed to flood from heavy rainfall since it was located at a lowland. Despite these challenges, the school was taking a responsibility in public education for the children. Based on improved environments through the school's remodeling project, we expect to witness a place of learning where local children and teachers can peacefully learn and teach.



Social Contribution Program in Mexico

## Local Contribution Program for Youth

### Eco-Generation

Samsung Engineering's Eco-Generation provides diverse environmental training contents and events to youths through its webpage and TUNZA Eco-Generation website. Every year, more than 200K youths around the world gain environmental knowledge and develop their environmental leadership by interacting on the platform. In addition, we annually select a group of Korean and overseas environmental reporters as well as ambassadors to provide a mentoring program to enhance the environmental awareness of generations to come.

Performance (based on the number of website visitors)

Every year

About **200** thousand visitors

**Junior Engineering Academy**

Junior Engineering Academy is an experience-based youth engineering education program to spark youths' interests in engineering, specifically for 1st-year middle school students. Our expert employees jointly designed the course with the Kids & Future Foundation, an institute specializing in children and youth education. The course consists of a total of six sessions. Based on storytelling, each session consists of various problem-solving activities such as identifying engineering issues, tablet-based AR simulations, and assembling LEGO kits. The course has a high rate of satisfaction from its participants. In 2021, approximately 1,100 students from 18 middle schools and 40 classes, which includes the schools under the government education welfare priority support program, completed the Academy during their career exploration classes. After the program, we survey the students' satisfaction rate and complement the course materials to enhance the quality of our next curriculum.

Survey on Learning Comprehension	Unit	2021	
		Before	After
Participants who responded they can explain what engineering is	persons	91	520
	%	14	80

(Number of survey participants: 651)

**Regional Contribution Program with Employee Participation Employee Volunteering**

Even with limited face-to-face volunteer activities due to COVID-19, we continued our non-contact volunteering activities in 2021. At a city vegetable farm near the company, our employees and their families participated in planting and harvesting vegetables. The harvested vegetables were handed to local children's centers and social welfare groups through Gangdong-gu's food bank. We also conducted a company-wide Hands-On volunteer activity to address issues of rising importance such as energy depletion and resource circulation. We donated 'Energy Story' pop-up books and recycled crayons handmade by our employees and their families to local children's center and handicapped children's facility.

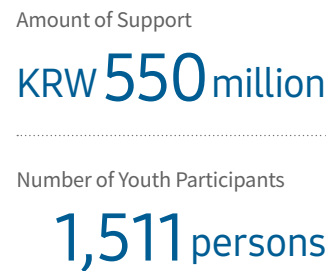
**Share Kiosk**

From 2022, Samsung Engineering began running a donation campaign by installing Share Kiosks in workplaces to incorporate a culture of day-to-day casual donation among employees. An employee can easily become a donor by tagging one's staff ID card at a Kiosk, which will then charge KRW 1,000 per tag from individual salary paychecks. A specialized NGO body is entrusted with the collected donation money to be used to sponsor underprivileged children.

**Junior Engineering Academy**



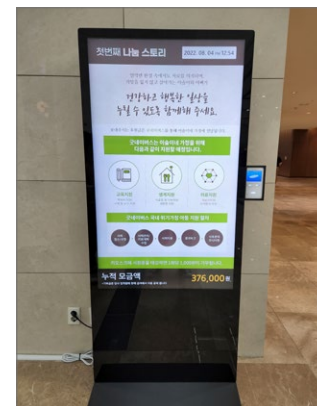
Performance (Cumulative amount of support until 2022)



**A City Vegetable Farm Employee Volunteering**



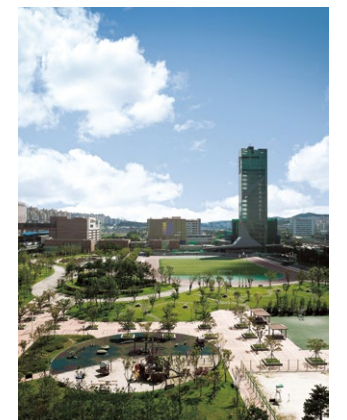
**Share Kiosk**



**Contributing to Local Communities with Eco- and Resident-friendly Themes – Yongin Private Sewage Treatment Plant**

The sewage treatment plant in Yongin has become a landmark in the region by undergrounding all facilities, removing odors with ultraviolet rays, and dispersing them from 100m above that also serves as an observation tower. On the ground, there are residents' self-governing centers, sports centers, art halls, soccer fields, running tracks, and parks to transform sewage treatment facilities, which is largely regarded as unwanted public facilities, into eco-friendly cultural and rest complex that local residents frequent. The plant was built in 2010 and began an integrated operation. As of May 2022, it accumulated 670 million tons of sewage treated and will continue to operate until 2030. We plan to expand green infrastructure projects in the future as a representative case of shared growth with local residents beyond just being eco-friendly.

**Yongin Suji Respia**



**Social Contribution Performance and Management**

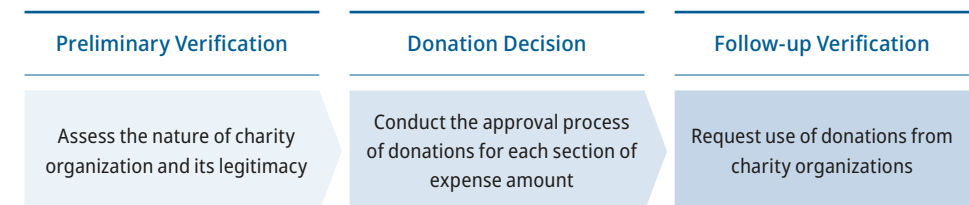
Category	Classification	Unit	2019	2020	2021
Donations	Total donations	KRW million	1,627	2,576	1,943
	Social contribution donation <sup>1)</sup>	KRW million	920	1,900	1,318
	Investment in local communities <sup>2)</sup>	KRW million	707	676	625
Charity donations	Commercial activities	KRW million	0	0	0
	Charity donations	KRW million	946	1,917	1,324
	Cash donations	KRW million	787	1,812	1,249
Employee volunteering and donations	Hourly donations <sup>3)</sup>	KRW million	65	26	24
	Management costs	KRW million	94	79	51
	Hours of volunteering <sup>4)</sup>	hours	5,018	1,087	2,190
Employee volunteering and donations	Number of participants <sup>4)</sup>	persons	1,455	262	1,231
	Employees' donation rate	%	30	5	26
	Total employee donations	KRW million	745	686	643

1) Social contribution donation: sum of the company's donation to activities including education, environment, social welfare, and culture and employees' donation  
 2) Investment in local communities: operational expenses directly related to the operation of programs  
 3) Hourly donations: monetized employees' hours of volunteering by multiplying volunteering hours during regular work hours by hourly wages  
 4) Volunteering hours and headcounts are based on HQ employees/ Face-to-face volunteering activities suspended since March 2020 due to COVID-19, operated certain non-contact activities

**Donation Policy**

For transparent and fair donation support, Samsung Engineering operates the donation based on a separate donation management policy. Our donation policy prohibits act of donations that are politically motivated, unlawful, or intending to influence the third party. In addition, we acknowledge that expenditures regarding the impact of policy can become a potential risk factor in mid to long-term business point of view. Thus, we manage the history and amount of donations at a company-wide perspective.

**Process of Donation Approval**



# Governance

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# Corporate Governance

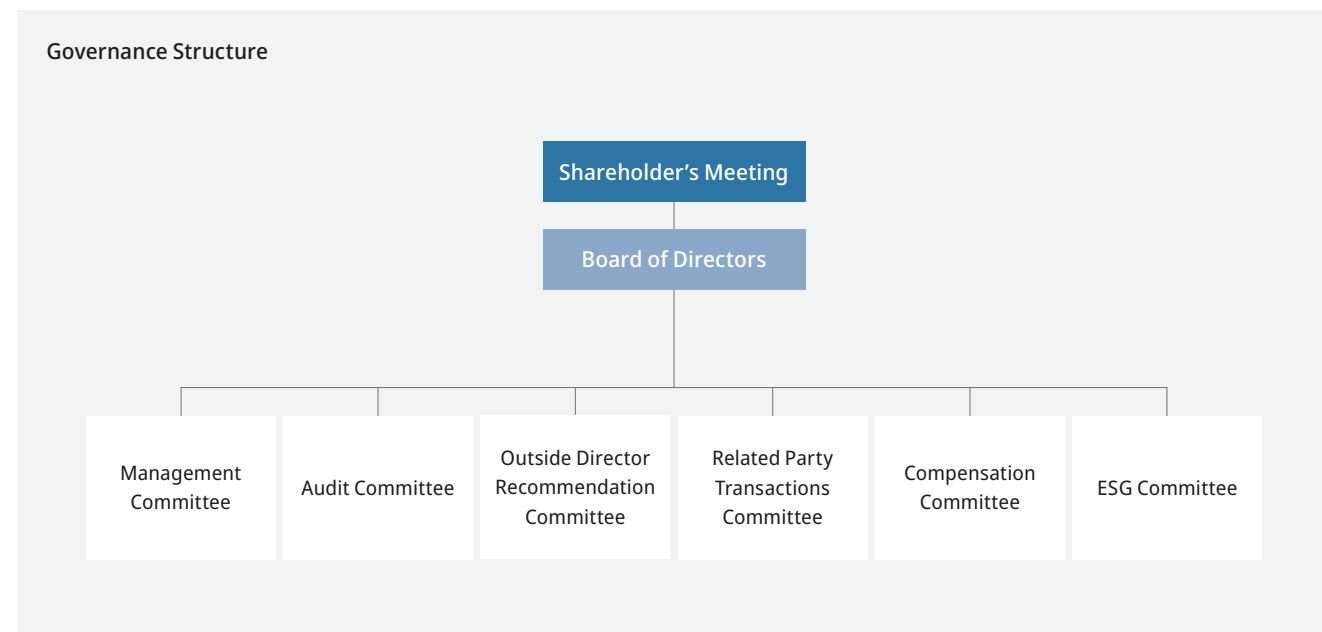
## Governance Policy and Structure

### Corporate Governance Principles

Based on Samsung's philosophy of 'to devote its talent and technology to creating superior products and services that contribute to a better global society' and the principle of 'creating future value for our clients through engineering excellence', we strive to continuously improve the corporate governance. To build a corporate governance structure that matches global standards, we established a balanced corporate governance by ensuring checks and balances among the management, board of directors, and stakeholders. We also practice transparent and responsible management by forming and operating an independent board of directors. Moreover, we will continue to communicate with various stakeholders such as our shareholders, clients, employees, suppliers, local communities, and governments, and transparently disclose information to boost ESG-based business management.

### Governance Structure

The Board of Directors (BoD) is the highest decision-making body at Samsung Engineering. Based on relevant regulations and articles of association, the BOD decides on the company's fundamental managerial directions and business operations, oversees and checks the management's execution of duties. Our BoD operates in compliance with the BoD regulations. By bringing in directors with a wide range of expertise and capabilities, we support the management to make reasonable managerial decisions. Including the ESG Committee established in March of 2022, there are a total of six committees under BOD that operate independently to expand expertise and efficiency in carrying out the directors' duties.



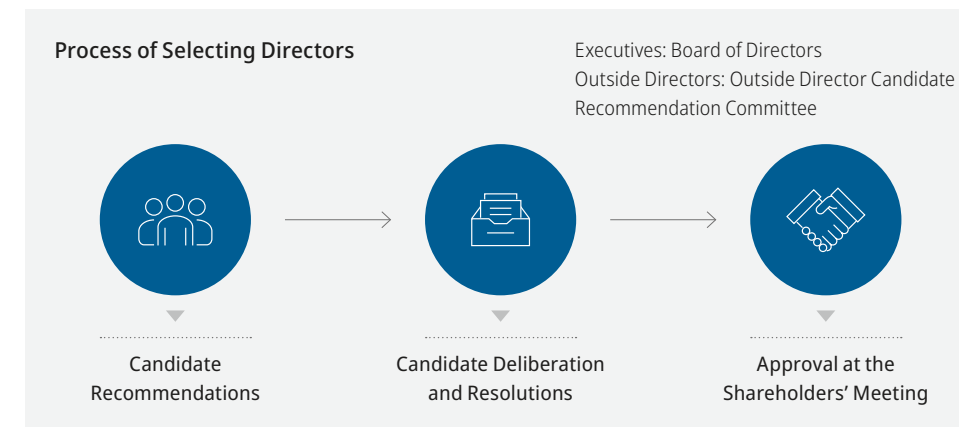
## Board of Directors

### Composition of the Board of Directors

Title	Name	Gender	Position	Date of Appointment	End of Term	Expertise
Executive	Sung An Choi	Male	President & CEO	2018.01.26	2024.03.17	Hydrocarbon
	Ju Seong Cheong	Male	Head of Corporate Support Division	2021.03.18	2024.03.17	General business operation
	Jae Hoon Choi	Male	Head of Marketing Division	2020.03.19	2023.03.18	Marketing
outside director	Man Ho Seo	Male	Former Vice President of Woori Bank	2017.03.24	2023.03.18	Finance, accounting
	Il Dong Park	Male	Former Vice President of the EXIM Bank of Korea	2018.03.22	2024.03.17	Finance
	Il Moon	Male	Professor at Department of Chemical & Biomolecular Engineering, Yonsei University	2019.03.21	2025.03.16	Hydrocarbon
	Jung Hyun Choi	Female	Professor at Environmental Engineering, ELTEC College of Engineering, Ewha Womens University	2022.03.17	2025.03.16	Environment

### Independence of the Board of Directors

Samsung Engineering secured the BoD's independence by bringing in four outside directors into the total of seven directors. In the selection process, we make sure to elect someone who can make independent decisions from both the management and shareholders. We do so by receiving recommendations from the Outside Director Candidate Recommendation Committee and making individual selections at the shareholders' meeting. When electing candidates for outside directors, we select candidates with an expertise and ample experiences in management and relevant technology so that the company can later benefit from their efficient and reasonable decisions as well as expertise in dealing with the overall sustainability management. When an outside director is a major shareholder or affiliated to the company, we restrict their candidacy to prevent conflict of interest within the BoD.



Category	Classification	Unit	2019	2020	2021
BoD independence	Total	persons	7	7	7
	Executives	persons	3	3	3
	Outside directors	persons	4	4	4

**Managing Committees based on the Leadership of Outside Directors**

Out of six committees (Management Committee, Audit Committee, Outside Director Recommendation Committee, Related Party Transactions Committee, Compensation Committee, and ESG Committee) at Samsung Engineering, outside directors take the majority seat at each committee except the Management Committee so that they can make independent decisions. In 2016, we amended the Articles of Association to appoint the BoD's chairman among the directors, including outside directors other than the CEO, for flexible BoD operation and strengthened responsibility.

**Regulations on the BoD's Independence** Articles of Association

**1. On BoD Chairman**

**Article 31** The chairman of the BoD is elected among the directors based on the BoD's resolution.

**Article 27, Paragraph 1** The company maintains three to eight directors, all of whom are elected at the shareholders' meeting. The number of outside directors should be no less than three and must form the majority of the total number of directors. The outside directors are elected upon recommendation from Outside Director Candidate Recommendation Committee.

**Securing Outside Directors' Independence and Expertise**

At Samsung Engineering, outside directors are not allowed to hold more than two external positions so that they can maintain their independence. They also provide briefings on topics of interest before the BoD meetings so that other directors can make objective and expert decisions on the overall business environment. This allows outside directors to participate in a decision-making process with sufficient information regarding the agenda. Newly elected outside directors are subject to separate interviews and briefings from the executives to help them understand the overall management scheme and visit sites in Korea and overseas to enhance their level of comprehension towards the industry and project sites. Other than regular meetings with the executives, outside directors hold their own group meetings to freely exchange their insights and make independent decisions on the company's overall management environment. We also provide support to outside directors through an active support organization that provides assistance in carrying out their duties such as participating in the BoD meetings. To further enhance the BoD's expertise, we elect outside directors who have expert knowledge or ample experiences in economics, society, law, or relevant technology sectors. In particular, the current BoD consists of outside directors who can help elevating accounting transparency and risk management – accounting and financial experts. We also elected industry leaders as outside directors who have expert knowledge and insights towards the industry as well as environment specialist to strengthen ESG management.



Site Visit to Songdo Biologics EDISON IV Project (outside directors and CFO)

**Trainings for Outside Directors**

Date	Name	Details
2021.04.14	Site visit (Pyeongtaek P2 Project, Korea)	- DT enforcement items and key construction methods - Site visit to Pyeongtaek's P2 project
2021.04.28	ESG Training	- ESG Trend and ESG management cases
2021.05.13	Compliance Training	- Bidding collusion, corruption prevention, trade secret protection, fair trade, etc.
2021.11.16	Site visit in Korea (Goseong SHOP)	- Explaining the module construction method - Site visit to Goseong's Smart Piping Shop and DBNR Project Module Shop
2022.05.11	Site visit in Korea (Songdo EDISON IV Project)	- Site visit to Songdo EDISON IV project site

**BoD Support Organization**

Title of the Division	Number of Employees	Job Title (Length of service)	Major Activities
Human Resource Management Team (HR Support Group)	3 persons	Pro (7.5 years on average)	- Operate general shareholders' meeting, BoD meetings and BoD's committees - Render business information and support agenda review - Provide trainings for outside directors and support other activities - Back-up work to support meetings

**Diversity of the BoD**

To secure diversity in member composition of BoD, we do not discriminate on the basis of nationality, ethnicity, race, gender, and religion when selecting candidates. We publicly disclose these principles in external reports such as Corporate Governance Report and Sustainability Report. In March 2022, we expanded the level of diversity by electing the first female outside director.

**Election of the First Female Outside Director**

In 2022, Samsung Engineering secured diversity of the BoD by electing the first female outside director. Jung Hyun Choi, a professor of environmental engineering at Ewha Womens University, became the first female outside director of ESG Committee based on her expertise in environment sectors and a wide range of administrative experiences. Professor Choi's election is the latest addition to the BoD's diversity and expertise in environment. With an election of the first female intendent director, we will strive to elect directors from diverse backgrounds so that we can reflect the perspectives of our shareholders, clients, and stakeholders with even broader views.

Category	Classification	Unit	2020	2021	2022
BoD independence	Male	persons	7	7	6
	Female	persons	0	0	1

**Corporate Governance Report, Qualifications and Election Criteria for Outside Directors** Corporate Governance Report (Korean)

**(2) Qualifications and election**

The candidates for outside directors must satisfy qualifications stipulated in relevant regulations and the Articles of Association. Furthermore, the candidates must have no material interests to the company and should be able to carry out their duties in monitoring the company's management at an independent position from the executives. In accordance with Article 27, Paragraph 2 (Outside Directors), Outside Director Candidate Recommendation Committee selects candidates with expertise and years of experiences encompassing business management, economics, accounting, law, or relevant technology. In particular, we give priorities to candidates who can make independent judgements from various angles regardless of their ethnicity, nationality, gender, hometown, religion, and field of expertise.

## Strengthening Sustainability Management System

### BoD's Expertise in Sustainability Management

#### Establishment of ESG Committee

In March 2022, Samsung Engineering established the ESG Committee under the BoD to expand ESG management and amplified their managerial functions in making major ESG-related decisions. The ESG Committee will contribute to the company's growth as a sustainable company through deliberations and resolutions on mid to long-term ESG strategy, action plans, and social responsibility. The ESG Committee consists of four outside directors to secure its independence. We also plan to enhance the shareholders' values by appointing a member who oversees the protection of shareholders' rights. Moving forward, we will discuss and vote on a wide array of sustainability management agenda such as climate change, social contribution, safety, and corporate ethics in the ESG committee.

#### BoD Meetings

In 2021, Samsung Engineering held 9 BoD meetings including regular meetings. The BoD confirmed 8 reported items and voted on 18 items. In 2021, the BoD recorded the participation rate of 100%.

Category	Classification	Unit	2019	2020	2021
BoD meetings	Number of meetings	counts	9	8	9
	Items reported and voted for	items	27	23	26
	Participation rate	%	98.4	100	100

#### Committees in the BoD

As of March 2022, the BoD delegated expert authorities to the six committees in accordance with the Articles of Associations and the BoD regulations to enhance the board's managerial efficiency. Most of the committees are formed with outside directors to assure the independence of the committee.

#### Committee Status

Name	Composition	Members	Key Roles
Management Committee	3 executives	Sung An Choi (Chair), Ju Seong Cheong, Jae Hoon Choi	Deliberate and resolve key management issues
Audit Committee	3 outside directors	Man Ho Seo (Chair), Il Dong Park, Il Moon	Select accounting auditors, work auditors, external auditors
Outside Director Recommendation Committee	2 executives 3 outside directors	Sung An Choi (Chair), Ju Seong Cheong, Man Ho Seo, Il Dong Park, Il Moon	Recommend candidates for outside directors
Related Party Transactions Committee	3 outside directors	Man Ho Seo (Chair), Il Dong Park, Il Moon	Deliberate and resolve related party transactions among affiliates
Compensation Committee	3 outside directors	Il Dong Park (Chair), Man Ho Seo, Il Moon	Deliberate and resolve executives' compensation limit and related rules
ESG Committee	4 outside directors	Il Moon (Chair), Man Ho Seo, Il Dong Park, Jung Hyun Choi	Deliberate and resolve issues on ESG strategy and its promotion plan, performance, enhancing shareholders' values, and social responsibility

#### Committee Operation

Category	Classification	Unit	2019	2020	2021
Management Committee	Number of meetings	counts	6	6	6
	Participation rate	%	100	100	100
	Number of people	persons	3	3	3
	Number of outside directors	persons	0	0	0
Audit Committee	Number of meetings	counts	7	5	6
	Participation rate	%	100	100	100
	Number of people	persons	3	3	3
	Number of outside directors	persons	3	3	3
	Number of financial experts	persons	1	1	1
	Number of industrial experts	persons	1	1	1
Related Party Transactions Committee	Number of meetings	counts	7	6	5
	Participation rate	%	100	100	100
	Number of people	persons	3	3	3
Compensation Committee	Number of outside directors	persons	3	3	3
	Number of meetings	counts	2	1	2
	Participation rate	%	100	100	100
	Number of people	persons	3	3	3
Outside Director Recommendation Committee	Number of outside directors	persons	3	3	3
	Number of meetings	counts	1	1	1
	Participation rate	%	100	100	100
	Number of people	persons	5	5	5
	Number of outside directors	persons	3	3	3

#### Performance Evaluation and Compensation for the BoD and Executives

Samsung Engineering assesses outside directors every year based on the internal evaluation standards including participation rate, expertise, and level of understanding. The evaluation results are used to seek efficiency improvement plans of their activities and serve as a reference point for reappointment. In accordance with internal regulations, outside directors' compensations are not linked to the evaluation results. To secure the independence in decision-making, we do not provide compensations based on business performance outside of their base salary. Compensations for executives and the management are paid based on individual performance assessments, which includes both financial and nonfinancial performance to internalize their participation in sustainability management. Financial performance indicators include revenues, net profits, ROE, and stock prices while nonfinancial performance indicators include comprehensive sustainability management evaluation criteria such as safety, compliance, business irregularities, corruption, and safety.

### Compensation of the Executives and Employees

We have a long-term deferred payment system to link the company's long-term business performance to the compensation. Each year, the compensation limit for the BoD is approved at the shareholders' meeting. The cap for 2021 was KRW 10 billion with an actual payment of KRW 3.9 billion.

### Compensation of the Executives and Employees

Category	Classification	Unit	2019	2020	2021
Executives' compensation linked to long-term performance	Deferred period applicable to varying compensation	years	3	3	3
	Vesting period for varying compensation	years	3	3	3
Employee compensation excluding the top executives	Total compensation for employees	KRW million	497,813	503,786	575,071
	Average of compensation for employees	KRW million	94	95	110
	Median of compensation for employees	KRW million	91	92	110
Compensation for outside directors	Total compensation for outside directors	KRW million	329	329	341
	Average compensation for outside directors	KRW million	82	82	85

## Audit Organization

### Role of the Audit Committee

The Audit Committee checks, oversees, and supports the company's management to see whether they enhance the value of the company and its shareholders through legal procedures and reasonable decisions.



### Dedicated Organization to Support the Audit Committee

We have an organization dedicated to supporting the Audit Committee under the Finance and Accounting Team. This organization trains the auditors, assists the Committee's operation and supervision, and handles external audits.

### External Auditors

We appoint auditors according to the Act on External Audit. When appointing external auditors, the Audit Committee comprehensively evaluates the firm's size, qualifications to perform overseas audits, transparency, and independence. Samil PwC, our appointed external auditor, reports the progress of accounting audits to the Audit Committee on regular and irregular basis. During the external auditor's briefing, only the members of the Audit Committee and external auditors, excluding internal executives, attend to secure financial transparency while the auditor's oral and written reports are intended to enhance communication.

## Shareholders

### Shareholder's Rights

To facilitate shareholder's exercise of rights, Samsung Engineering adopted the electronic voting system in 2021 to increase shareholder participation in management decision-making. In addition, to provide timely information to shareholders, information regarding the agenda of the general shareholders' meeting is disclosed through various channels. Notices for convocation and results of general shareholders' meeting are disclosed on DART (Data Analysis, Retrieval and Transfer System) and on the website. Exercise of voting rights in writing was introduced and voting through proxy is encouraged. Samsung Engineering decided on the convocation of shareholders on February 16, 2022, and held the 55th general shareholders' meeting on March 17.

### Results of the Agendas in the 55th General Shareholders' Meeting

Category	Agenda Approval Rate	Approval Rate
Agenda 1	Approval of the financial statements of the 55th fiscal year	87.4%
Agenda 2	Appointment of directors	
- Agenda 2-1	Appointment of Il Moon as an outside director	99.1%
- Agenda 2-2	Appointment of Jung Hyun Choi as an outside director	99.9%
Agenda 3	Appointment of members of the Audit Committee	98.7%
Agenda 4	Approval of compensation limit for directors	99.9%

### Shareholder Status

Samsung Engineering was listed on the Korea Stock Exchange (KRX) in 1996. After several rounds of capital increase with and without consideration since the establishment, the share capital was KRW 980 billion as of the end of 2021, with a total of 196,000,000 common shares issued. The largest shareholder of Samsung Engineering is Samsung SDI with an 11.69% ownership, while Samsung C&T, a related party, has 6.97% ownership, and the National Pension Service has 8.61%. Shareholders can directly participate in Samsung Engineering's important decision-making by freely exercising their voting rights at the general shareholders' meeting. The shareholder's opinions are reflected in the company policies and operation through the review and approval process of the top executives and the Board of Directors. Also, Samsung Engineering protects the rights of minority shareholders, listens to their voices through various communication channels and reflects these during management decision-making. As of the end of 2021, minority shareholder ownership is 67.68%, or 132,650,522 shares. In accordance with the Commercial Act, Samsung Engineering guarantees minority shareholders the right to suit the representative and inspection of accounting ledgers.

Category	Classification	Unit	2019	2020	2021
Shareholder composition	Common shares	1 million shares	196	196	196
	The percentage of shares owned by executives	%	0.39	0.26	0.26
	The percentage of shares owned by foreigners	%	35.89	25.00	35.44
	The percentage of shares owned by individuals	%	22.80	37.61	28.03
	The percentage of shares owned by majority shareholders and affiliate persons	%	20.58	20.65	20.60
	The percentage of shares owned by domestic institutions <sup>1)</sup>	%	19.21	15.45	15.54
	The percentage of shares owned by employee stock ownership plan	%	1.52	1.29	0.39
Shareholding of the majority shareholders and affiliate persons	Total percentage of shareholding	%	20.58	20.65	20.60
	Samsung SDI	%	11.69	11.69	11.69
	Samsung C&T	%	6.97	6.97	6.97
	Samsung Fire & Marine Insurance	%	0.22	0.22	0.22
	Samsung Life Insurance (client accounts)	%	0.09	0.15	0.10
	Jae Yong Lee	%	1.54	1.54	1.54
	Sung An Choi	%	0.02	0.06	0.06
	Ju Seong Cheong <sup>2)</sup>	%			0.003

1) As of December 31, 2021. All shares issued are common shares with no 'Dual Class Shares' with differentiated voting rights.

2) Ju Seong Cheong: Appointed on March 18, 2021

### Enhanced Communication with Stakeholders

Samsung Engineering operates various communication channels to strengthen communications with shareholders and investors. Through quarterly earnings meetings, public announcements, NDR (Non-Deal Roadshows) and conferences, we convey our management status, and future plans. In May 2022, we conducted a face-to-face NDR in Singapore under CFO's oversight in line with the post COVID-19 era. We intend to continue expanding such opportunities.

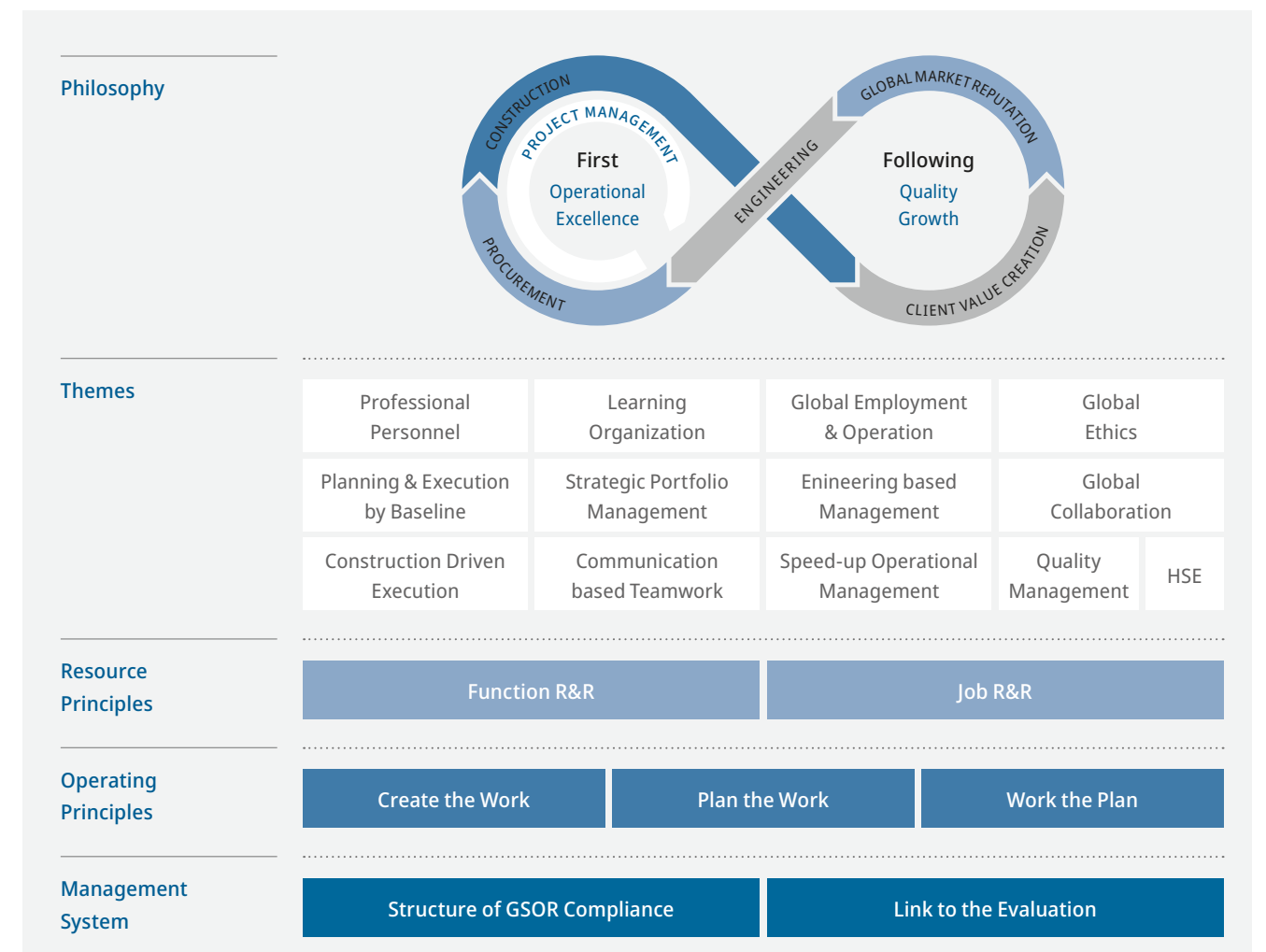
## Global Standard Operating Requirements (GSOR)

Since 2015, GSOR has been the constitution of Samsung Engineering. GSOR stipulates requirements that all Samsung Engineering employees in Korea and overseas must comply. We enacted GSOR to achieve the highest level of project quality in all projects conducted by Samsung Engineering based on the first-class EPC execution capability and to build the fundamental base which aligns top quality performance and qualitative growth of company. GSOR consists of five steps from Philosophy of Management and to System of Management Operation.

Philosophy of Management presents directions that all employees must follow in their daily course of work. The directions are specified in Management Themes, which are objectives that GSOR aims to achieve. The Function/Job R&R and Operation Principles define specific requirements that employees must satisfy to achieve the Management Themes. In particular, Operation Principles provide principles for each work at respective phase of work so that all employees can perform their duties based on identical criteria.

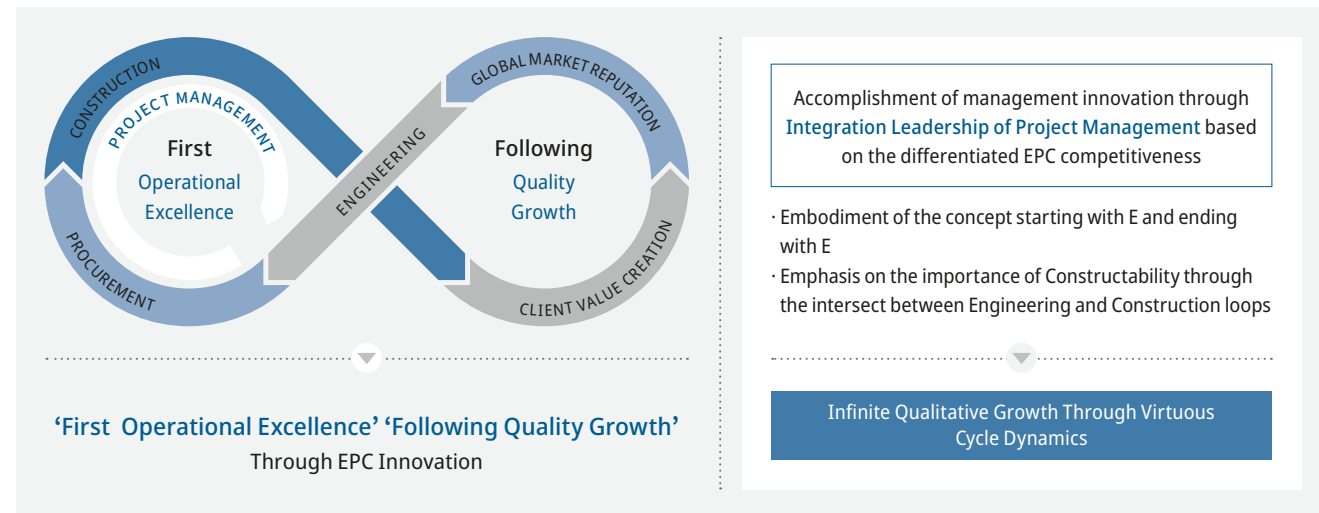
Lastly, the Management System defines principles that enables GSOR to become Samsung Engineering's number one management manual of quality management system that mandates everyone to abide by, instead of imposing rules that are only recommended.

### Structure of GSOR



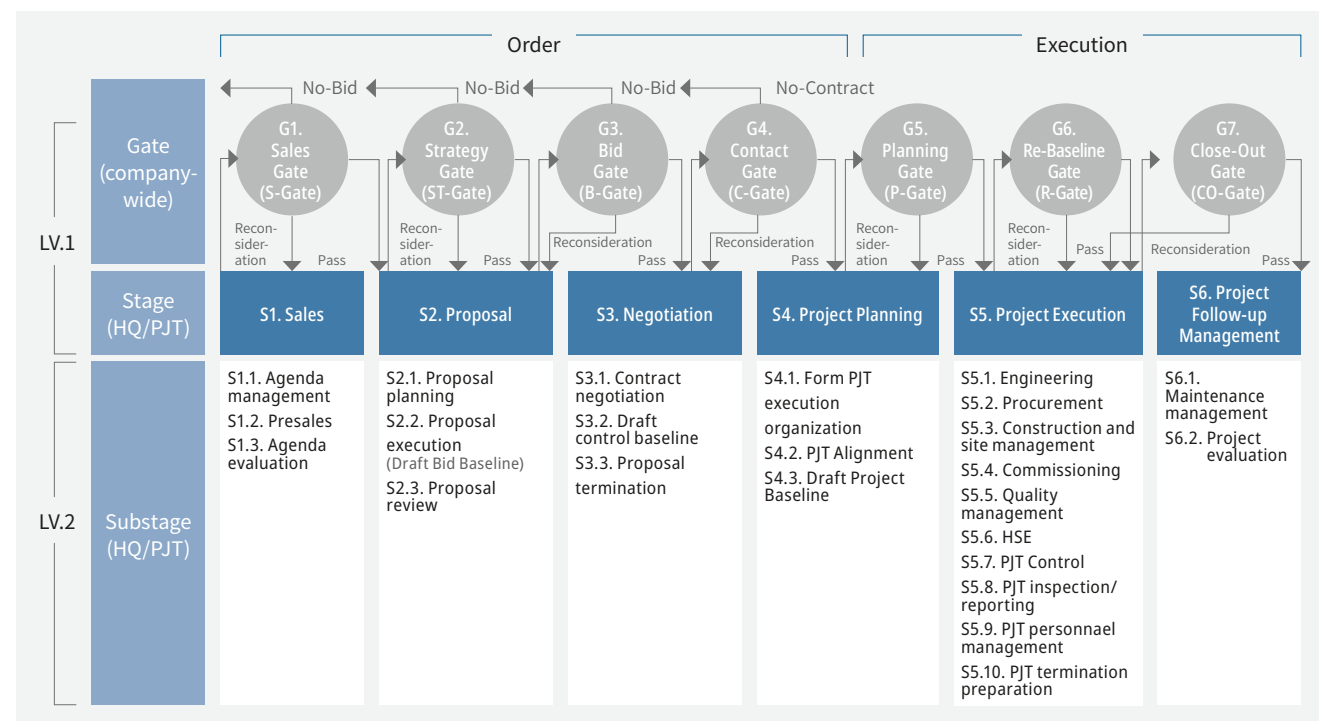
## Management Philosophy

Management Philosophy pertains to 'First Operational Excellence, Following Quality Growth'. We believe that quality growth is impossible without differentiated competitiveness in engineering, procurement, and construction as well as management innovation of project management's integrated leadership. Based on this belief, all employees are keenly aware of the necessity for management innovation and leap forward first-class through GSOR for continued qualitative growth. Hence, our employees strictly adhere to requirements outlined in GSOR in their daily routines.



## Management Principles

We implemented 'Stage & Gate' system as a baseline framework for GSOR's Management Principles. Out of 7 total Gates, we placed 4 of them prior to the project execution and focused our managerial resources in order and planning stages. This is to reinforce preemptive risk management. Gates are managed in a way to enable clear decisions on 'Go/No-Go'. Stage is structured to become a requirement for Gate management.



## Risk Management

### Integrated Risk Management

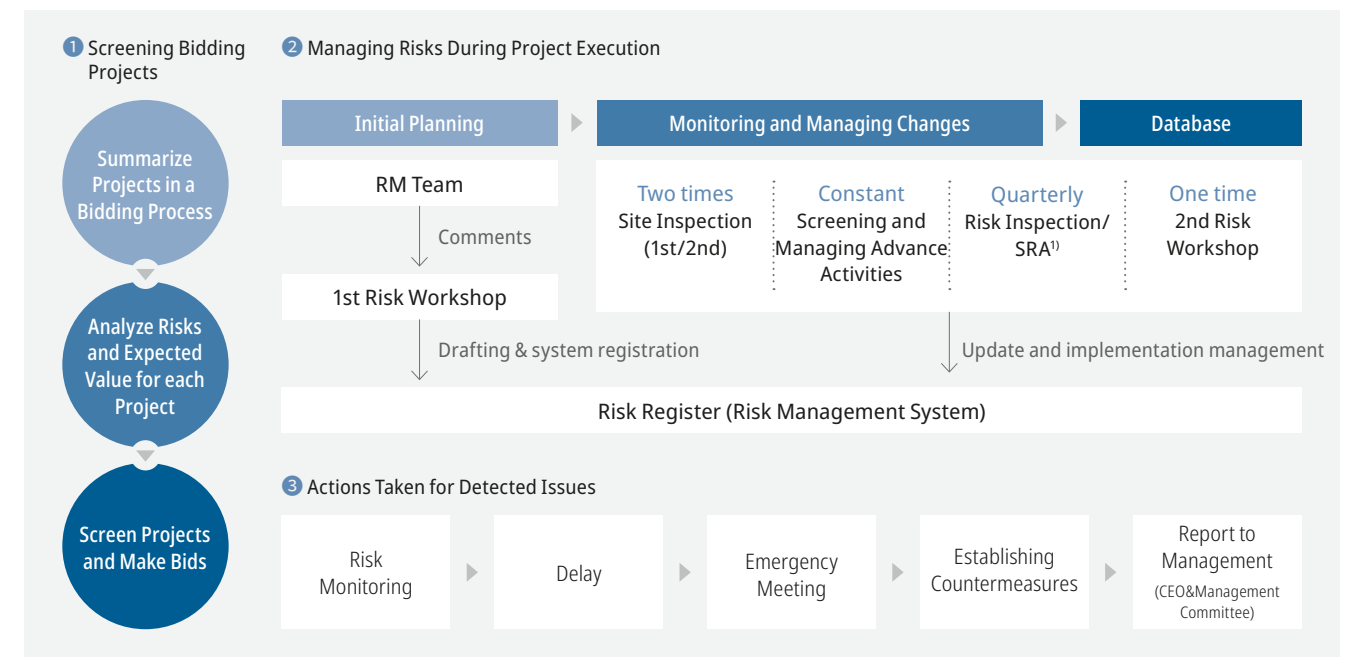
Samsung Engineering established a risk management system that can fortify the organization's achievement of mid to long-term goals as well as ESG risk governance. Through the system, we identify and respond to new and long-term risks in advance. Furthermore, we systematically categorize, manage, and respond to financial risks (market, credit, volatility, and capital risks) and relevant risks that may arise during business processes (contract, project, and schedule risks).

### Risk Management Governance System

By establishing a risk governance system, Samsung Engineering conducts regular status report through phase-by-phase reporting process. Based on risk capacity, we analyze risks of potential projects through Project Portfolio Management to select optimal projects based on the total risks at the company-wide level and soundness of each potential project. By operating Risk Register<sup>1)</sup>, we maintain a process that preemptively manages project risk. When major risks emerge, the RM (Risk Management) Team immediately reports them to both the executives and the Management Committee to enable agile risk-related decision-making. In order to make executives participate in risk management, our CEO and top executives are subject to performance evaluation criteria that includes management performance (pretax profits) as well as business/financial/contractual risks; we linked risk management performance index to their financial incentives.

1) Risk Register: A document that includes identified risks and response plans. It is a mandatory document for preemptive risk management.

### Structure of Risk Reporting



1) Schedule Risk Analysis

### ISO 31000 Verification

To preemptively respond to growing demands on risk management requirements, Samsung Engineering passed ISO 31000 verification for the first time in Korea. ISO 31000 is an international standard that encompasses a company-wide risk management system, business risk analysis capability, and risk evaluation methods for an efficient risk management. The verification process studies how the company's management system is integrated with its risk management system, how much the executives participates in risk management, and whether the company's risk management system suits and operates according to the international standards. By the ISO 31000 verification for the first time in Korea, Samsung Engineering proved its competitiveness in risk management capability and structure.

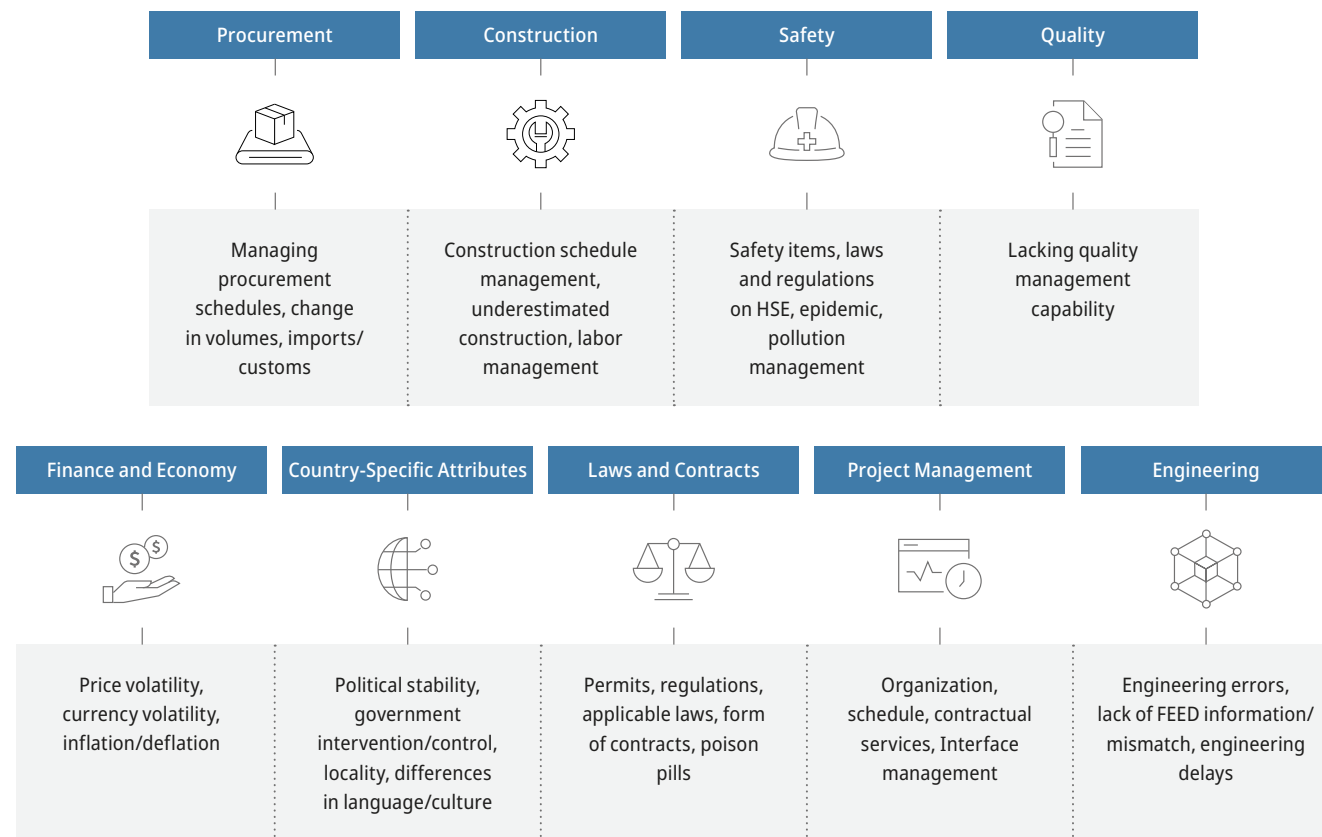
ISO 31000 Certification



### Business Risk Management

We use RBS (Risk Breakdown Structure) that consists of 19 risk categories – finance, economy, law, contract, engineering, procurement and more – that arise during bidding and project execution stages to identify major risks. We also use Risk Register to reflect and manage risks drawn during the 1st and 2nd risk workshops. Moreover, we conduct monthly inspections and quarterly meetings to preemptively monitor risk volatility and level. As of March 2022, we identified 2,482 risk items in 15 projects, processed 1,907 items whilst currently managing 575 items.

#### Business Risk Items



### Emerging Risks

Samsung Engineering defines macro-environmental changes such as industrial market changes and climate change that affect business operations as emerging risks. We establish response measures after identifying the potential business impact for each risk and selecting major issues.

Emerging Risks	Impact to Business	Response Measures
Spread of Infectious Diseases Including COVID-19	<ul style="list-style-type: none"> <li>Shortage in manpower</li> <li>Delays in equipment delivery due to disruptions in global supplies</li> </ul>	<ul style="list-style-type: none"> <li>Reinforce communications with clients and suppliers by forming a close consultative body</li> <li>Monitor procurements of raw materials and logistics</li> <li>Stricter safety and health rules</li> <li>Build non-contact work system</li> </ul>
Changes in International Affairs	<ul style="list-style-type: none"> <li>Rise in raw materials/logistics costs due to change in international affairs including wars and external risks such as fluctuations in exchange rate/interest rate</li> </ul>	<ul style="list-style-type: none"> <li>Establish monitoring system for external environment risks and construct a response structure</li> </ul>
Response to Climate Change	<ul style="list-style-type: none"> <li>Stricter environmental regulations and rise in costs</li> <li>Growing demands on expanding eco-friendly business</li> </ul>	<ul style="list-style-type: none"> <li>Establish and execute mid to long-term GHG reduction goals</li> <li>Expand eco-friendly business areas</li> </ul>
Digital Transformation	<ul style="list-style-type: none"> <li>Growing demands in automating production methods and on-site operations</li> <li>Rise in automation system development cost</li> </ul>	<ul style="list-style-type: none"> <li>Build a digital transformation promotion system and expand digitalization/automation/robotization in all areas including engineering, procurement, and construction</li> </ul>

### Long-term Risks

To manage and grow our sustainable businesses, Samsung Engineering aims to identify and respond to not just short-term risks, but potential long-term risks. In this regard, we treat global risks announced annually by the World Economic Forum as long-term risks and conducts monitoring and response activities on them. According to 'The Global Risks Report 2022', failure in climate change mitigation and adaptation, extreme weather, and loss of biodiversity were identified as major risks. As a result, we are making diverse endeavors including stabling and executing mid to long-term GHG emission reduction goals, reinforcing activities to preserve biodiversity on sites, enhancing safety and health regulations to prepare for an outbreak of an infectious disease, and establishing non-contact work system.

\* A global report published by the World Economic Forum that announces its analysis results on risks with the highest possibility to emerge within the next decade as well as risks with high level of negative impacts. The report also proposes challenges.

## Managing Financial Risks

Samsung Engineering categorizes financial risks that may emerge in Korea and overseas into market, credit, liquidity, and capital risks to establish and implement policies and response measures depending on each risk. Also, we established an appropriate financial management system that complies with K-IFRS (Korean International Financial Reporting Standards) and internal accounting policies. We respond to global financial risks through finance officers at global sites and offices.

In particular, we conduct an advanced financial monitoring through the introduction of CUBE (Cloud for Unique and Best Engineering) ERP system and assignment of dedicated employees to fund monitoring. To secure global financial transparency, manage risks preemptively, and establish a system of workflow, we revamped the company-wide finance management standards. We reinforced our financial risk management system by using IFAM<sup>1)</sup> to share information and review various indices.

1) IFAM: Integrated Finance Accounting Management

### Internal Accounting Management Regulation

Samsung Engineering operates an internal accounting management regulation in compliance with the Act on External Audit of Stock Companies and its enforcement decree. The internal accounting management regulations were newly revised in April 2022 in accordance with the Enforcement Decree of the Act on External Audit of Stock Companies, etc., which was revised and implemented in December 2021. In addition, in accordance with Article 8 (4) of the External Audit Act and Article 16 of the Internal Accounting Management Regulations, the CEO of Samsung Engineering checks the operation status of the internal accounting management system every year and reports it to the audit committee, board of directors, and shareholders meeting. Improvements found during the operational assessment process are being promoted through consultation with external auditors, dedicated departments, and relevant control personnel.

### Transparent Tax Management

To manage tax risks properly, we monitor changes in financial and tax regulations through BEPS (Base Erosion and Profit Sharing). We review and apply impact of the changes for application. With respect to overseas projects, we thoroughly study local tax policies, regulations, and practices from the bidding stage so that we can devise response measures in advance. We also review peculiarities such as profitability gap with the headquarters during the projects. In addition, we collaborate with global accounting firms to review and respond to tax practices and features of the countries where we operate.

## Contract Risk Management

Samsung Engineering discovers contract risks from the project bidding stage and promotes response activities alongside active contract negotiation to mitigate the possibility of potential risk factors. In the project execution stage, designated contract management personnel are assigned to each project to specialize in contract management for clients and suppliers, and they respond to concerns in a timely manner. In addition, the project insurance management function is integrated into the company-wide contract management organization to enhance expertise, and the project insurance online training course is provided at all times to continuously strengthen the basic knowledge and understanding.

## Project Risk Management

Samsung Engineering is making efforts for stable project orders and systematic risk management. Based on total risk capacity, we analyze the risk of orders won through Project Portfolio Management to select the optimal agenda on the grounds of the size of the company's risk and the soundness of each item. We operate processes to systematically respond to and proactively manage risks of executed project through risk fluctuation management and quantitative risk degree analysis based on Risk Register. In addition, we have a step-by-step reporting process throughout the bidding and execution process, and the RM (Risk Management) team monitors company-wide risks and reports major risks to the management to help them make quick and adequate decisions.

## Periodic Risk Management

Saudi Arabia's APOC PDH/UTOS project builds PDH production facility of 840,000 tons a year and relevant utility facilities in Jubail industrial complex. Since the project's Feedstock supply schedule is already set, complying with schedule is crucial in this project as it requires a shorter construction period compared to projects with identical size/products. Samsung Engineering preemptively identified potential risks that may emerge during the projects and uploaded them on Risk Register. Through Schedule Risk Analysis (SRA), we drew major management risks and key management risks for each type, and established response measures to run the project smoothly.

### Preemptive Risk Management on the basis of Risk Register

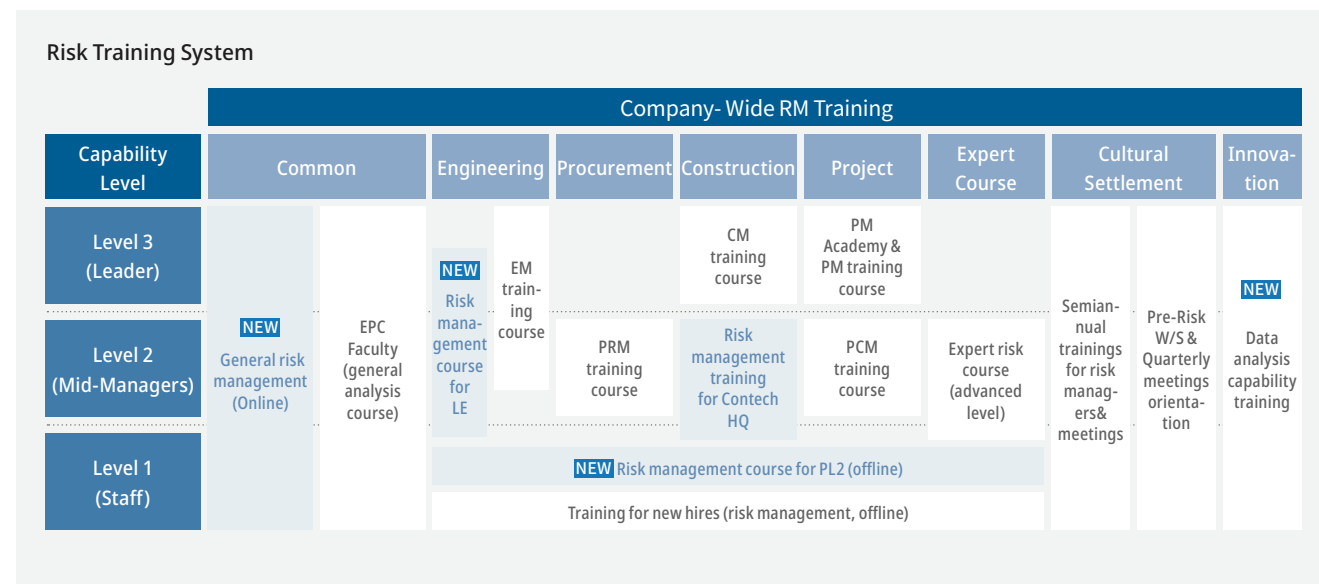
To secure risk management quality and preemptively respond to risks, we draft risks drawn during first and second risk workshops on Risk Register and conduct monitoring through monthly inspections and quarterly meetings. As of March 2022, we discovered 198 risks items, completed 86, and currently manage 112 items during the execution of the project. We contribute to a smooth progression of the project by systematically monitoring preidentified risks based on the company's risk management process.

### Timely Response to Risks Through Scenario Analysis

Scenario analysis is a technique that quantitatively analyzes the impact and delay of the discovered risks by reflecting and simulating the risks that are likely to occur during the project execution. As our RM team was conducting the project, it analyzed scenarios for each construction period risk through Monte Carlo Simulation. We divided into potential cases: Case 1 – assuming the manifestation of risk registered on Risk Register, Case 2- assuming the resolution of risks drawn through risk activities, Case 3 – analyzing opportunity factors to increase the possibility of accomplishing construction period. Through case analyses, we simulated predicted construction period achievement and key activity via sensitivity analysis. Furthermore, we shared the analysis result with workers on sites and such scenario analysis allows preemptive risk sensing and intensive management activity drawing.

## Strengthening Risk Management Capabilities

Samsung Engineering offers risk management trainings to allow employees to autonomously manage risks in advance and bring in a culture of company-wide autonomous risk management. The course is broken into basic to advanced courses including general risk management system, fundamental management methods, and understanding quantitative methods to suit each component class and job function. Including courses taught by external lecturers, there were two subjects on advanced quantitative risk analysis and three on general risk management in 2021. To elevate average capabilities on a company-wide risk management, we created four designated courses for PL2 (Staff/Assistant Managers). By doing so, we are focused on enhancing risk management capabilities of employees who partake in projects.



### Online Risk Training

Course Name	Contents	Participants	Notes
Risk Register efficiency and instructions (online)	Samsung Engineering's major risks and how to use Risk Register	Company-wide	Online
Risk management system & Risk Dashboard (online)	Samsung Engineering risk management system	Company-wide	Online
Reinforcing risk management capability	General contents on Risk Management and introduction of SRA (Schedule Risk Analysis)	Corporate Support Division	Online
EPC Faculty – Schedule Risk Analysis	SRA theory and practice	Company-wide	In-class
Business entry course – Risk Management	System and methods of risk management	New project employees	In-class
General SI training course – Risk Management	Major risks of construction stages and introduction of risk management methods	General SI	Online
Risk of violating dispatched work act	Analysis of illegal dispatch appeals, cases, and precautions	Executives/heads of relevant divisions	Online

## Ethics and Compliance

### Ethics & Compliance Management Framework and Organizations

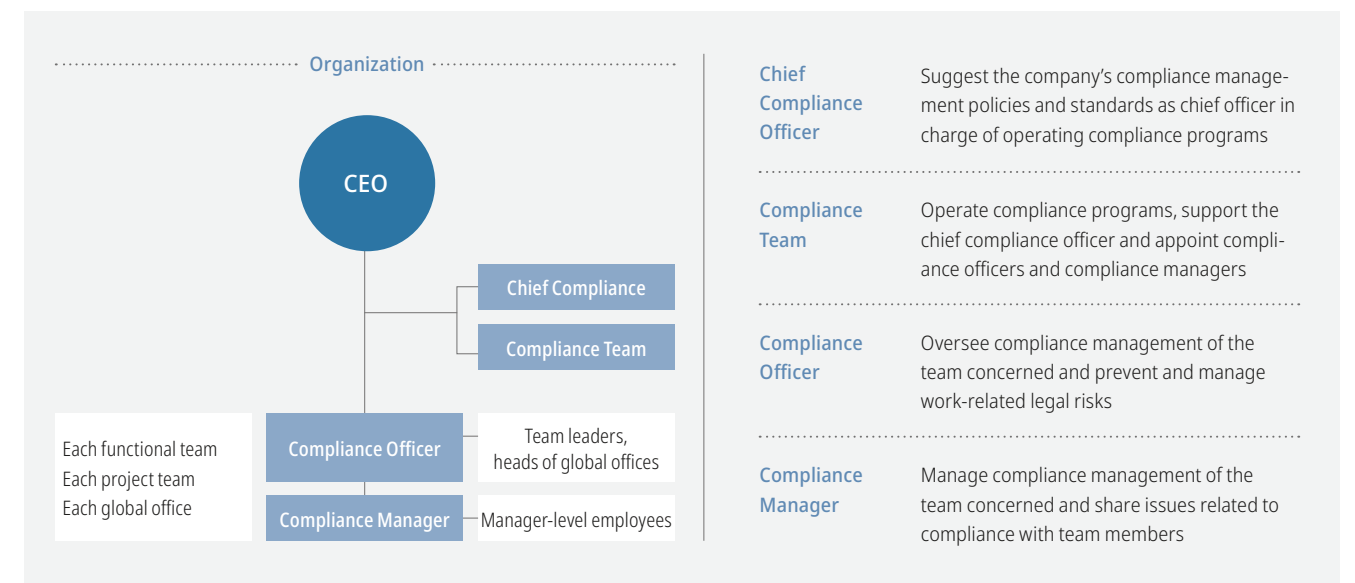
#### Ethics & Compliance Management Framework

To address growing demands on ethics & compliance management, Samsung Engineering prioritizes ethics and compliance management principles in all of its business tasks and manages ethics and compliance-related detailed operational regulations and guidelines on the topic. To prevent violations of domestic and overseas regulations in advance and respond to various legal risks, we established and are operating the ethics and compliance control system.

#### Compliance Management Organization

For Samsung Engineering, compliance management is its top priority. Thus, we manage an independent compliance management organization so that our top executives and all employees can practice compliance in carrying out their daily routines. Our compliance management team manages and oversees establishment and execution of diverse policies for prevention of legal violations and compliance risk management by assisting the Chief Compliance Officer. We also have compliance officers and managers at each division, overseas corporations, and project sites to systematically and independently perform organization-level compliance activities.

#### Structure and Roles of the Compliance Management



#### Compliance Committee

We hold semiannual Compliance Committee to report the progress of compliance activities, plans, and key issues related to compliance.

#### Legal Support System (LSS)

We operate the LSS (Legal Support System) to address in-house legal demands through legal experts who provide legal advice anytime and anywhere. Through standard contract forms and preliminary contract reviews, we minimize risks related to contracts.

## Ethics Whistleblowing System

Through online and offline whistleblowing systems, we collect reports on unfair practices in Korea and overseas, abuse of power, and corruption cases. Whistleblowers can provide their names or choose to remain anonymous, and only those with proper access can view submitted reports. All information related to whistleblowers and their reports are fully protected. For whistleblowers who entered their personal information, we do not use it for the purpose other than investigations and they are deleted immediately in accordance with the law after the reports are handled. For corruption cases, we conduct independent investigations and take disciplinary actions in line with the severity of the cases when reports have been found to be true.

### Process of Handling Whistleblowing Reports

- 01

**Report**
  - Whistleblowers make reports on the ethical management website (or via e-mail, phone, post or fax)
  - Possible to make reports by providing names or anonymously
- 02

**Review & Receipt**
  - Review the reports and send them to relevant teams if they are not under the Audit Team's purview. Handle the reports if investigations are needed.
- 03

**Investigation**
  - Carry out fact-finding activities through the in-house systems or interviews without exposing the identities of the whistleblowers
- 04

**Confirmation & Measures**
  - Take actions according to the internal regulations if corruption cases are found to be true
- 05

**Result Notification**
- 06

**Follow-up**
  - Analyze the causes, revamp the systems and regulations, share the cases through anti-corruption education programs and conduct monitoring for prevention

### Ethics & Compliance System Management Status

Classification	Unit	2019	2020	2021
Cases of legal advice and contract reviews	cases	2,012	2,215	2,399
Legal advice	cases	677	787	812
Contract reviews	cases	1,335	1,428	1,587
Number of reports to ethical management	cases	80	84	132
Corruptions	cases	21	24	39
Complaints	cases	46	42	45
Others	cases	13	18	48
Financial losses incurred due to bribery, corruption, or legal proceedings on anti-competition	KRW 10K	0	0	0

## Ethics & Compliance Monitoring

### Constant Auditing of Ethics & Compliance Management

The audit team is under the CEO's direct control and independently oversees ethics and compliance management activities. The audit team engages in around-the-clock ethics and compliance management activities including enforcement of policies to enable employees to partake in ethical management, anti-corruption training, investigations on reports, and diagnosis on work processes. As for compliance audits including investigations on reports, they are regularly undertaken targeting all sites and offices in Korea and overseas. For violations, we take strict disciplinary actions according to internal regulations and prevent recurrence by improving systems and regulations as well as announcing case studies through training. In addition, the audit team conducts operational audits on all functional organizations including engineering, procurement, construction, and support to eradicate unreasonable business practices. For issues found, we draw and reflect process improvements through discussions among relevant divisions.

### Compliance Audits & Monitoring

To prevent and manage compliance risks of key items, we visit the headquarters, global offices, and sites in Korea and overseas every year to inspect compliance training and system. In 2021, we conducted document-based inspections on five global offices and eleven key project sites due to COVID-19. As for fifteen domestic project sites, we made in-person visits. The result of 2021 inspections showed a satisfactory level of compliance, and we made complements for items that needed improvements according to related laws and internal regulations. Through regular inspections, result analysis monitoring, and reports, we strive to prevent legal risks and improve process. We also conduct self-assessments on compliance awareness and legal knowledge to convey knowledge on compliance and raise their awareness.

### Major Compliance Inspections and Monitoring Activities

Category	Targets	Contents	Dates
Sites in Korea	7 sites including Giheung, Hwaseong, Cheonan, Pyeongtaek and more	Re-subcontracting, Act on the Protection of Temporary Agency Workers, compliance to contributions/internal transactions processes	June
	8 sites including Suwon, Giheung, Hwaseong, Tangjeong, Pyeongtaek and more	Act on the Protection of Temporary Agency Workers, Improper Solicitation and Graft Act, compliance to contribution process, treatment of personal information/trade secrets	November
Global offices	Saudi Arabia, UAE, India, Thailand, US	Anti-corruption, compliance with local regulations	June
Overseas sites	11 major sites including ME, Asia, Central & South America, Hungary	Anti-corruption, subcontracting, disguised subcontracts	December
Self-assessment	Employees working in Korea	Compliance awareness/knowledge	May/October
Internal transactions		Compliance to internal transaction process	Quarterly

### Number of Compliance Inspections

Category	Classification	Unit	2019	2020	2021
Compliance inspections	Number of inspections	Cases	12	9	11

## Internalization of Ethics & Compliance

### Samsung Engineering's Code of Conduct

As a global citizen, Samsung Engineering respects guidelines issued by various global organizations and actively adheres to them. Furthermore, we announced Samsung Engineering Code of Conduct, which is based on Samsung's management principles, to fulfill its role as the company and social responsibility. The Code is a standard that all employees of Samsung Engineering must abide by in conducting businesses or duties, and includes policies and guidelines on ethics, compliance, human rights, environmental protection.

#### Samsung Business Principles

Principle 1	We comply with laws and ethical standards
Principle 2	We maintain a clean organizational culture
Principle 3	We respect clients, shareholders and employees
Principle 4	We care for the environment, health and safety
Principle 5	We are a socially responsible corporate citizen

#### Samsung Engineering's Code of Conduct

Chapter 1. Integrity	Chapter 2. Basic Ethical Principles for Employees	Chapter 3. Respecting Stakeholders	Chapter 4. Legal and Social Responsibility
1-1 Compliance	2-1 Maintaining Honor and Dignity	3-1 Respecting Clients	4-1 Human Rights
1-2 Integrity	2-2 Sense of Responsibility	3-2 Respecting Shareholders	4-2 Health and Safety
1-3 Fair Transactions	2-3 Respecting Each Other	3-3 Respecting Suppliers	4-3 Protecting Environment
1-4 Information Security	2-4 Information Security and Responsible Asset Management	3-4 Respecting Employees	4-4 Contributing to Local Communities
1-5 Political Neutrality	2-5 Anti-Corruption		
	2-6 Preventing Conflict of Interest		

### CEO's Compliance Message

The CEO of Samsung Engineering announces CEO's compliance management message to raise employee's ethics and compliance awareness in every quarter of each year. In 2021, the CEO requested internalizing compliance management as a corporate culture with an awareness on higher risks of exposure to illegal acts in conducting businesses. The CEO also urged employees to comply with the company's laws and internal regulations to leap into a leading global company.

### Internalizing Ethics & Compliance Through Various Channels

Through diverse channels such as in-house special broadcasting, newsletters and magazines, we ensure that employees understand the concept of ethics and compliance management. We further encourage them to voluntarily recognize and prevent legal risks. We provide information on the latest issues and trends of compliance through monthly compliance magazines and letters. Also, we stimulate our employees' interest in compliance management through various methods of participation, such as special broadcasts and quizzes.

#### Ethics & Compliance Channel



Special Broadcast



Compliance Magazine

### Engineering Compliance System (ECS)

Through ECS (Engineering Compliance System), Samsung Engineering's compliance management website, we share guidelines in each sector, recent cases, and reports on compliance management to support immediate and effective response measures when relevant issues arise.

### Ethics & Compliance Pledges

Every year, Samsung Engineering collects signed ethics and compliance pledges from all employees. Also, we legislated the Supplier Code of Conduct and distributed to all our suppliers in Korea and overseas. We designated integrity pledges as mandatory attachments to contracts so to request writing it to all suppliers.

### Ethics & Compliance Training

At Samsung Engineering, we provide mandatory compliance trainings for all our employees including the executives to prevent and respond to legal risks during the course of their duties. With the spread of COVID-19 in 2021, we changed the existing in-class trainings to a non-contact method while our online trainings reflected the latest trends and cases. We also provided separate trainings for divisions exposed to high level of risks should compliance issues arise.

### Employee Ethics & Compliance Training

Category	Classification	Unit	2019	2020	2021
Employee ethics & compliance training	Total number of trainees <sup>1)</sup>	persons	15,537	10,337	10,568
	Offline trainees	persons	11,142	6,042	5,780
	Online trainees <sup>2)</sup>	persons	4,395	4,295	4,788
Employee corruption prevention training	Education hours	hours	10,342	7,568	7,833
	Total number of trainees	persons	4,777	7,068	7,845
	Offline trainees	persons	4,265	422	2,108
Employee corruption prevention training	Online trainees	persons	512	6,646	5,737
	Education hours	hours	2,929	3,527	2,335

1) Includes overseas employees  
2) Non-contact trainings in 2020/2021

Compliance management website, ECS



## Prevention of Collusion and Corruption

### Constant Oversight on Making Contacts with Competitors for Fair Transactions

To prevent the risk of collusion among our competitors, Samsung Engineering limits employees from making contacts with competitors. When our employees inevitably make contacts with competitors' employees, we send separate emails to inform them of precautionary items. We require employees to submit reports before and after making contacts with competitors through competitors' contact reporting system to forbid collusions and activities resembling collusions.

### Guidelines for Preventing Collusion and Corruption in Bidding

To control risks of bidding collusion and corruption during the course of businesses, we provide relevant guidelines on the ECS (Engineering Compliance System) where employees can access examples and trends at all times as well as trainings on the topic.

# Information Security

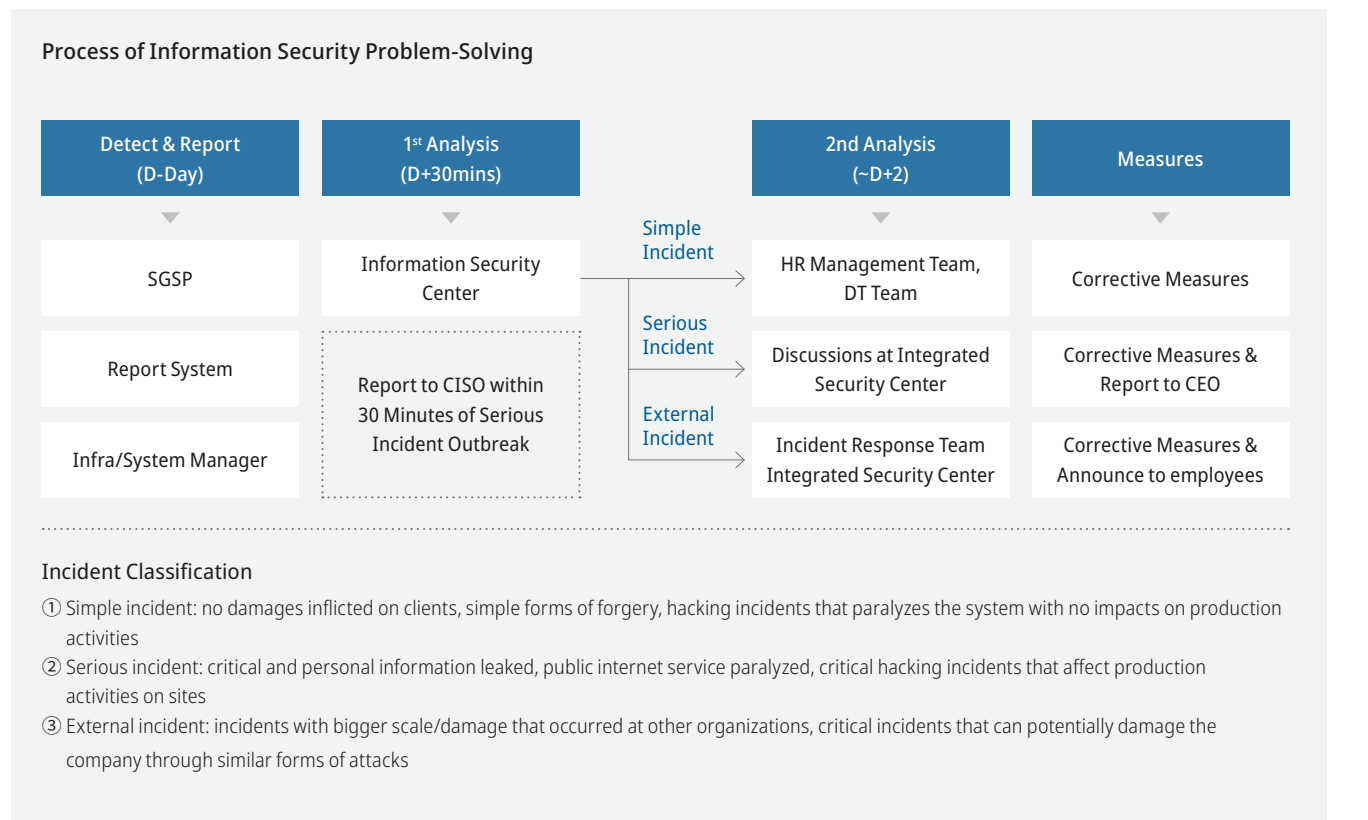
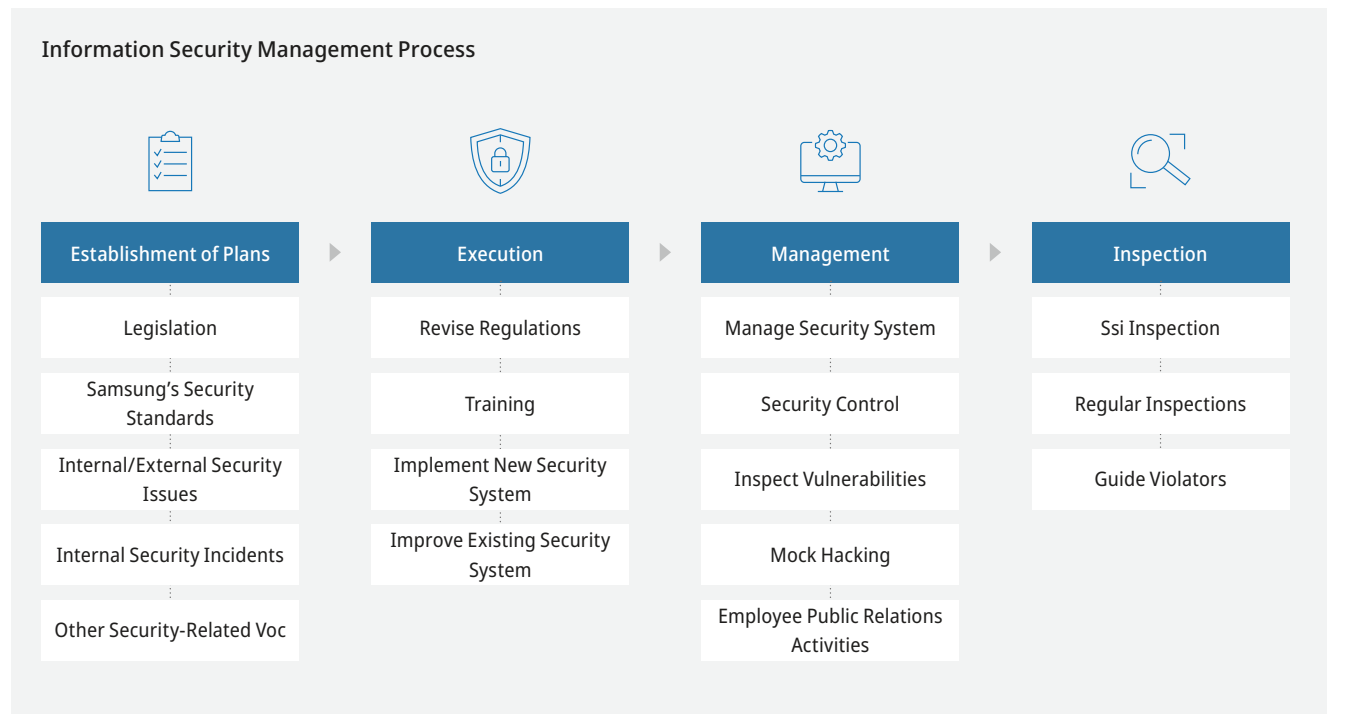
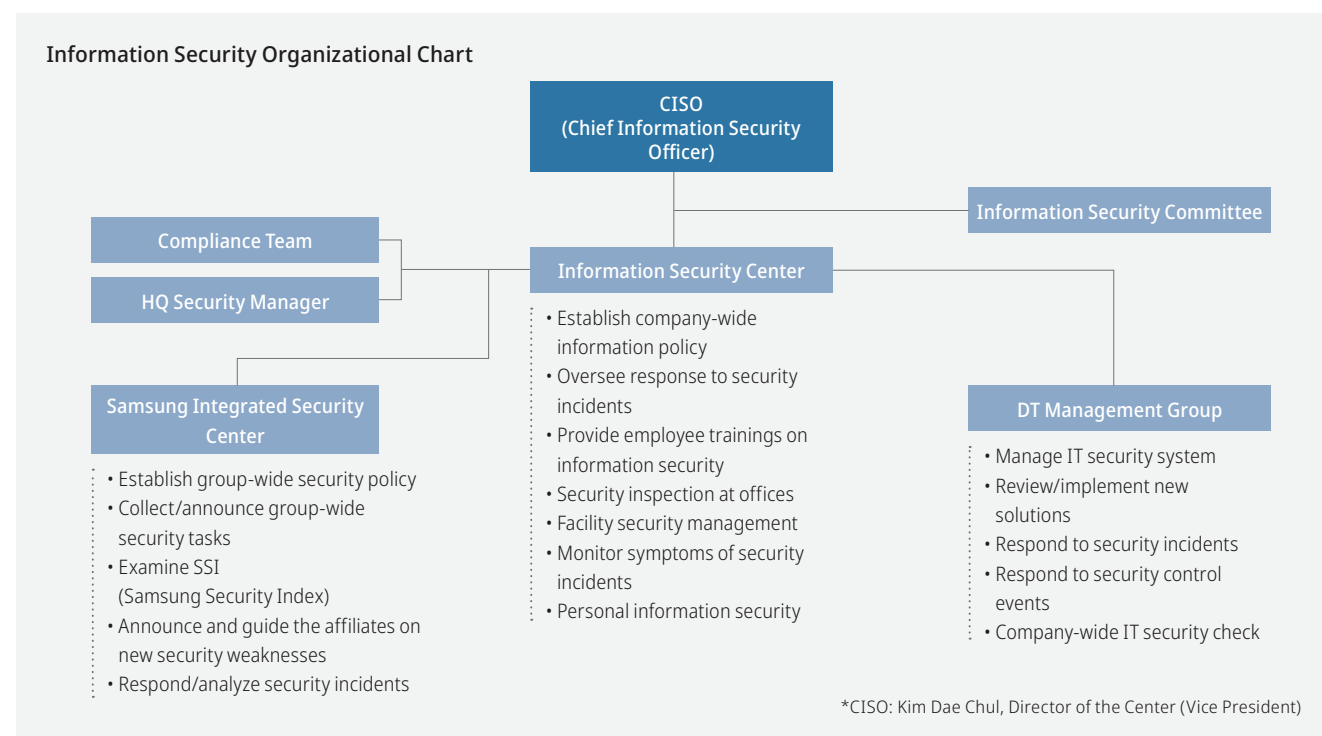
## Information Security Management System

Based on international information security management system, we established relevant management systems and operate a designated team. In addition, we consistently monitor Korean and foreign security-related regulations, business environment, and technological trends to respond to diverse and advanced security risks. We also engage in diagnosis and improvement activities to enhance the security level at our sites. Based on systematic information security management activities, we obtained CCC (Cybersecurity Compliance Certificate) issued by Aramco in 2021, one of our major clients. In order to improve the reliability of internal and external information security and strengthen the information security management system, we aim to implement information security disclosure under the Information Security Industry Act and obtain ISO 27001 in 2022, the international certification on information security management system.

Name of Inspection	Number of Execution per Year
Inspection on the webpage weakness of external system	4 times/year
Mock hacking practice on cyber businesses	Once a year
Coping capabilities of employees to malicious emails	2 times/year
DR (Disaster Recovery) training	Once a year

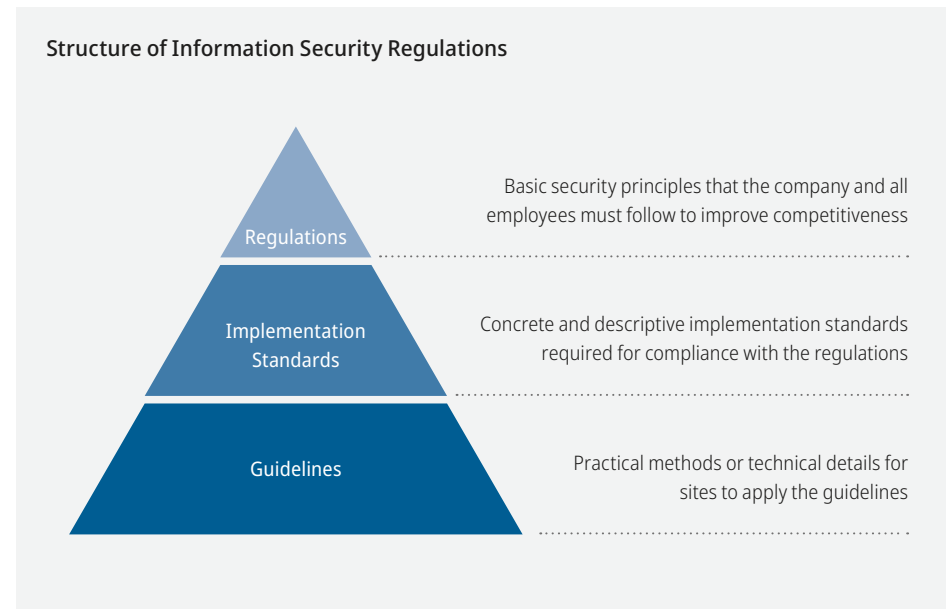
## Information Security Governance

Starting 2022, Samsung Engineering created the position of CISO (Chief Information Security Officer) that directly oversees information security and reinforced organizational capabilities of information security. By enhancing information security governance, we plan to prepare for various internal/external security risks.



## Information Security Regulations

Samsung Engineering established information security regulations based on the global standard models. Every year, we identify domestic and foreign security-related laws and regulations, business environment, recent technological trends, and incident cases to enforce or amend regulations.



## Information Security System

Based on its information security regulations, Samsung Engineering designates information assets that require protection and operates security systems such as control on unauthorized release of PC data and document encryption to prevent leaks. Furthermore, we prevent security incidents by conducting around-the-clock detection activities on the signs of security incidents.

### Investment on Information Security System

Samsung Engineering makes consistent investments in areas of information security to secure critical information assets from various internal and external threats. We invest a certain amount in areas of information security out of the entire IT budget. With mandatory Information Security Disclosure System starting 2022, we plan to objectively identify the level of our information security and disclose information on information security activities and the level of security investments to our shareholders and stakeholders.

## Reinforcing Security Awareness of the Employees

Through regular and mandatory security trainings, we strive to raise security awareness and highlight the importance of information security. We are also developing training contents that are applicable to sites in Korea and overseas. Through company bulletins, internal broadcasts, and letters, we introduce cases of security incidents in and out of the company. Our campaign activities also promote employees to fulfill information security rules in their daily routines. For severe violations, we take disciplinary actions and make public announcements to raise alerts on information security.

## Information Security Training

Samsung Engineering provides yearly information security and personal information security trainings for all employees. When necessary, we provide special information leak protection training to share the latest trends in cyber risks and incidents to employees on a regular basis. By doing so, we strive to raise awareness on information security.

Classification	Unit	2019	2020	2021
The percentage of employees who completed information security training	%	94	93	100

## Cybersecurity Incident Response System

To respond to external cyberattacks immediately, we operate a 24-hour security control system. We have written response manuals and equipped the response structure that regularly conducts mock trainings to minimize damages in cases of cybersecurity incidents. Furthermore, by conducting regular weakness inspections and simulated hackings on public systems, we have enhanced system's stability. We also built a system of cooperation within the group and external organizations to remain prepared against all types of risks.

## Strengthening On-Site Information Security

Samsung Engineering is enhancing information security levels at sites in Korea and overseas by implementing on-site information system and supporting customized information policy establishment. Starting 2021, we implemented new security controls at major global offices and we plan to do the same on major overseas project sites in 2022. Through on-site security inspections, we review the possibility of leaking our information asset and critical information of our clients. By doing so, we support voluntary security activities led by project sites.

## Protection of Personal Information

Samsung Engineering strictly complies with Korea's Personal Information Security Act and EU GDPR (General Data Protection Regulation). In addition, we also manage the committee to discuss and decide on matters related to primary personal information security as well as designated working groups for interdisciplinary agreements. This allows us to execute a company-wide systematic protection and management of personal information. We also provide trainings on personal information security for all our employees to prevent leaking incidents. There are multifaceted technological and managerial protection measures in place to prohibit unauthorized access to and external transfer of personal information. We also signed up for a liability insurance for personal information so that we can promptly compensate the victims of personal information leakage.

## Information Security Violations

Classification	Unit	2019	2020	2021
Number of information security violations	Cases	0	0	0
Number of security violations on clients' personal information	Cases	0	0	0
Fees and fines on information security violations	KRW 10K	0	0	0

# APPENDIX

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## Financial Performance

### Financial Statements

#### Consolidated Statement of Financial Position (Condensed)<sup>1,2</sup>

(Unit: KRW)

Account	2019	2020	2021
<b>Assets</b>			
I. Current assets	2,901,788,916,958	3,135,849,998,310	4,442,487,368,675
II. Non-current assets	1,663,922,882,556	1,619,725,904,768	1,616,235,028,199
Total assets	4,565,711,799,514	4,755,575,903,078	6,058,722,396,874
<b>Liabilities</b>			
I. Current liabilities	2,977,490,493,635	2,961,081,111,463	3,852,685,466,439
II. Non-current liabilities	293,035,068,009	212,759,273,246	245,519,212,100
Total liabilities	3,270,525,561,644	3,173,840,384,709	4,098,204,678,539
<b>Equity</b>			
Equity attributable to owners of the parent	1,315,162,176,190	1,600,698,434,611	2,002,307,719,510
I. Share capital	980,000,000,000	980,000,000,000	980,000,000,000
II. Retained earnings (accumulated losses)	518,602,995,113	688,893,202,809	1,011,607,149,506
III. Other components of equity	(183,440,818,923)	(68,194,768,198)	10,700,570,004
Non-controlling interests	(19,975,938,320)	(18,962,916,242)	(41,790,001,175)
Total equity	1,295,186,237,870	1,581,735,518,369	1,960,517,718,335
Total liabilities and equity	4,565,711,799,514	4,755,575,903,078	6,058,722,396,874

#### Consolidated Statement of Comprehensive Income (Condensed)<sup>1,2</sup>

(Unit: KRW)

Account	2019	2020	2021
I. Sales	6,392,058,453,386	6,749,174,145,123	7,486,696,121,177
II. Cost of sales	5,592,595,279,986	6,076,895,398,640	6,625,376,322,654
III. Gross profit	799,463,173,400	672,278,746,483	861,319,798,523
IV. Operating profit	422,717,496,667	361,182,672,371	503,288,807,347
V. Profit before income tax	437,779,765,527	351,849,975,564	529,538,450,784
VI. Profit for the year	323,809,854,401	252,135,563,290	351,071,466,376
VII. Other comprehensive income	(26,457,567,332)	38,505,320,191	27,710,733,590
VIII. Total comprehensive income	297,352,287,069	290,640,883,481	378,782,199,966

1. The financial statements are consolidated financial statements which have been prepared in accordance with Korean International Financial Reporting Standards (K-IFRS).  
 2. The Company made changes to the estimation of the total planned construction cost for certain construction contracts and the method of revenue recognition for facility operation contracts. As a result, the 2019 and 2020 consolidated financial statements were revised and disclosed in 2021.

## External Evaluations and Awards

### External Evaluations

Category	Rank	Overview
Overseas	2021 Top EPC Contractors in Oil & Gas (6 <sup>th</sup> )	Oil & Gas Middle East, a Middle Eastern economics magazine Rank by performance in hydrocarbon sector in the Middle East and comprehensive evaluations on the company including its financials
Overseas	2021 Top EPC Contractors in Oil & Gas (9 <sup>th</sup> )	Middle East Economic Digest, a Middle Eastern economics magazine Rank based on the project orders in the MENA
Overseas	2021 ENR The Top 250 International Contractors (30 <sup>th</sup> )	Engineering News Record, an American construction and engineering magazine. Rank based on overseas revenue
Overseas	Listed on the Dow Jones Sustainability Indices (DJSI), Asia Pacific in the Construction & Engineering sector for the 9th consecutive years	Dow Jones, Robeco SAM. Rank based on assessment of sustainability in economic, social and environmental aspects

### Awards

Category	Rank	Overview
Korea   Safety	2021 Prevention of Serious Incidents through KOSHA MS/Minister of Employment & Labor Award	Hosted by the Ministry of Employment & Labor, Safety & Health Team at the HQ prevented serious incidents through KOSHA MS
Korea   Safety	2021 Best Practice Competition on Construction Safety Activities / Korea Occupational Safety and Health Agency CEO Award	Hosted by Korea Occupational Safety and Health Agency, Pyeongtaek P2-UT PJT
Overseas   Safety	2021 Samsung Safe Environment Awards / Overseas Excellence Award	Hosted by Samsung Institute of Safety & Environment, Oman Duqm Refinery PJT, minimized high-risk operations with scaffolding-free construction method
Korea   Environment	The 17th Construction Environment Management Awards / Chairman of the Environment and Labor Committee of National Assembly of the Republic of Korea	Hosted by Ministry of Environment & Ministry of Land, Infrastructure, and Transportation Tangjeong SDC N-PJT-Self-transporting waste to improve recycling Pyeongtaek P-PJT-Noise management at large-scale business sites
Korea   Environment	2021 CDP Korea Carbon Management Sector Honors (Leadership A-)	Hosted by CDP's Korea Committee, Selected as an outstanding company in responding to climate change in Korea in the industrial sector
Overseas   Quality	2021 MEED Projects Awards / Saudi National Winner	Hosted MEED, the Middle Eastern economics magazine SABIC United EO-EG III Project, Saudi Arabia
Overseas   Quality	2021 S&P Global Energy Awards / Engineering Solution of the year	Hosted by S&P Global Platts SABIC United EO-EG III Project, Saudi Arabia



Samsung Engineering has been listed on the Dow Jones Sustainability Indices (DJSI), a global sustainability management benchmark by the DJSI Asia Pacific in the Construction & Engineering sector for nine consecutive years.



Samsung Engineering was listed on "The CDP Sector Honors" in the Korean industrial sector based on its efforts in Disclosure, Awareness, Management and Leadership for response to climate change. The company received a grade of A- in Leadership.



Samsung Engineering's outstanding sustainability management was recognized by the Korea Corporate Governance Service with an overall Level A in ESG (Level A in Environment, Level A+ in Society and Level A in Governance).

## Associations

Samsung Engineering complies with Korea's Political Funds Act that prohibits political contributions, addresses social demands for anti-corruption and fair transaction, and contributes to industrial and technological developments. In addition, we are aware that expenses related to policy impacts may become potential risks from a mid to long-term business perspective. Thus, we manage the details and size of donations at the company-wide level.

### Memberships of Associations

Construction Safety Managers Association (CSMA)	Construction Safety Managers Committee (CSMC)	KOSHA 18001 Council
Maekyung SEL Club	Construction Environment Association	Construction Health Council
Seoul Chapter, Construction Association of Korea	Construction Outsourcing Association	Korea International Trade Association
Korea Industrial Technology Association	Korea Society of Fire Protection Professional Engineers	Korea Fire Safety Institute
Korea Institute of Plant Engineering & Construction	Seoul Chamber of Commerce	Seoul Chapter, Korea Institute of Registered Architects
International Contractors Association of Korea	Korea Fair Competition Federation	Korea Construction Engineers Association
Korea Professional Engineers Association	Korea Fire Facility Association	Korea Engineering & Consulting Association
Korea Electrical Contractors Association	Korea Electric Engineers Association	Korea Information Communication Contractors Association
Korea Plant Industries Association		

### Political Contributions and Membership Fees

Classification	Category	Unit	2019	2020	2021
Political Contributions and Membership Fees	Political contributions	KRW million	0	0	0
	Membership fees	KRW million	754	774	752
	International Contractors Association of Korea	KRW million	368	381	363
	Construction Association of Korea	KRW million	212	213	191
	Seoul Chamber of Commerce	KRW million	103	103	103
	Others <sup>1)</sup>	KRW million	71	77	95

1) Korea Construction Engineers Association, Korea Institute of Registered Architects, Korea Fire Facility Association

## GHG Verification Statement

### LRQA Independent Assurance Statement

Relating to Samsung Engineering Co., Ltd.'s Report for the calendar year 2021



#### Terms of Engagement

This Assurance Statement has been prepared for Samsung Engineering Co., Ltd.

LRQA was commissioned by Samsung Engineering Co., Ltd. (Samsung Engineering) to assure its GHG Emissions Inventory for the calendar year 2021 (hereafter referred to as "the Report").

The Report relates to direct GHG emissions and energy indirect GHG emissions in domestic and overseas, and other indirect GHG emissions that includes the following:

- purchased goods & services – operation of construction equipment by subcontractors in domestic and overseas.
- upstream transportation and distribution – transportation of construction material in domestic and overseas.
- employee commuting – commuting bus in domestic.
- business travel – international flights.
- use of sold products – operation of O&M facility in domestic and overseas.
- downstream leased assets – Samsung Engineering (as lessor)'s leased assets in domestic.

Samsung Engineering's geographical boundary includes operations in the headquarters, research institute, 29 domestic construction sites, 18 overseas construction sites and 3 O&M sites. The main activities of the organization include construction of civil, architecture, building & steel structure, mechanical/stationary, piping, electrical, instrument, fire-fighting and the GHG emissions have been consolidated using operational control.

#### Management Responsibility

Samsung Engineering's management was responsible for preparing the Report and for maintaining effective internal controls over the data and information disclosed. LRQA's responsibility was to carry out an assurance engagement on the Report in accordance with our contract with Samsung Engineering.

Ultimately, the Report has been approved by, and remains the responsibility of Samsung Engineering.

#### LRQA's Approach

Our verification has been conducted in accordance with ISO 14064–3:2006, 'Specification with guidance for validation and verification of greenhouse gas assertions' to provide limited assurance that GHG data as presented in the Report have been prepared in conformance with ISO 14064–1:2006, 'Specification with guidance at the organizational level for quantification and reporting of greenhouse gas emissions and removals'.

To form our conclusions the assurance engagement was undertaken as a sampling exercise and covered the following activities:

- visited the headquarters of Samsung Engineering and reviewed processes related to the control of GHG emissions data and records;
- interviewed relevant staff of the organization responsible for managing GHG emissions data and records; and



- verified historical GHG emissions data and records relating to operations in the headquarters, research institute, 29 domestic construction sites, 18 overseas construction sites and 3 O&M sites at an aggregated level for the calendar year 2021.
- checked whether the emissions factors and calorific values referred to recognized sources.

#### Level of Assurance & Materiality

In accordance with our contract agreement, the assurance was conducted at a limited level of assurance at a materiality of the professional judgment of the Verifier. The opinion expressed in this Assurance Statement has been accordingly formed.

#### LRQA's Opinion

Based on LRQA's approach nothing has come to our attention that would cause us to believe that the total direct GHG emissions, energy indirect GHG emissions and other indirect GHG emissions disclosed in the Report as summarized in Table 1 below are not materially correct and that the Report has not been prepared in conformance with ISO 14064–1:2006.



Dated: 18 May 2022

**Byung-Gil Lim**

LRQA Lead Verifier

On behalf of LRQA

17th Floor, Sinsong Building, 67 Yeouinaru-ro, Yeongdeungpo-gu, Seoul, Korea

LRQA reference number: SEO00001036



**Table 1. Summary of Samsung Engineering, GHG Emissions Inventory 2021**

Scope of GHG emissions	Tonnes tCO <sub>2</sub> e		
	Domestic	Overseas	Total
Direct GHG emissions (Scope 1)	2,377	25,729	28,106
Energy indirect GHG emissions (Scope 2, Location-based) <sup>1</sup>	13,820	2,151	15,971
Other Indirect GHG emissions (Scope 3)			
<ul style="list-style-type: none"> <li>• purchased goods &amp; services – operation of construction equipment by subcontractors in domestic and overseas.</li> <li>• upstream transportation and distribution – transportation of construction material in domestic and overseas.</li> <li>• employee commuting – commuting bus in domestic.</li> <li>• business travel<sup>2</sup> – international flights.</li> <li>• use of sold products – operation of O&amp;M facility in domestic and overseas.</li> <li>• downstream leased assets – Samsung Engineering (as lessor)'s leased assets in domestic.</li> </ul>	45,021	172,336	217,357

Note 1: Scope 2, Location-based is defined in the GHG Protocol Scope 2 Guidance, 2015

Note 2: With radiative force not being considered

This Assurance Statement is subject to the provisions of this legal section: LRQA Group Limited, its affiliates and subsidiaries, and their respective officers, employees or agents are, individually and collectively, referred to in this clause as 'LRQA'. LRQA assumes no responsibility and shall not be liable to any person for any loss, damage or expense caused by reliance on the information or advice in this document or howsoever provided, unless that person has signed a contract with the relevant LRQA entity for the provision of this information or advice and in that case any responsibility or liability is exclusively on the terms and conditions set out in that contract. The English version of this Assurance Statement is the only valid version. LRQA assumes no responsibility for versions translated into other languages. This Assurance Statement is only valid when published with the Report to which it refers. It may only be reproduced in its entirety. Copyright © LRQA, 2022.

## Third Party's Assurance Statement

To readers of Samsung Engineering Sustainability Report 2021

### Introduction

Korea Management Registrar (KMR) was commissioned by Samsung Engineering to conduct an independent assurance of its Sustainability Report 2021 (the "Report"). The data and its presentation in the Report is the sole responsibility of the management of Samsung Engineering. KMR's responsibility is to perform an assurance engagement as agreed upon in our agreement with Samsung Engineering and issue an assurance statement.

### Scope and Standards

Samsung Engineering described its sustainability performance and activities in the Report. Our Assurance Team carried out an assurance engagement in accordance with the AA1000AS v3 and KMR's assurance standard SRV1000. We are providing a Type 2, moderate level assurance. We evaluated the adherence to the AA1000AP (2018) principles of inclusivity, materiality, responsiveness and impact, and the reliability of the information and data provided using the Global Reporting Initiative (GRI) Index provided below. The opinion expressed in the Assurance Statement has been formed at the materiality of the professional judgment of our Assurance Team.

Confirmation that the Report was prepared in accordance with the Core Options of the GRI standards was included in the scope of the assurance. We have reviewed the topic-specific disclosures of standards which were identified in the materiality assessment process

- GRI Sustainability Reporting Standards
- Universal standards
- Topic specific standards
  - Management approach of Topic Specific Standards
  - GRI 201: Economic Performance
  - GRI 202: Market Presence
  - GRI 203: Indirect Economic Impacts
  - GRI 205: Anti-Corruption
  - GRI 302: Energy
  - GRI 306: Effluents and Waste
  - GRI 401: Employment
  - GRI 403: Occupational Health and Safety
  - GRI 404: Training and Education
  - GRI 414: Supplier Social Assessment

As for the reporting boundary, the engagement excludes the data and information of Samsung Engineering's partners, suppliers and any third parties.

### KMR's Approach

To perform an assurance engagement within an agreed scope of assessment using the standards outlined above, our Assurance Team undertook the following activities as part of the engagement:

- reviewed the overall Report;
- reviewed materiality assessment methodology and the assessment report;
- evaluated sustainability strategies, performance data management system, and processes;
- interviewed people in charge of preparing the Report;
- reviewed the reliability of the Report's performance data and conducted data sampling;
- assessed the reliability of information using independent external sources such as Financial Supervisory Service's DART and public databases.

**Limitations and Recommendations**

KMR's assurance engagement is based on the assumption that the data and information provided by Samsung Engineering to us as part of our review are provided in good faith. Limited depth of evidence gathering including inquiry and analytical procedures and limited sampling at lower levels in the organization were applied. To address this, we referred to independent external sources such as DART and National Greenhouse Gas Management System (NGMS) and public databases to challenge the quality and reliability of the information provided.

**Conclusion and Opinion**

Based on the document reviews and interviews, we had several discussions with Samsung Engineering on the revision of the Report. We reviewed the Report's final version in order to make sure that our recommendations for improvement and revision have been reflected. Based on the work performed, it is our opinion that the Report applied the Core Option of the GRI Standards. Nothing comes to our attention to suggest that the Report was not prepared in accordance with the AA1000AP (2018) principles.

**Inclusivity**

Samsung Engineering has developed and maintained different stakeholder communication channels at all levels to announce and fulfill its responsibilities to the stakeholders. Nothing comes to our attention to suggest that there is a key stakeholder group left out in the process. The organization makes efforts to properly reflect opinions and expectations into its strategies.

**Materiality**

Samsung Engineering has a unique materiality assessment process to decide the impact of issues identified on its sustainability performance. We have not found any material topics left out in the process.

**Responsiveness**

Samsung Engineering prioritized material issues to provide a comprehensive, balanced report of performance, responses, and future plans regarding them. We did not find anything to suggest that data and information disclosed in the Report do not give a fair representation of Samsung Engineering's actions.

**Impact**

Samsung Engineering identifies and monitors the direct and indirect impacts of material topics found through the materiality assessment, and quantifies such impacts as much as possible.

**Reliability of Specific Sustainability Performance Information**

In addition to the adherence to AA1000AP (2018) principles, we have assessed the reliability of economic, environmental, and social performance data related to sustainability performance. We interviewed the in-charge persons and reviewed information on a sampling basis and supporting documents as well as external sources and public databases to confirm that the disclosed data is reliable. Any intentional error or misstatement is not noted from the data and information disclosed in the Report.

**Competence and Independence**

KMR maintains a comprehensive system of quality control including documented policies and procedures in accordance with ISO/IEC 17021:2015 - Requirements for bodies providing audit and certification of management systems. This engagement was carried out by an independent team of sustainability assurance professionals. KMR has no other contract with Samsung Engineering and did not provide any services to Samsung Engineering that could compromise the independence of our work.

July 2022 Seoul, Korea  
CEO



*E. J. Hwang*

**GRI Standards Index**

**General Standard Disclosures(GRI 100)**

Index	Topics	Page	Note	
General	GRI 102-1	Name of the organization	8	
	GRI 102-2	Activities, brands, products, and services	10	
	GRI 102-3	Location of headquarters	11	
	GRI 102-4	Location of operations	11	
	GRI 102-5	Ownership and legal form	105-106	
	GRI 102-6	Markets served	11	
	GRI 102-7	Scale of the organization	8-12	
	GRI 102-8	Information on employees and other workers	69-72	
	GRI 102-9	Supply chain	90	
	GRI 102-10	Significant changes to the organization and its supply chain	-	No major changes.
	GRI 102-11	Precautionary principle or approach	109-110	
	GRI 102-12	External initiatives	126-127	
	GRI 102-13	Membership of associations	126-127	
Strategy	GRI 102-14	Statement from senior decision-maker	4-5	
	GRI 102-15	Key impacts, risks, and opportunities	16-17, 51-53, 109-114	
Ethics and Integrity	GRI 102-16	Values, principles, standards, and norms of behavior	118	
	GRI 102-17	Mechanisms for advice and concerns about ethics	116	
Governance	GRI 102-18	Governance structure	98-99	
	GRI 102-19	Delegating authority	98-101	
	GRI 102-20	Executive-level responsibility for economic, environmental, and social topics	102-103	
	GRI 102-21	Consulting stakeholders on economic, environmental, and social topics	15	
	GRI 102-22	Composition of the highest governance body and its committees	98, 102	
	GRI 102-23	Chair of the highest governance body	99	
	GRI 102-24	Nominating and selecting the highest governance body	99-101	
	GRI 102-25	Conflicts of interest	99-100	
	GRI 102-26	Role of highest governance body in setting purpose, values, and strategy	35, 98	
	GRI 102-27	Collective knowledge of highest governance body	99-101	
	GRI 102-28	Evaluating the highest governance body's performance	103	
	GRI 102-29	Identifying and managing economic, environmental, and social impacts	35, 102	
	GRI 102-30	Effectiveness of risk management processes	99-102	
	GRI 102-31	Review of economic, environmental, and social topics	35, 102	
	GRI 102-32	Highest governance body's role in sustainability reporting	99-102	
	GRI 102-33	Communicating critical concerns	35, 99-102	
GRI 102-34	Nature and total number of critical concerns	16		
GRI 102-35	Remuneration policies	103-104		
GRI 102-36	Process for determining remuneration	103-104		
GRI 102-37	Communicating critical concerns	-		
GRI 102-38	Annual total compensation ratio	103-104		
GRI 102-39	Percentage increase in annual total compensation ratio	103-104		

Index	Topics	Page	Note		
Stakeholder Engagement	GRI 102-40	List of stakeholder groups	15		
	GRI 102-41	Collective bargaining agreements	-	For important decision making, the SAU Council collects demands and opinions from employees. The agreements are applied to all employees excluding executives (98.99%).	
	GRI 102-42	Identifying and selecting stakeholders	14-15		
	GRI 102-43	Approach to stakeholder engagement	14-15		
	GRI 102-44	Key topics and concerns raised	14-15		
Reporting Practice	GRI 102-45	Entities included in the consolidated financial statements	Business Report p.36-37		
	GRI 102-46	Defining report content and topic Boundaries	2, 14-15		
	GRI 102-47	List of material topics	14-15		
	GRI 102-48	Restatements of information	2	No information modified.	
	GRI 102-49	Changes in reporting	2	No major changes within the reporting period.	
	GRI 102-50	Reporting period	2		
	GRI 102-51	Date of most recent report		2021.06	
	GRI 102-52	Reporting cycle	2		
	GRI 102-53	Contact point for questions regarding the report	2		
	GRI 102-54	Claims of reporting in accordance with the GRI Standard	135-138		
	GRI 102-55	GRI Index	135-138		
	GRI 102-56	External assurance	130-134		
	Management Approach	GRI 103-1	Explanation of the material topic and its boundary	14-15	
		GRI 103-2	The management approach and its components	8-17	
		GRI 103-3	Evaluation of the management approach	8-17	

**Topic Specific Standards-Economic Performance(GRI 200)**

Index	Topics	Page	Note	
Economic Performance	GRI 201-1	Direct economic value generated and distributed	12	
	GRI 201-2	Financial implications and other risks and opportunities due to climate change	51-53	
	GRI 201-3	Defined benefit plan obligations and other retirement plans	80	
	GRI 201-4	Financial assistance received from government	-	
Market Presence	GRI 202-1	Ratios of standard entry level wage by gender compared to local minimum wage	-	
	GRI 202-2	Proportion of senior management hired from the local community	71	
Indirect Economic Impacts	GRI 203-1	Infrastructure investments and services supported	125-126	
	GRI 203-2	Significant indirect economic impact	125-126	
Procurement Practices	GRI 204-1	Proportion of spending on local suppliers	86-87, 90	
Anti-corruption	GRI 205-1	Operations assessed for risks related to corruption	117	
	GRI 205-2	Communication and training about anti-corruption policies and procedure	115-119	
	GRI 205-3	Confirmed incidents of corruption and actions taken Prevent	116	
Anti-competitive Behavior	GRI 206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices		0 cases
Tax	GRI 207-1	Approach to tax (tax strategy, governing organization for review and approval, frequency of review, correlation between tax strategy and sustainable development strategy)	-	
	GRI 207-2	Tax governance, control, and risk management	112	
	GRI 207-3	Stakeholder engagement and management of concerns related to tax	112	
	GRI 207-4	Country-by-country reporting	-	

**Topic Specific Standards-Environmental Performance(GRI 300)**

Index	Topics	Page	Note		
Materials	GRI 301-1	Materials used by weight or volume	38-45	For key raw and subsidiary materials, there are concrete, steel structure, machinery, pipes, electrical cables, instrumental cables, aggregates and recycled aggregates, and we monitor the use every month.	
	GRI 301-2	Recycled input materials used	-		
	GRI 301-3	Reclaimed products and their packaging materials	-		
Energy	GRI 302-1	Energy consumption within the organization	42		
	GRI 302-2	Energy consumption outside of the organization	42		
	GRI 302-3	Energy intensity	42		
	GRI 302-4	Reduction of energy consumption	42		
	GRI 302-5	Reductions in energy requirements of products and services	42		
Water and Effluents	CRE1	Building energy intensity		0.9 GJ/m <sup>3</sup> (energy use ratio to the total building floor area of the headquarters building*)	
	GRI 303-1	Interactions with water as a shared resource	45		
	GRI 303-2	Management of water discharge-related impacts	45		
	GRI 303-3	Water withdrawal	45		
	GRI 303-4	Water discharge	45		
	GRI 303-5	Water consumption	45		
	CRE2	Building water intensity	-	1.0 ton/m <sup>3</sup> (water use ratio to the total building floor area of the headquarters building*)	
	Biodiversity	GRI 304-1	Operational sites owned leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	-	
		GRI 304-2	Significant impacts of activities, products, and services on biodiversity	-	
		GRI 304-3	Habitats protected or restored	44	
		GRI 304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	44	
	Emissions	GRI 305-1	Direct (Scope 1) GHG emissions	41-42	
		GRI 305-2	Energy indirect (Scope 2) GHG emissions	41-42	
		GRI 305-3	Other indirect (Scope 3) GHG emissions	41-42	
		GRI 305-4	GHG emissions intensity	41-42	
GRI 305-5		Reduction of GHG emissions	41-42		
GRI 305-6		Emissions of ozone-depleting substances (ODS)	-		
GRI 305-7		Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	-		
Effluents and Waste	CRE3	Greenhouse gas emissions intensity from buildings	-	0.08 tCO <sub>2</sub> e/m <sup>3</sup> (GHG emissions ratio to the total building floor area of the headquarters building*)	
	CRE4	Greenhouse gas emissions intensity from construction and redevelopment activities	-	4.35 tCO <sub>2</sub> e/KRW billion (onsite GHG emissions ratio to the total revenue)	
	GRI 306-1	Waste generation an impacts from significate waste	43-44		
	GRI 306-2	Management of significant waste-related impacts	43-44		
	GRI 306-3	Waste generated	43-44		
	GRI 306-4	Waste diverted from disposal	43-44		
	GRI 306-5	Waste directed to disposal	43-44		
	Environmental Compliance	GRI 307-1	The amount of fines and nonfinancial sanctions from non-compliance with environmental laws and regulations	43	
	Supplier Environmental Assessment	GRI 308-1	New suppliers that were screened using environmental criteria	91	
		GRI 308-2	Negative environmental impacts in the supply chain and actions taken	86-91	

**Topic Specific Standards-Social Performance(GRI 400)**

Index	Topics	Page	Note
Employment	GRI 401-1	New employee hires and employee turnover	76, 85
	GRI 401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	81-85
	GRI 401-3	Rate of return and continued service after parental leave based on genders	83
Labor/Management Relations	GRI 402-1	Minimum notice periods regarding operational changes	-
Occupational Health and Safety	GRI 403-1	Occupational health and safety management system	56-64
	GRI 403-2	Hazard identification, risk assessment, and incident investigation	62-64
	GRI 403-3	Occupational health services	56-64
	GRI 403-4	Worker participation, consultation, and communication on occupational health and safety	61-64
	GRI 403-5	Worker training on occupational health and safety	61
	GRI 403-6	Promotion of worker health	84-85
	GRI 403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	56-64
	GRI 403-8	Workers covered by an occupational health and safety management system	56-62
	GRI 403-9	Worker-related injuries	60
	GRI 403-10	Worker-related ill health	84-85
CRE6	Percentage of the organization operating in verified compliance with an internationally recognized occupational health and safety management system	56-59	
Training and Education	GRI 404-1	Average hours of training per year per employee	77
	GRI 404-2	Programs for upgrading employee skills and transition assistance programs	77-79
	GRI 404-3	Percentage of employees receiving regular performance and career development reviews(based on genders and workers)	-
Diversity and Equal Opportunity	GRI 405-1	Diversity of governance bodies and employees	68-72, 98-101
	GRI 405-2	Ratio of basic salary and remuneration of women to men	80
Non-discrimination	GRI 406-1	Incidents of discrimination and corrective actions taken	73, 75
Freedom of Association and Collective Bargaining	GRI 407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	-
Child Labor	GRI 408-1	Operations and suppliers at significant risk for incidents of child labor	68-69
Forced or Compulsory Labor	GRI 409-1	Operations and suppliers at significant risk for forced or compulsory labor	-
Security Practices	GRI 410-1	Security personnel trained in human rights policies or procedures	-
Rights of Indigenous Peoples	GRI 411-1	Incidents of violations involving rights of indigenous peoples	- 0 cases, No such cases have been identified to date.
Human Rights Assessment	GRI 412-1	Operations that have been subject to human rights reviews or impact assessments	73
	GRI 412-2	Employee training on human rights policies or procedures	76
	GRI 412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	-
Local Communities	GRI 413-1	Operations with local community engagement, impact assessment, and development programs	92-95 100%, An initial environmental impact assessment is conducted on every project before starting construction or upon receiving an order
	GRI 413-2	Operations with significant actual and potential negative impacts on local communities	- 0 cases, no such cases have been identified to date.
	CRE7	Number of persons voluntarily and involuntarily displaced and/or resettled by development, broken down by project	- 0 cases, no such cases have been identified to date.
Supplier Social Assessment	GRI 414-1	New suppliers that were screened using social criteria	91
	GRI 414-2	Negative social impacts in the supply chain and actions taken	90-91
Public Policy	GRI 415-1	Political contribution	127
Customer Health and Safety	GRI 416-1	Assessment of the health and safety impacts of product and service categories	-
	GRI 416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	-
Marketing and Labeling	GRI 417-1	Requirements for product and service information and labeling	-
	GRI 417-2	Incidents of non-compliance concerning product and service information and labeling	-
	GRI 417-3	Incidents of non-compliance concerning marketing communications	-
Customer Privacy	GRI 418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	123
Socioeconomic Compliance	GRI 419-1	Non-compliance with laws and regulations in the social and economic area	-

**SASB Index**









Topic	SASB Code	Metric	Unit	Response from Samsung Engineering
Environmental Impacts of Project Development	IF-EN-160a.1	No. of incidents of non-compliance with environmental permits, standards and regulations	Number	There were no violations of environmental regulations in 2021.
	IF-EN-160a.2	Discussion of processes to assess and manage environmental risks associated with project design, siting and construction		Samsung Engineering's respective project team and functional divisions manage and evaluate environmental risks as well as opportunities for each project. For new businesses, we evaluate impacts on our businesses in consideration of environmental factors, living environments, and environmental regulations. Based on risks and opportunities identified, we establish a project's environmental management plan. We then monitor environmental objectives and adherence to regulations every month to conduct additional monitoring on high level of risks and opportunities through Risk Register. Lastly, we execute a process that adjusts environmental goals and management plans once a year with monitoring results. Every month, each project's environment manager inputs and manages environmental data including wastewater treatment and water use on SEIS (Sustainable Environmental Initiative System).
Structural Integrity & Safety	IF-EN-250a.1	Number of defects and safety-related rework costs	Currency	There were no cases of defects and safety-related rework costs in 2021.
	IF-EN-250a.2	Total amount of monetary losses as a result of legal proceedings associated with defects and safety-related incidents	Currency	There were no monetary losses as a result of legal proceedings associated with defects and safety-related incidents.
Workforce Health & Safety	IF-EN-320a.1	Total Recordable Incident Rate (TRIR) and fatality rate for direct employees and contract employees	%	TRIR and fatality rate are announced through TRIR Management (p.60) of this report.
Lifecycle Impacts of Buildings & Infrastructure	IF-EN-410a.1	No. of commissioned projects certified to a third-party multi-attribute sustainability standard and active projects seeking such certification	Number	There were no projects that were certified by the third party regarding sustainable management in 2021.
	IF-EN-410a.2	Discussion of process to incorporate operational-phase energy and water efficiency considerations into project planning and design		When launching new businesses, Samsung Engineering's each project team and related functional divisions put effort to enhance operational energy efficiency by considering applications of new technology and simulation system. We are actively participating in eco-friendly R&D investments and technology application. By making sewage treatment facility smarter, we reduced over 10% of electricity cost. With TCO technology in place, we reduced 20% of energy cost. In addition, we predict water use for effective water management and conduct 3R (Reduce, Reuse, Recycle) at the Middle East regions where water supply is difficult.

Topic	SASB Code	Metric	Unit	Response from Samsung Engineering
Climate Impacts of Business Mix	IF-EN-410b.1	Amount of backlog for hydrocarbon-related projects and renewable energy projects	Currency	As of the end of 2021, the order backlog for the related projects can be illustrated as following. - Hydrocarbon-related projects: 18 cases, KRW 11.8 trillion - Renewable energy projects: not applicable
	IF-EN-410b.2	Amount of backlog cancellations associated with hydrocarbon-related projects	Currency	As of the end of 2021, there is no project cancelled.
	IF-EN-410b.3	Amount of backlog for non-energy projects associated with climate change mitigation	Currency	As of the end of 2021, the order backlog for the related projects is as following. Carbon Capture related technology project: 3 cases, KRW 2.6 trillion
Business Ethics	IF-EN-510a.1	No. of active projects and backlog in countries that have the 20 lowest rankings in Transparency International's Corruption Perception Index	Number, Currency	As of the end of 2021, there were no active projects in the criteria.
	IF-EN-510a.2	Total amount of monetary losses as a result of legal proceedings associated with charges of bribery or corruption, and anticompetitive practices	Currency	As of the end of 2021, there were no monetary losses as a result of legal proceedings associated with charges of bribery or corruption, and anticompetitive practices.
	IF-EN-510a.3	Description of policies and practices for prevention of bribery and corruption, and anticompetitive behavior in the project bidding processes		To prevent the risk of collusion among our competitors, Samsung Engineering limits employees from making contacts with competitors. When our employees inevitably make contacts with competitors' employees, we send separate emails to inform them of precautionary items. We require employees to submit reports before and after making contacts with competitors through competitors' contact reporting system to forbid collusions and activities resembling collusions. To control risks of bidding collusion and corruption during the course of businesses, we provide relevant guidelines on the ECS (Ethics and Compliance System) where employees can access examples and trends at all times as well as trainings on the topic.
Activity Metrics	IF-EN-000.A	No. of active projects	Number	As of the end of May 2022, 32 sites in Korea and 32 sites in overseas are in progress.
	IF-EN-000.B	No. of commissioned projects	Number	As of the end of 2021, the number of commissioned projects are four.
	IF-EN-000.C	Total backlog	Currency	As of the end of 2021, total backlog is KRW 16.4 trillion.

## TCFD Index

Category	TCFD Recommendations	Pages
Governance	a Describe the board's oversight of climate-related risks and opportunities.	40, 102
	b Describe management's role in assessing and managing climate-related risks and opportunities.	40, 102
Strategy	a Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	51-53
	b Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy and financial planning.	51-53
	c Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	52
Risk Management	a Describe the organization's processes for identifying and assessing climate-related risks.	40, 51
	b Describe the organization's processes for managing climate-related risks.	40, 51
	c Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	51
Metrics and Targets	a Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	38, 51-53
	b Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	41-42
	c Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	38

## UN SDGs

Category	Samsung Engineering's Execution of UN SDGs	Pages
	<ul style="list-style-type: none"> <li>Provision of regular medical checkups</li> <li>Maternal protection programs such as maternity leave and childcare facilities</li> </ul>	82-84
	<ul style="list-style-type: none"> <li>Educational environment improvement program in Mexico</li> <li>Junior Engineering Academy</li> <li>Global Library of Hope</li> </ul>	92-95
	<ul style="list-style-type: none"> <li>Guarantee of equal pay for men and women</li> <li>Appointment of the first female outside director in 2022</li> </ul>	80, 101
	<ul style="list-style-type: none"> <li>Monitoring water consumption</li> <li>Increase in water consumption efficiency through 3R(Reduce, Reuse, Recycle) activities</li> </ul>	45
	<ul style="list-style-type: none"> <li>Establishment of mid to long-term plans to achieve carbon neutrality by 2050</li> <li>Carbon neutrality flagship project business model for overseas blue/green hydrogen</li> </ul>	30-33, 38
	<ul style="list-style-type: none"> <li>Systematic talent hiring and educational support</li> </ul>	76-79
	<ul style="list-style-type: none"> <li>DT (Digital Transformation) and innovative workflow automation technology</li> <li>Securing eco-friendly innovation technology through environmental R&amp;D</li> </ul>	22-29, 46-50
	<ul style="list-style-type: none"> <li>Social contribution programs for supporting the disadvantaged youth</li> </ul>	92-95
	<ul style="list-style-type: none"> <li>Social contribution programs for local communities near by business sites</li> </ul>	92-95
	<ul style="list-style-type: none"> <li>Strengthening long term partnership based on the trust from clients</li> </ul>	22-28
	<ul style="list-style-type: none"> <li>Establishment of GHG emissions management and reduction plans</li> <li>Analysis of climate change risk and opportunity factors and establishment of response measures</li> </ul>	41-42, 51-53
	<ul style="list-style-type: none"> <li>Perform EIA (Environmental Impact Assessment) at Duqm, Oman project area and devising ecological management execution plan</li> </ul>	45
	<ul style="list-style-type: none"> <li>Communication with stakeholders including shareholders and consumers through diverse channels</li> </ul>	15

### FORMATS

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