





Hanwha Corporation
Sustainability Report 2023

Hanwha Corporation

ABOUT THIS REPORT

Overview

Hanwha Corporation has been publishing an annual Sustainability Report since 2021, which encompasses the performance and sustainable management activities related to the economic, social, and environmental responsibilities stemming from the company's business operations. This report aims to facilitate active communication by transparently disclosing the company's sustainable management activities and achievements for the year 2022 to stakeholders, while providing a comprehensive and detailed account of major issues based on a double materiality assessment that incorporates stakeholder perspectives.

Reporting Standards

This report follows the Global Reporting Initiative (GRI) Standards 2021, which outline the global standards for sustainable management reporting. In addition, it incorporates indicators from the UN Sustainable Development Goals (SDGs), the Sustainability Accounting Standards Board (SASB), the Task Force on Climate-related Financial Disclosures (TCFD), and the World Economic Forum International Business Council (WEF IBC) Stakeholder Capitalism Metrics. The financial information presented in this report is based on the Korean International Financial Reporting Standards (K-IFRS).

Reporting Period

This report contains financial and non-financial performance for the period from January 1, 2022, to December 31, 2022. For certain performance indicators, it includes performance from the first half of 2023 to ensure the timeliness and relevance of the information. In addition, quantitative data is reported for the most recent four-year period (2019-2022) to enable year-on-year trend analysis.

Reporting Scope

The scope of this report encompasses the headquarters of Hanwha Corporation and all domestic business sites of its three business divisions (Global, Momentum, and E&C). Due to the business restructuring of November 2022, it may include the performance of certain defense industry divisions in response to difficulties in separating accurate quantitative data for economic, environmental, social, and governance aspects. In cases where attention is required for reporting scope and boundaries, separate footnotes have been provided to enhance reader convenience.

Report Verification

The financial data in this report has been independently audited by Samil PwC, while non-financial data has been independently verified by Shinhan Accounting Corporation to ensure objectivity and reliability.

Inquiries About the Report

This report is published in both Korean and English and can be viewed or downloaded from our website. If you have any questions or comments about the report, please contact us using the information below.

Department IR Team
Email esg.hwc@hanwha.com
Website https://www.hanwhacorp.co.kr
Address Hanwha Corporation, Hanwha Building 15F, 86, Cheonggyecheon-ro, Jung-gu, Seoul

CONTENTS



INTERACTIVE User Guide

The Sustainability Report 2023 of Hanwha Corporation has been published as an interactive PDF. Readers can easily move to the related web page and play video clips using various icons.

- Move to the cover
- Move to the previous page
- Move to the table of contents of this report
- Move to the next page
- Shortcut — Move to the related web page and video clip

Overview

CEO Message 05
Company Profile 06

Going Further Together

Business Portfolio 11
ESG Business of Hanwha Corporation 12
ESG Management 13
ESG Highlights 17

ESG Impact

Materiality Assessment 19
Material Issue Management 21
Stakeholder Engagement 22
Commitment to UN SDGs 23

ESG Performance

Environmental 26
Climate Change Response 27
Environmental Management 33

Social 42
Safety and Health Management 43
Talent Management 48
Win–Win Cooperation 55
Innovative Growth 60
Social Contribution 65

Governance 69
Corporate Governance 70
Compliance 75
Risk Management 79
Information Security 82

ESG Factbook

Economic 86
Environmental 89
Social 92
Governance 101

Appendix

GRI Standards Index 105
SASB Index 108
TCFD Index 111
WEF Stakeholder Capitalism Metrics 112
Greenhouse Gas Verification Opinion 113
Independent Assurance Statement 115
Awards and Organization Memberships 117

Overview

CEO Message 05
Company Profile 06



Sustainability Story of Hanwha Corporation

Hanwha Corporation sees ESG as a change of worldview. As such, Hanwha Corporation is continuing to maximize stakeholder value by complying with standards under the new ESG worldview. In 2022, we are moving beyond simply being an ESG standard follower to an ESG frontier company that provides total production solutions in the materials, equipment, and infrastructure sectors under the new ESG worldview by reorganizing our business portfolio into an ESG-friendly business. The following is the story of Hanwha Corporation's transformation toward sustainability.

CEO Message



To all of our esteemed stakeholders,

First of all, we would like to extend our gratitude for your support toward Hanwha Corporation's sustainable management.

Through this third edition of our annual report, we hereby present our sustainable management efforts and activities at Hanwha Corporation over the past year. In 2022, Hanwha Corporation faced a significant year as we shifted our business direction towards ESG and accelerated our sustainable growth to contribute to the entire world and humanity itself.

In particular, Hanwha Corporation's Global Division, Momentum Division, and the newly integrated E&C Division have each focused on eco-friendly and high-value-added materials, equipment, and infrastructure. As such, we are actively exploring new ESG ecosystems, solidifying our position as a pioneer of the ESG frontier, and achieving sustainable growth.

Despite the challenges posed by the COVID-19 pandemic, Hanwha Corporation launched an ESG committee and published our first sustainability report in 2021, thereby opening the path for ESG management. In 2022, amidst steep interest rate hikes, inflation, and the global supply chain crisis, we transformed our business direction into an ESG-friendly model as a way to substantively realize ESG management.

While 2023 is anticipated to be a year of economic downturn and uncertain business environments, living up to the moniker "the year of recession," Hanwha Corporation aims to evolve as an Essential Solution Provider in the new ESG era and rise above these crises.

We kindly request your continued support alongside Hanwha Corporation's relentless pursuit for challenges.
Thank you.

June 30, 2023
CEO **Kim Seung Mo**

Company Profile

Toward Hanwha's dream of becoming a global leader

As the root of the Hanwha Group, Hanwha Corporation has been driving industry growth and changing the world for the past 70 years through constant innovations and challenges.
In November 2022, we reorganized our business divisions into Global, Momentum, and E&C to take on the bold challenges of building prosperous lives, safe societies, and a sustainable tomorrow for our planet. Today, as we are leap forward based on our proud 70–year history, we will endeavor to pioneer the next 100 years and beyond to write a new chapter of history.

Company Status

Company Name	Hanwha Corporation
CEO	Kim Dong Kwan, Kim Seung Mo, Yang Ki Won
HQ	86 Cheonggyecheon–ro, Jung–gu, Seoul
Founding Date	October 28, 1952
Number of Employees	4,927 (as of the end of December 2022)
Website	http://www.hanwhacorp.co.kr
Credit Rating (corporate bonds)	NICE credit rating **A+ for 5 consecutive years** Korea Ratings **A+ for 5 consecutive years**
ESG Rating	• KCGS **A** • MSCI **BBB** • CDP **Climate Change B**

Business Areas

Global

We enhance future value and create a sustainable future with core materials and technology–based solutions.

Industrial explosives, pyrotechnics promotion, mining services, green energy, petrochemicals and inorganic chemicals

Momentum

We provide processing equipment and intelligent solutions for the prosperity of humanity and client success.

Secondary battery manufacturing equipment, solar energy manufacturing equipment, display and clean logistics equipment, collaborative robotics, factory automation (AGV, automated warehouse, logistics center)

E&C

As a green infrastructure developer, we creatively build and add value to infrastructure around the world for eco–friendly and sustainable development.

Mixed–use, housing, maintenance, construction, infrastructure, wind power, plants, international

Affiliates

Enabling your sustainable life.		Empowering your sustainable life.	Enriching your sustainable life.	
Hanwha Solutions	Hanwha Aerospace	Hanwha Life	Hanwha Galleria	Hanwha Hotels & Resorts
Energy & Materials (Solar Power, Chemicals, Green Energy)	Aerospace & Defense (Defense, Space, Future Mobility)	Finance (Insurance, Securities, Fintech)	Retail & Service (Department Store, Distribution)	Retail & Service (Hotels, Resorts)
Hanwha Corporation's ownership 36.31%	Hanwha Corporation's ownership 33.95%	Hanwha Corporation's ownership 43.24%	Hanwha Corporation's ownership 36.31%	Hanwha Corporation's ownership 49.80%

2022 Key Figures

(As of December 31, 2022, based on separate financial statements)

Total Assets

KRW 10.73 trillion

Sales

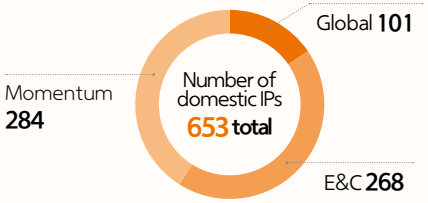
KRW 3.88 trillion

Operating Profit

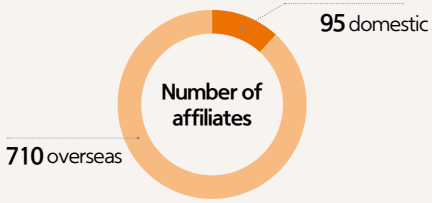
KRW 194.5 billion

R&D Investment

KRW 71.5 billion



* INTELLECTUAL PROPERTY HOLDINGS REFER TO THE NUMBER OF REGISTRATIONS, EXCLUDING PENDING APPLICATIONS.



ESG History

2022.03

- Acquired a 12% stake in REC Silicon

2022.04

- Achieved an overall rating of "Excellent (A)" in NICE Credit Rating's Corporate ESG Assessment

2022.07

- Announced business restructuring
  – Transformed business portfolio into an ESG–friendly business

2022.09

- Upgraded nitric acid production facility (partial change in use of nitric acid and increased investment)

2022.11

- E&C Division signed an MOU with Equinor to jointly develop offshore wind power
- Received an A rating(overall) from the Korea Institute of Corporate Governance and Sustainability

2023.01

- Removed ESG concerns related to its businesses according to the updated MSCI ESG Report to reflect business restructuring

2023.02

- E&C Division successfully procured PF for Daejeon Sewage Treatment Plant
  –Secured KRW 1.24 trillion PF procurement, the largest for private environmental project in history, to ensure stable project funding

2023.03

- Momentum Division participated in the largest exhibition at a US battery exhibition
  – Gained a foothold in the U.S. market by building a sales network of prospects for 2023 International Battery Seminar & Exhibition

2023.04

- E&C Division won MSIT Ministerial Award for technology to convert waste plastic into hydrogen

2023.06

- Published 2023 Sustainability Report

Business Overview by Division

Momentum Division

Hanwha Corporation's Momentum Division provides processing equipment and intelligent solutions for the prosperity of humanity and client success.

Hanwha Corporation's Momentum Division was founded in 1953 and constantly challenges itself to become a comprehensive global processing equipment company based on the technology and know-how accumulated over half a century. Through continuous technological enhancement and innovation, the Momentum Division has supplied various high-value-added, high-tech, and eco-friendly processing equipment, expanding businesses to robotics to add to its leading technical capabilities. Furthermore, as a global process equipment and intelligent solution provider, Hanwha Corporation's Momentum Division will create a strong customer partnership by introducing innovative technologies through continuous research and development.

Hanwha Corporation Momentum Division Shortcut

Global Division

Hanwha Corporation's Global Division will enhance future value and create a sustainable future with core materials and technology-based solutions.

Hanwha Corporation's Global Division has a stable profit base in core industries such as inorganic chemicals, machinery, and explosives through the business capabilities that it has accumulated since its establishment in 1952. Through its outstanding technology and global network, the Global Division is developing various project businesses and new revenue streams. Hanwha Corporation's Global Divison is striving to build its business foundation in promising industries through technical partnerships with leading companies, and will leap forward as a company that provides sustainable core materials and solutions for future social growth.

Hanwha Corporation Global Division Shortcut

E&C Division

Hanwha Corporation's E&C Division is a green infrastructure developer that creatively builds and adds value to infrastructure around the world for eco-friendly and sustainable development.

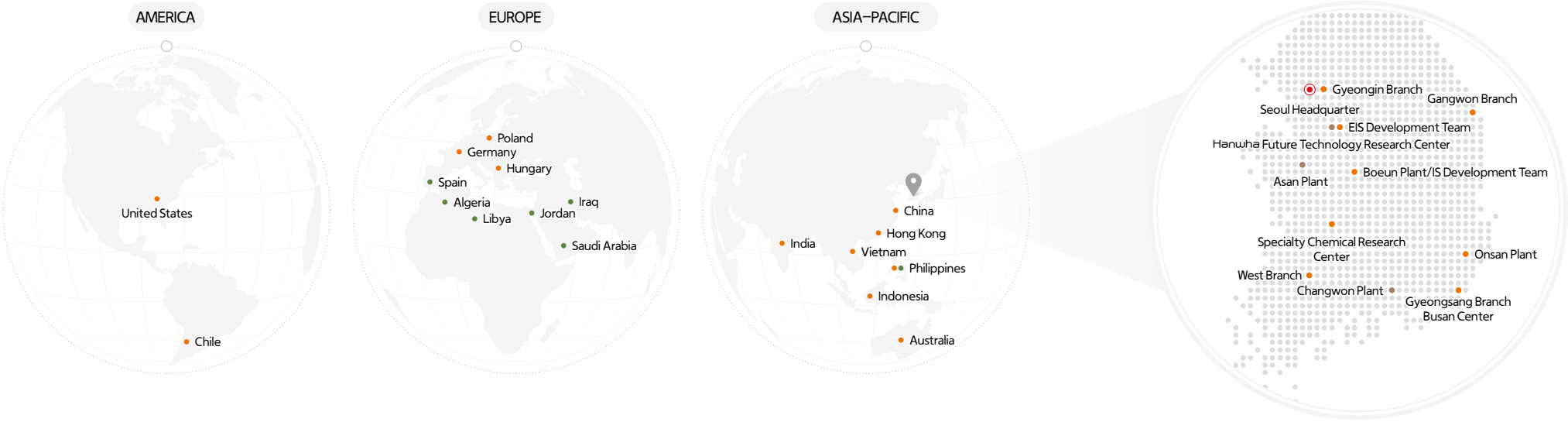
The E&C Division is a global construction company with experience in various fields such as architecture, civil engineering, and plants, having advanced technology and an extensive network. With the aim to become a green infrastructure developer, it is growing into a leader that drives large-scale mixed-use development and eco-friendly energy projects.

[A leader in mixed-use development projects] It possesses leading know-how and a track record in the field of mixed-use development projects that develop facilities for various purposes in urban planning.
[A leader in green energy business] It lays the foundation for sustainable development based on various renewable energy projects, including onshore and offshore wind power generation and hydrogen energy projects.
[A global EPC specialist] It has extensive experience in EPC for various plant projects in the Middle East and domestic industrial complexes, as well as the development of large-scale new towns at home and abroad.

Hanwha Corporation E&C Division Shortcut

Global Network

Hanwha Corporation operates a total of 38 global bases, including its headquarter, research centers, business sites, legal entities, branches, and offices.



Global	Name	Roles	Location
Domestic	Boeun Plant	Industrial Explosives Manufacturing	857, Hoeinnaebuk-ro, Naebuk-myeon, Boeun-gun, Chungcheongbuk-do (Yeomdun-ri)
	Onsan Plant	Nitric Acid Products Manufacturing	32, Sannam-gil, Onsan-eup, Ulju-gun, Ulsan, Korea (Wonsan-ri)
	IS Development Team	Explosives/Application Research	857, Hoeinnaebuk-ro, Naebuk-myeon, Boeun-gun, Chungcheongbuk-do (Yeomdun-ri)
	EIS Development Team	Explosives/Application Research	305, Pangyo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do
	Specialty Chemical Research Center	IT/Specialty Materials Research	Hanwha Solutions Central R&D Center, 76, Jaehwa-ro, Yuseong-gu, Daejeon
	Branches (4)	Industrial Explosives Sales	Busan (Gyeongsang), Gwangju (West), Gyeongin, Gangwon
	Busan Center	Bearing/Oil Sales	17, Saebyeoksijang-ro, Sasang-gu, Busan
International	Legal entities (10)	Explosives Product Sales	Indonesia, Australia, Chile, United States
		Trade	United States (New Jersey), Germany, Japan, Hong Kong, Shanghai, India, Vietnam
	Offices (8)	International Sales	China (Beijing, Shanghai, Guangzhou), Indonesia, Philippines, Hungary, Poland

Momentum	Name	Roles	Location
Domestic	Hanwha Future Technology Research Center	Industrial Machinery Research	305, Pangyo-ro, Bundang-gu, Seongnam-si, Gyeonggi-do
	Changwon Plant	Industrial Machinery Production	9, Seongsanpaechong-ro, Seongsan-gu, Changwon-si, Gyeongsangnam-do
	Asan Plant	Industrial Machinery Production	312, Asanvalley-ro, Dunpo-myeon, Asan-si, Chungcheongnam-do

E&C	Name	Roles	Location
International	Legal entities	Construction Work, Plant Construction Work	Saudi Arabia (Al Khobar)
	Branches (6)	International Business Acquisition and Development, Building and Plant Construction Work	Libya, Jordan, Philippines, Algeria, Iraq, Spain



Going Further Together

Business Portfolio 11
ESG Business of Hanwha Corporation 12
ESG Management 13
ESG Highlights 17

Sustainable Solutions for Earth, for Life

Hanwha Corporation is building a sustainable industrial ecosystem through a business transformation centered on energy, materials, equipment, and infrastructure.
We are creating a warm future of a healthy coexistence between humanity and nature.

Business Portfolio

Through the business restructuring conducted in 2022, Hanwha Corporation promoted the transformation and expansion of its businesses, thereby setting a direction and creating a concrete environment for sustainable growth in the new ESG world.

Phase 01



Establishing a sustainable growth strategy through the consolidation of the defense business, and founding a clear direction under the ESG worldview by reorganizing its businesses.

In November 2022, Hanwha Group reorganized its business structure to set its direction under the ESG worldview. Hanwha Corporation also resolved ESG concerns by splitting off its defense division to Hanwha Aerospace and absorbing and merging with its fully-owned subsidiary Hanwha E&C. In terms of its subsidiaries, Hanwha Corporation is able to target the space market beyond the global market by (1) establishing a business system for sustainable security through the consolidation of its defense business, and (2) improving governance by resolving concerns about Hanwha E&C's separate listing and unifying the governance of financial companies.

Phase 02



Evolving into an "Essential Solution Provider" under the new ESG worldview as each business division focuses on ESG-friendly materials, equipment, and infrastructure,

Following the business restructuring within the Hanwha Group and the completion of the merger with Hanwha E&C, Hanwha Corporation strengthened the growth of its business divisions. In doing so, we sought to improve management efficiency in the Global Division and business diversification in the Momentum and E&C Divisions to ensure the outward growth and financial stability of our businesses. In order to achieve continuous growth and develop into a leading global company, Hanwha Corporation is striving to become a company that pioneers the future by realizing constant innovation and strong momentum through the concerted efforts of all employees.

As Hanwha Corporation shifted its business scope from "Global-Momentum-Defense" to "Global-Momentum-E&C," the company secured innovative growth engines to become an essential solution provider under the new ESG worldview by focusing on the high-growth industries of materials, equipment, and infrastructure, which are ESG-friendly businesses. In addition, we strengthened our business competitiveness with the goal of sustainable growth by positioning ourselves as an ESG frontier that actively pioneers the ESG ecosystem and sustainability market.

ESG Business of Hanwha Corporation

Hanwha Corporation will further strengthen ESG management by generating stable profits through mature businesses in each business division and investing in eco-friendly growth businesses as innovative growth engines.

Mature business
Create stable profits by promoting fundamental projects in each division

+

Growth business
Remodel its businesses to become an ESG-friendly business

Green Biz Total Production Solution
Evolving into an ESG frontier
under the new ESG worldview beyond being an ESG user

Global Division

Mature business	Growth business
• Intelligent blasting solutions • Business solutions from a diverse suite of products	• IT materials, personal and healthcare materials, etc.

Green Biz Material Solution

- **IT Materials** | Hanwha Corporation is gradually entering into the materials market for semiconductors and displays, and positioning itself to expand its portfolio and secure its position as a global leader in silicon gas for secondary batteries by building manufacturing and distribution infrastructure at home and abroad.
- **Specialty Chemicals** | To upgrade its inorganic chemical products, Hanwha Corporation is developing nitric acid derivatives used in fields that are expected to continue growing in the future, such as eco-friendly, personal care, and pharmaceuticals, while promoting value chain expansion into the downstream area of ammonia. Firstly, we are conducting fundamental development in Korea to secure strong R&D capabilities. At the same time, we are growing into a competitive global company by promoting the establishment of overseas research centers.
- **Nitric Acid & Ammonia** | Hanwha Corporation is working on a project to expand 400,000 tons of nitric acid volume in Yeosu, and is preparing for commercialization in 2024 through active pre-marketing to major Asian customers. We are also expanding the domestic and overseas supply of clean ammonia, which is emerging as an eco-friendly energy source, and building a competitive blue ammonia manufacturing facility through business cooperation in North America.

Momentum Division

Mature business	Growth business
• Industrial equipment such as secondary batteries and solar	• Secondary battery materials, pole plate processing equipment, etc.

Green Biz Equipment Solution

- **Secondary Battery Process Equipment** | Hanwha Corporation has been recognized for its reliability by supplying equipment to domestic and overseas battery companies based on its many years of experience, track record, and proactive technology development capabilities. We are focusing on marketing our secondary battery brand and technology in the global market by participating in large-scale international battery business exhibitions such as the 2023 International Battery Seminar & Exhibit in the United States and the Battery Show Europe in Germany. Furthermore, we plan to establish ourselves as a key partner in the global market by providing product solutions, including services to customers, by discovering proven new technologies from materials to electrodes to assembly and formation processes beyond the sale of battery equipment through continuous R&D investment.
- **Photovoltaic Processing Equipment** | Hanwha Corporation manufactures specialized facilities for photovoltaic cells and modules based on vacuum deposition technology, which is the core technology of photovoltaic cell process equipment. Through this, we have the capability to carry out turnkey projects for high-quality and high-efficiency cell and module manufacturing facilities, and the business is contributing to increased sales by expanding orders for solar manufacturing facilities.

E&C Division

Mature business	Growth business
• Housing and mixed-use developments	• Wind farm development projects,modernization of environmental facilities, etc.

Green Biz Infra Solution

- **Wind Power Business** | In 2020, Hanwha Corporation successfully completed the 76MW Yeongyang Wind Farm (22 units of 3.45MW) and the 25MW Jeju Sumang Wind Farm (7 units of 3.6MW). In December 2022, we concluded a subcontract for the 90MW Yangyang Suri Wind Farm, which is currently under construction. Furthermore, we are also leading the development of the largest offshore wind farm project in Korea, Sinan Ui Offshore Wind Farm (400MW), expanding our business scope to include both onshore and offshore wind power infrastructure.
- **Water Treatment Business** | In the water treatment business, Hanwha Corporation not only developed unrivaled competitiveness through the acquisition of various new environmental technologies and patented technologies, such as HDF Process (Hanwha Dynamic Flow: advanced nitrogen/phosphorus treatment technology), PRO-MBR (advanced sewage treatment technology using pre-flocculation-based flocculation control system), and the HTM Water System (advanced water purification device using two-stage immersion membrane filtration), in addition to a depth of experience in the hydrogen energy field, including the completion of the Daesan Hydrogen Fuel Cell Power Plant that uses bio-generated hydrogen in 2020. In 2023, in the Daejeon Sewage Treatment Plant Facility Modernization Project, we succeeded in procuring a PF of KRW 1.24 trillion, the largest environmental private investment project ever, securing stable project funding and growing as a green infrastructure developer that provides comprehensive solutions for water treatment facilities beyond simple construction.

ESG Management

ESG Management Framework

Hanwha Corporation has established a three-step ESG management strategy to raise the corporate value in terms of the environment, society, and governance under the vision of "Realizing sustainable development that enhances the value of human life" in a rapidly-changing global environment. Considering not only economic value but also social and environmental value, we identify key management indicators for each area of E, S, and G and strive to internalize our vision of sustainability in corporate activities.

ESG Management Strategy

ESG Vision

Realizing sustainable development that enhances the value of human life

ESG Management Direction

Phase 1	Phase 2	Phase 3
Establishing ESG practices and governance structure	**Strengthening ESG capabilities and enhancing management framework**	**Leading global ESG management by spreading ESG values**
• Establish a governance structure to drive ESG management • Establish an ESG committee • Identify priority areas for ESG • Improve employee understanding of ESG management	• Advance the framework of initiatives for ESG implementation • Monitor and evaluate ESG activities • Join global initiatives • Expand the ESG network	• Make decisions on medium-to-long-term business investments from an ESG perspective • Engage stakeholders in ESG activities • Spread values through active internal and external communication of ESG management activities • Establish a company-wide ESG business risk management system

Key ESG Management Indicators

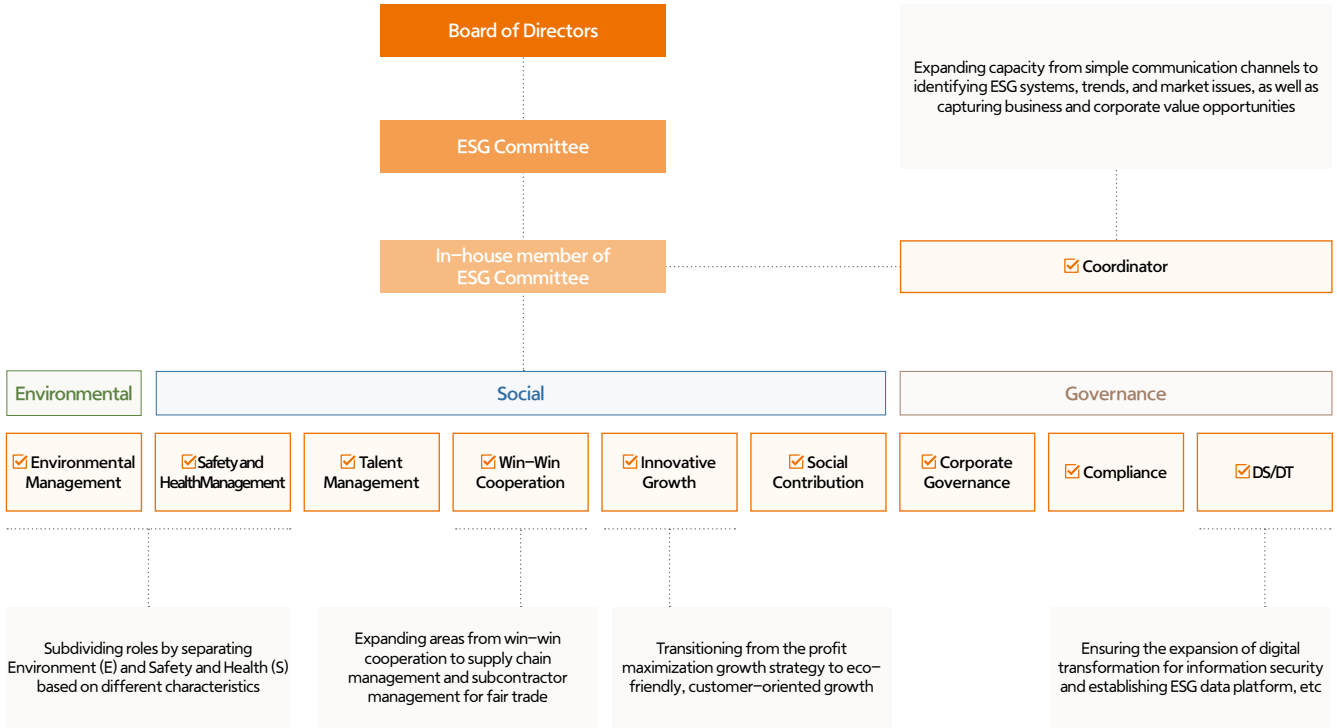
Environmental	Social	Governance
• Achieving Hanwha Net Zero 2040 carbon neutrality goal • Developing and investing in green technologies • Minimizing environmental impacts and expanding activities to reduce carbon emissions	• Practicing human rights, anti-corruption, win-win cooperation activities • Establishing shared growth and fair trade • Strengthening supplier ESG management and support system • Enhancing community outreach and communication	• Vitalizing activities of the ESG committee • Ensuring governance transparency • Strengthening global compliance management • Expanding stakeholder communication

ESG Management

ESG Governance

Hanwha Corporation has established and operated a governance system for ESG management. The ESG Committee, which is in charge of reviewing all ESG-related matters, was held 8 times in 2022 for examining and reviewing items such as deliberation on ESG bond issuance and performance reporting. As an enterprise ESG management practice organization, the ESG council has upgraded each module with 2022 business restructuring to provide clearer responsibilities and roles, and maintains an organic enterprise ESG management framework, including sharing quarterly objectives and performance through quarterly executive meetings.

ESG governance organizational chart



ESG Committee Activities

(As of December 2022)

Member	Date	Agenda
Kim Seung Mo, Lee Suk Jae, Byon Hye Ryung, Kwon Ik Hwan	Feb. 14, 2022	· Reported on ESG performance in 2021 and the plan for 2022
	Mar. 23, 2022	· Conducted preliminary review of the 234th non-guaranteed public bond (ESG Bond) issuance
	Mar. 29, 2022	· Appointed an ESG Committee Chair
	May 13, 2022	· Reported on ESG performance for the first quarter of 2022 and the plan for the second quarter · Reported on 2021 compliance control performance and 2022 compliance control plan
	Jun. 21, 2022	· Conducted preliminary review on changes to the 234th non-guaranteed public bonds (ESG Bonds) issuance
	Aug. 12, 2022	· Reported on ESG performance for the first half of 2022 and the plan for the second half
	Nov. 11, 2022	· Reported on ESG performance for third quarter of 2022 and the plan for the fourth quarter
	Dec. 21, 2022	· Reported on the 233rd non-guaranteed public bond (ESG Bond) issuance

ESG Management
Beyond Followership To Leadership

Step 1 Beyond Followership: Managing risks by complying with ESG rules

Hanwha Corporation complies with the standards and rules of the new ESG era. In the short term, we are promoting various activities to more actively prevent ESG risks such as restrictions on financial transactions and deprivation of business opportunities that may occur with the failure to meet global regulations and standards related to ESG. Furthermore, we have improved our corporate structure to maximize stakeholder value in the process of ESG risk management, earning recognition as a valuable member of the ESG era.

1 Discontinued cluster munitions business to fulfill social responsibilities

Hanwha Corporation has decided to discontinue its cluster munitions business by splitting off the business and selling its stake in the newly formed Korea Defense Industry (KDI) to fulfill its social and environmental responsibilities to the international community.

Hanwha Corporation has been removed from the list of excluded companies by major international sovereign wealth funds such as the Norwegian Sovereign Wealth Fund and the Dutch Authority for the Financial Markets (AFM), which had excluded investment due to the production of cluster bombs since 2007, and has since recognized our commitment to ESG-centered management. We will continue to promote a portfolio of eco-friendly and humane businesses that are commensurate with a leading company in the ESG ecosystem.



2 Conducted ESG management internalization activities for all employees at headquarters and business sites

Hanwha Corporation conducted various ESG management internalization activities to foster awareness of ESG management among all employees and to participate as a responsible member of the company's ESG management strategy.

To strengthen employees' capabilities related to eco-friendliness, we operate environmental academies for each position and conduct eco-friendly and energy-saving campaigns that employees can practice in their daily lives through the "Environment Day" event. Furthermore, we have established a communication program to respect diversity and inclusion, and implemented activities to enhance employee human rights and improve the working environment.



3 Succeeded in securing large-scale PF for a private investment project to modernize facilities at the Daejeon Sewage Treatment Plant Facility

Hanwha Corporation's E&C Division succeeded in securing stable project funding by procuring a PF of KRW 1.24 trillion, the largest for environmental private investment project, for modernizing Daejeon Sewage Treatment Plant Facility. This is the first eco-friendly project in Korea to relocate and modernize an aging large-scale sewage treatment plant, reducing odors by undergrounding the facility and improving river water quality with the latest sewage treatment method.

The E&C Division will continue to work closely with financial institutions to build trust in its business execution capabilities and technical skills in order to strengthen its capabilities as a green infrastructure developer.

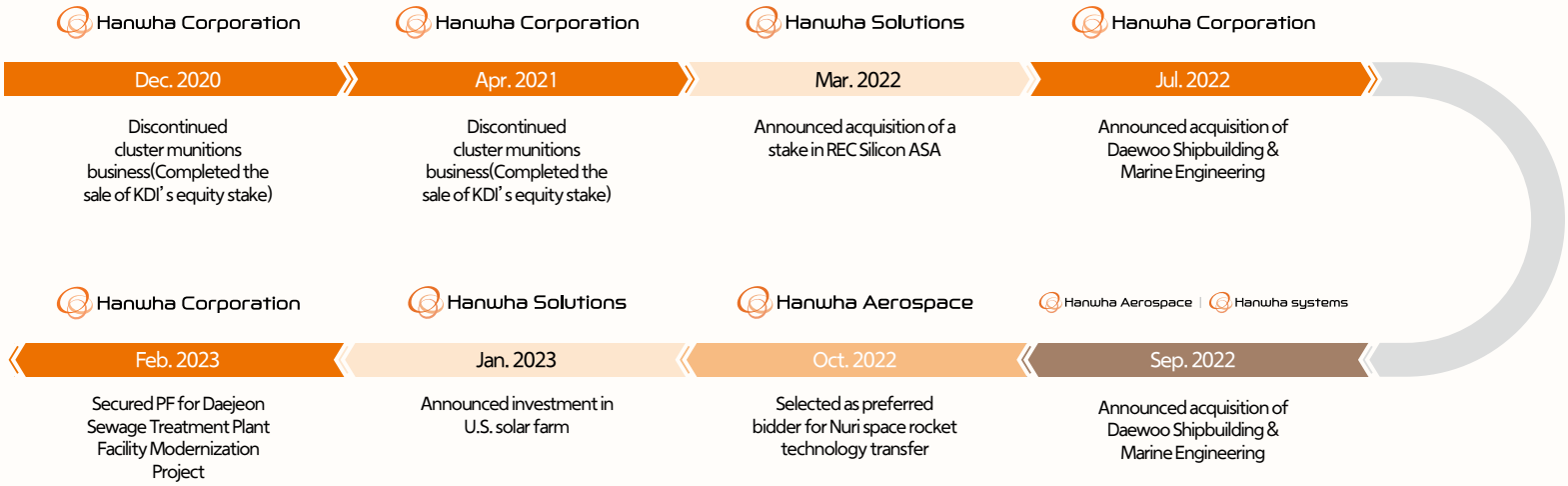


ESG Management
Beyond Followership To Leadership

Step 2 To Leadership: Discovering new growth engines by creating ESG opportunities

Hanwha Corporation is leaping forward as a total production solution provider of eco-friendly, high-value-added materials, equipment, and infrastructure in the new ESG era by reorganizing its business structure in 2022. In addition, as ESG standards are established by entities such as EU EFRAG (CSRD), US SEC, and ISSB, amid sustainability market trends such as sustainable energy and sustainable security in full swing, we are evolving into an ESG Frontier by establishing and implementing sustainable growth strategies under the ESG worldview.

Hanwha Group's ESG Footprint



Hanwha Corporation's Main ESG Activities (Separate)

- Expanded and strengthened innovative growth engines through an ESG-friendly business focus
- Eliminated ESG concerns through the separation of the defense division, and built a business portfolio that aligns with the new ESG ecosystem.

Hanwha Group's Main ESG Activities (Consolidated)

- **Expanded and enhanced the sustainable energy ecosystem**
  - Ensured the readiness of sustainability strategies, such as driving the hydrogen value chain through M&A and investment
- **Expanded business beyond defense to "sustainable security"**
  - Expanded beyond the global stage into "space"

ESG Highlights

Hanwha Corporation aims to actively communicate with stakeholders by transparently disclosing major activities and achievements in the environmental, social, and governance domains in accordance with its ESG management performance from 2022 to the first half of 2023.

ENVIRONMENTAL

E

CARBON NEUTRALITY

- CDM reductions of approximately 250,000 tCO_2-eq (Based on the year of KOC implementation)
- Enhanced the system for Scope 3 GHG emissions calculation

GREEN ENERGY

- Developed renewable energy and energy innovation technologies such as wind power, secondary batteries, solar power, etc.
- Expanded eco-friendly businesses across all business divisions

GREEN INVESTMENT

- Invested in ammonia and nitric acid production
- KRW 20.4 billion in environmental investments and expenditures

RESOURCE CIRCULARITY

- Won Ministerial Award for E&C Division's technology to convert waste plastic to hydrogen

NATURAL CAPITAL

- Performed "1 Company, 1 River, 1 Forest" environmental cleanup campaign
- Conducted an ecological survey of the off-site vicinity areas of the Boeun Plant
- Conducted an environmental impact assessment when opening a construction site for the E&C Division

SOCIAL

S

SAFETY & HEALTH

- Achieved occupational illness frequency rate (OIFR) for domestic operations at zero for five years (Global & Momentum Divisions)

HUMAN RIGHTS

- Established a human rights management charter and guidelines
- Maintained Family-friendly Company certification for 11 years

SUPPLY CHAIN

- Enhanced supply chain management with a supplier code of conduct
- Provided ESG management consulting for 31 suppliers

QUALITY MANAGEMENT

- Received Quality Management System (ISO 9001) certification for all business sites
- 0 product recalls

COMMUNITY

- KRW 3.236 billion in total donations
- Hosted the Seoul International Fireworks Festival with Hanwha

GOVERNANCE

G

BOARD DIVERSITY

- Appointed a female outside director
- Appointed a non-Korean outside director

ESG GOVERNANCE

- Reorganized the ESG Council (Roles streamlined through module segmentation)

COMPLIANCE

- Adopted the Fair Trade Compliance Program (CP) and appointed the Fair Trade Compliance Officer
- Signed Fair Trade Agreements with 307 suppliers

RISK MANAGEMENT

- Established Risk Management Regulation
- Enhanced financial and non-financial risk management

CYBERSECURITY

- 0 information security breaches and personal information leaks

ESG Impact

Materiality Assessment 19
Material Issue Management 21
Stakeholder Engagement 22
Commitment to UN SDGs 23



Sustainable Solutions for Business, People, and the Planet

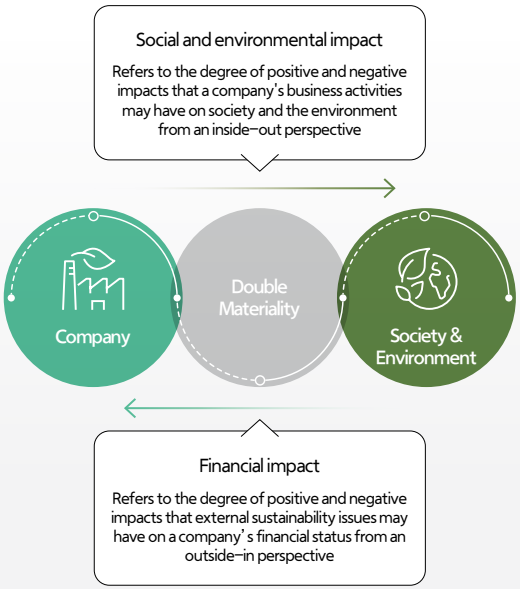
Hanwha Corporation listens to the voices of its stakeholders in its corporate management, and aims to lead the way to a better tomorrow for both humanity and nature.

Materiality Assessment

Materiality Assessment Process

Double materiality assessment overview

Hanwha Corporation conducts a double materiality assessment that considers social and environmental impacts and financial impacts from both inside-out and outside-in perspectives. Through the assessment, we select material issues that affect the company and its stakeholders and disclose them in detail in the Sustainability Report. We also strive to create long-term value by reflecting on the identified materiality issues in corporate management strategies and decision-making.



Double materiality assessment process

Step 1. Identify the issue and organize the pool

- Analysis of international standards and domestic and international assessment factors
- Analysis of global industry trends and issues in the same industry
- Analysis of internal business materials and media
  → Organize issue pool with 31 items and consolidate similar and duplicate issues to select 15 reporting issues

Step 2. Proceed with the materiality assessment

Social and environmental impact assessment

- Analysis of international standards requirements : GRI Standards, WEF-IBC Metrics, SASB, etc.
- Analysis of media: 539 news articles from major media outlets
- Analysis of global leaders and industry benchmark
- Survey on internal and external stakeholder perception : 880 respondents, including employees, customers, shareholders, investors, suppliers, local communities, media, etc.

Financial impact assessment

- Analysis of international ESG finance standard and rating agencies: MSCI, DJSI, Sustainalytics, ISS-ESG, KCGS, TCFD, etc.
- Survey on internal and external stakeholder perception

Step 3. Select and report on issues

- Review and feedback from the ESG Council and management
- Detailed reporting with prioritization of 15 reporting issues and selection of top 3 core issues

Double materiality assessment results



1 Climate change response	2 Transition to renewable energy	3 Talent management
4 Occupational safety and health	5 Quality control and product responsibility	6 Establishment of systematic governance
7 Working environment and benefits	8 Ethics and compliance	9 Impacts on natural capital
10 Social contributions	11 Recycling of resource	12 Cultivation of new growth
13 Supplier sustainability	14 Information security	15 Shareholder communications

Materiality Assessment

Hanwha Corporation not only considered social, environmental, and financial impacts to better understand stakeholders' needs and expectations surrounding the corporate management environment, but also identified risks and opportunities by categorizing positive and negative impacts on sustainability issues. The double materiality assessment in 2023 identified climate change response, transition to renewable energy, and talent management as core issues, and we aim to communicate transparently with stakeholders by disclosing key activities and performance on each issue in the Sustainability Report.

Materiality Assessment Result

Impact type : ⊕ Positive ⊖ Negative
Degree of impact : Low Medium High

No.	Sector	Material issue	Impact type	Social and environmental impact	Financial impact	Double materiality impact	GRI index	Reporting page
1	E	Climate change response	⊕	Severity	Severity		201–2, 302, 305	Page 21, 27–32, 35, 89
				Likelihood	Likelihood			
			⊖	Severity	Severity			
				Likelihood	Likelihood			
2	E	Transition to renewable energy	⊕	Severity	Severity		302	Page 21, 29–31, 35, 89
				Likelihood	Likelihood			
			⊖	Severity	Severity			
				Likelihood	Likelihood			
3	S	Talent management	⊕	Severity	Severity		404	Page 21, 48–54, 93–98
				Likelihood	Likelihood			
			⊖	Severity	Severity			
				Likelihood	Likelihood			
4	S	Occupational safety and health	⊕	Severity	Severity		403	Page 33–34, 43–47, 92–93
				Likelihood	Likelihood			
			⊖	Severity	Severity			
				Likelihood	Likelihood			
5	S	Quality control and product responsibility	⊕	Severity	Severity		416	Page 60–64, 100
				Likelihood	Likelihood			
			⊖	Severity	Severity			
				Likelihood	Likelihood			
6	G	Establishment of systematic governance	⊕	Severity	Severity		2–9~14, 405–1	Page 13–14, 70–74, 101–102
				Likelihood	Likelihood			
			⊖	Severity	Severity			
				Likelihood	Likelihood			
7	S	Working environment and benefits	⊕	Severity	Severity		405, 406	Page 49–54, 94–97
				Likelihood	Likelihood			
			⊖	Severity	Severity			
				Likelihood	Likelihood			
8	G	Ethics and compliance	⊕	Severity	Severity		2–23, 2–27, 205	Page 37–38, 75–78, 102–103
				Likelihood	Likelihood			
			⊖	Severity	Severity			
				Likelihood	Likelihood			

No.	Sector	Material issue	Impact type	Social and environmental impact	Financial impact	Double materiality impact	GRI index	Reporting page
9	E	Impacts on natural capital	⊕	Severity	Severity		303, 304	Page 36–38, 40–41, 67, 90–91
				Likelihood	Likelihood			
			⊖	Severity	Severity			
				Likelihood	Likelihood			
10	S	Social contributions	⊕	Severity	Severity		203, 413	Page 65–68, 100
				Likelihood	Likelihood			
			⊖	Severity	Severity			
				Likelihood	Likelihood			
11	E	Recycling of resource	⊕	Severity	Severity		306–4	Page 35, 39–40, 90–91
				Likelihood	Likelihood			
			⊖	Severity	Severity			
				Likelihood	Likelihood			
12	G	Cultivation of new growth	⊕	Severity	Severity		Non-GRI	Page 11–12, 15–16, 61
				Likelihood	Likelihood			
			⊖	Severity	Severity			
				Likelihood	Likelihood			
13	S	Supplier sustainability	⊕	Severity	Severity		414	Page 55–59, 63, 77–78, 99
				Likelihood	Likelihood			
			⊖	Severity	Severity			
				Likelihood	Likelihood			
14	G	Information security	⊕	Severity	Severity		418–1	Page 82–84, 103
				Likelihood	Likelihood			
			⊖	Severity	Severity			
				Likelihood	Likelihood			
15	G	Shareholder communications	⊕	Severity	Severity		2–16, 201–1	Page 22, 73–74, 102
				Likelihood	Likelihood			
			⊖	Severity	Severity			
				Likelihood	Likelihood			

Material Issue Management

Material Issue 1: Climate Change Response

☐ Employee ☐ Shareholder/Investor ☑ Customer ☑ Supplier ☑ Community

Business impact: Risk

Background

In addition to increasing demands for climate change response at home and abroad, such as the enforcement of the Paris Climate Agreement and the declaration of the national vision for carbon neutrality by 2050, the strengthened policies and regulations have also increased legal risks for companies. Meanwhile, physical risks such as heat waves, heavy rain, and cold snaps caused by climate change can adversely affect a company's business activities. As a result, companies face a need to minimize impacts from such risks through active and proactive climate change response activities. To secure business competitiveness in line with climate change, it is also necessary to monitor domestic and international climate change response trends and establish business portfolios and response activity plans that take them into account.

Response strategy and key performance

Hanwha Corporation has declared Hanwha 2040 Net Zero to minimize the negative impact of the company's production and management activities on the environment, and has established and implemented medium-to-long-term reduction targets to this end. In order to reduce greenhouse gases at business sites, we are actively implementing the GHG emissions trading system and the CDM project, while discovering and applying items for energy management efficiency and greenhouse gas reduction at business sites. Furthermore, we transparently disclose information on GHG emissions and reduction activities to stakeholders through the CDP and TCFD reporting.

Goals and targets

- Greenhouse gas reductions
  - Performance in 2022: 249,001 tCO_2-eq
  - Target for 2023: 250,000 tCO_2-eq

UN SDGs

13 CLIMATE ACTION

Material Issue 2: Transition to Renewable Energy

☐ Employee ☑ Shareholder/Investor ☑ Customer ☐ Supplier ☑ Community

Business impact: Revenue

Background

With rapid changes in energy-related policies and markets, the use of renewable energy is becoming crucial to achieving the goal of Net Zero. In order to quickly respond to such flows, we need to increase the proportion of renewable energy power in our business sites and expand our efforts to improve energy efficiency. In addition, it is necessary to identify and operate businesses that can secure competitiveness by transforming the existing business structure based on fossil fuels into a business structure based on renewable energy such as wind and solar power.

Response strategy and key performance

Hanwha Corporation strives to establish and implement a plan to achieve K-RE100 with the aim of joining K-RE100 in 2023. In addition, we are expanding our business areas into eco-friendly and low-carbon energy by increasing R&D investments related to secondary batteries and solar cells/modules to transition to renewable energy. Furthermore, we are constantly making an effort to prevent resource depletion and environmental pollution by entering the renewable energy generation business, such as the construction of onshore and offshore wind farms.

Goals and targets

- Energy intensity
  - Actual consumption in 2022: 0.01507 TJ / KRW 100 million
  - Target consumption in 2023: 0.01462 TJ / KRW 100 million

UN SDGs

7 AFFORDABLE AND CLEAN ENERGY

Material Issue 3: Talent Management

☑ Employee ☑ Shareholder/Investor ☐ Customer ☐ Supplier ☐ Community

Business impact: Cost

Background

For a company to look to a sustainable future, the most important thing it needs is talented people. It is impossible to nurture corporate competitiveness, create value, and sustain growth without human resources. In recent years, there has been an increasing demand for each employee to grow with the company, making it even more necessary to foster and manage talent.

Response strategy and key performance

Hanwha Corporation is trying to create a healthy working environment by enhancing employees' voluntary work immersion and participation. We have established a flexible work environment by implementing remote work, staggered office hours, and flexitime, and opened a mental health counseling room (Rapporena) to provide individual psychological counseling and group psychological education through professional counselors to improve employees' mental health. In addition, we organized a dedicated recruitment organization to preemptively identify and secure outstanding talent for key projects, building mutual trust through communication between management and employees through business information sessions and town hall meetings.
Furthermore, to strengthen the individual competencies of employees as the source of corporate competitiveness, we have introduced a qualification certification system based on job capabilities, and actively support individuals to voluntarily take outsourced training through independent planning under the self-directed training system. In addition, we have expanded job-oriented training courses to improve employees' job competencies, as well as spread work know-how through internal experts.
Hanwha Corporation operates a fair and transparent appraisal system based on ability and achievement. To this end, we have established a compensation system that reflects organizational and individual performance with a key performance indicator (KPI) management system for each job function. In addition, we have introduced a project incentive system to reinforce our competitiveness in winning and executing business projects through R&D innovation, through reward programs such as spot and retention bonuses, excellent academic paper awards, and patent awards to strengthen employee motivation.

Goals and targets

- Increase work immersion by expanding flexible work arrangements (flexitime, remote work, etc.)
- Expand the mental health counseling program
- Conduct employee feedback sessions based on a diagnosis of organizational culture and identify and implement key HR improvements such as appraisal, compensation, and promotion
- Enhance job-role-based training to create high performance and secure key talent
- Provide basic job training and specialized training for each business division
- Expand language education support

UN SDGs

8 DECENT WORK AND ECONOMIC GROWTH

* Business impact: Categorized from a risk-based perspective according to the actual, potential, and indirect impact on the company's revenue, the cost of failure to manage the issue, and the extent of complying with domestic and international regulations and satisfying stakeholder expectations.

Stakeholder Engagement

Hanwha Corporation defines its key stakeholders as customers, employees, suppliers, shareholders and investors, the government, and local communities directly or indirectly affected by its business activities. Based on the Hanwha spirit of "Going Further Together," we operate various communication channels to listen to the interests and needs of its stakeholders and reflect them in corporate strategy and management activities to ensure mutually beneficial development and trust.

Category	Customer	Employee	Supplier	Shareholder/Investor	Government	Community
Definition of key stakeholders	Individuals and groups who use or may potentially use Hanwha Corporation's products or services	Domestic and international employees of Hanwha Corporation	Companies that are scheduled or engaged in manufacturing, construction, or service consignment business with Hanwha Corporation	Individuals and groups holding shares in Hanwha Corporation	Organizations that legislate and enforce policies in countries and regions where Hanwha Corporation's business sites are located and its corporate activities are performed	Local communities and their members affected by Hanwha Corporation's business activities
Key concerns	• Ensures quality and reliability of products and services • Expands sustainable production of green products • Manages reputation and enhance customer satisfaction • Prevents customer personal information leaks	• Develops employee skills and build capacity • Ensures fair performance appraisals and rewards • Maintains a work–life balance • Protects employee rights and diversity • Improves employee safety and health	• Builds a win–win partnership • Ensures fair trade compliance • Communicates with and empowers suppliers • Supports ESG risk management and activities for ESG	• Enhances enterprise value and drives economic performance • Establishes good corporate governance • Reinforces shareholder advocacy • Manages and responds to internal and external risks • Performs transparent information disclosure	• Complies with relevant laws and regulations • Strengthens public–private partnerships • Performs transparent information disclosure	• Contributes to community development and creates social value • Performs local environmental and ecosystem conservation efforts • Enhance communication with local communities near business sites
Key communication channels	• VOC channel • Customer satisfaction surveys • Meetings and seminars • Global exhibitions • Official website and social media channels	• Employee meetings, business information sessions, workshops, etc. • Company intranet and grievance channels • Labor–management councils • Organizational culture diagnostic survey	• Win–Win meetings and Shared Growth Council • Ethics Hotline and Dispute Resolution Hotline • Various online and offline win–win programs • Training and consulting for suppliers	• Annual meeting of shareholders • Domestic and international NDRs and conference calls • Seminars and meetings • Disclosures (business reports, corporate governance reports, sustainability reports, etc.)	• Cooperative programs with government departments and agencies • Joining and participating in associations • Policy meetings and information sessions	• Hanwha Social Service Corps • Network for each business site • Various social contribution activities • NGOs and related organizations
Hanwha Corporation's response activities	• Achieves global product quality and safety certifications by the business division • Develops new technologies and services that reflect customer needs • Conducts customer satisfaction surveys and operate dedicated communication channels • Establishes a company–wide information security management system	• Operates programs to attract top talent and builds employee capacity • Establishes objective and fair performance appraisals and reasonable compensation • Improves working conditions and provides various benefits • Spreads a culture of respect for human rights as well as diversity and inclusion • Manages risks proactively by implementing a data–driven safety and health system	• Establishes and comply with the Four Pillars of Shared Growth • Creates and shares a supplier code of conduct • Operates various training and support programs for suppliers • Supports ESG management consulting for suppliers	• Creates and adheres to a corporate governance charter • Engages with shareholders and investors through investor relations meetings and shares business results • Generates profits by entering new markets, developing products and services, etc. • Performs disclosure of key IR materials in Korean and English • Performs disclosure of business reports, corporate governance reports, sustainability reports, etc.	• Operates an internal control system and audit organization • Implements cooperative projects with governments and public institutions and participates in national projects • Develops new technologies for sustainable growth • Pays taxes in good faith	• Conducts fundraising for the Creating a Brighter World fund • Operates various social contribution programs centered on human resource development, eco–friendliness, culture and arts, and volunteerism • Encourages employee volunteerism with a paid volunteer program during work hours

Commitment to UN SDGs

As a responsible member of the global society, Hanwha Corporation performs various activities in line with the UN Sustainable Development Goals (SDGs), which are the common goals of humanity for sustainable development.

UN SDGs		Hanwha Corporation's Major Activities	Key Performance
1 NO POVERTY	End poverty in all its forms, everywhere	1.5 Build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters	• Supporting underprivileged neighbors, social welfare facilities, etc., through the "Creating a Brighter World" fund raised by employees and the company • Providing preferential hiring opportunities and allocating additional points when hiring veterans and people with disabilities • Providing preferential hiring for families of Cheonan victims	Total donations in 2022: KRW 3.236 billion
3 GOOD HEALTH AND WELL-BEING	Ensure healthy lives and promote well-being for all at all ages	3.4 Reduce premature mortality from non-communicable diseases and promote mental health and well-being 3.9 Reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	• Monitoring safety management through data-driven safety and health system operations • Improving facilities and managing emissions to minimize environmental pollutants in processes • Reducing the use of hazardous chemicals and switching to greener chemicals • Operating various programs to manage the physical and mental health of employees	DOccupational illness frequency rate (OIFR) for domestic sites : Zero for five consecutive years (Global & Momentum Divisions)
4 QUALITY EDUCATION	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	4.4 Increase the number of youth and adults with the technical or vocational skills needed for employment, decent jobs, and entrepreneurship 4.5 Eliminate gender disparities in education and ensure equal access to education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations	• Operating "A Nation of Science for Hanwha and the Future" for local children's centers and culturally underprivileged children • Discovering future scientific talent through the Hanwha Science Challenge • Providing career mentoring for underprivileged youths through the "Go in Quest of Dream School" program • Creating "Forrena Libraries" by remodeling idle spaces in social welfare facilities nationwide	103th Forrena Library established (2023)
5 GENDER EQUALITY	Achieve gender equality and empower all women and girls	5.1 End all forms of discrimination against all women and girls 5.5 Ensure women's participation and equal opportunities for leadership in political, economic and public life	• Enhancing board diversity through the appointment of female outside directors • Providing a variety of benefits to build more welcoming working environment for women	Family-friendly Company Certification maintained for 11 years
7 AFFORDABLE AND CLEAN ENERGY	Ensure access to affordable, reliable, sustainable and modern energy for all	7.1 Ensure universal access to modern energy services 7.2 Increase the share of renewable energy globally	• Issuing KRW 150 billion in green bonds to invest in secondary battery business facilities and solar power generation • Expanding the use of renewable energy by installing solar power on business sites • Expanding the development of renewable energy technology and plant construction • Building a clean ammonia distribution infrastructure business	Green bonds issued: KRW 150 billion
8 DECENT WORK AND ECONOMIC GROWTH	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	8.2 Increase economic productivity through diversification, technological upgrading and innovation 8.3 Promote growth of micro-, small- and medium-sized enterprises 8.8 Promote a safe and secure work environment	• Focusing on high-growth industries for ESG-friendly materials, equipment, and infrastructure to boost business competitiveness • Providing support for finance, management and technology, training and human resources, etc., centered on the Four Pillars of Shared Growth • Introducing a management clinic program for suppliers to transfer management know-how • Operating safety management support and evaluation system for suppliers at business sites	Four consecutive years of Outstanding rating in the Win-Win Growth Index (6th consecutive year for the E&C Division)

Commitment to UN SDGs

UN SDGs		Hanwha Corporation's Major Activities	Key Performance
Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation	9.4 Impart sustainability with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes 9.5 Increase the number of R&D workers, public and private R&D spending, and improve technological capabilities	• Acquiring international standard certifications and patents specialized for each product • Signing MOUs with public and private companies to strengthen technical and business collaboration • Making continuous technology development efforts to build a global hydrogen ecosystem • 0 information security violations or cybersecurity incidents and personal information leaks in 2022	Domestic and international patents registered: 574
Ensure sustainable consumption and production patterns	12.4 Minimize adverse impacts on human health and the environment 12.5 Reduce waste generation through recycling and reuse 12.6 Adopt sustainable practices and to integrate sustainability information into their reporting cycle	• Implementing an integrated environmental management system to manage environmental pollutants such as air, water, and waste • Minimizing the amount of waste generated by introducing a real-name registration system for waste disposal and a computerized waste management system • Recycling waste plastics through pyrolytic emulsification technology • Publishing an annual sustainability report on Hanwha Corporation's sustainability management activities and performance	Environmental investments and expenditures: KRW 20.4 billion
Take urgent action to combat climate change and its impacts	13.2 Integrate climate change action into national policies, strategies, and planning 13.3 Educate, raise awareness, and build human and institutional capacity on climate change mitigation, adaptation, impact reduction, early warning, etc.	• Advancing company-wide environmental goals and strategies in line with the 'Hanwha Net Zero 2040' declaration • Enhancing GHG emissions management and Scope 3 calculation • Participating in global initiatives such as CDP and TCFD	Hanwha Net Zero 2040 declared
Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss	15.1 Ensure the conservation, restoration, and sustainable use of terrestrial and inland freshwater ecosystems, including forests, wetlands, mountainous and drylands 15.4 Protect ecosystems, including biodiversity	• Managing water stress and making an effort to reduce water usage and wastewater generation • Organizing community environmental activities, such as designating an environmental day or launching a 1 Company 1 River 1 Forest campaign • Monitoring changes in the ecosystem after conducting ecological surveys in the area near the workplace • Conserving and managing protected species and ecosystem disruptors by conducting environmental impact assessments at construction sites	The first ecological survey conducted on biodiversity in off-site vicinity areas (Global Division)
Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	16.5 Substantially reduce corruption and bribery in all their forms 16.6 Develop effective, accountable, and transparent institutions at all levels 16.7 Ensure responsive, inclusive, participatory, and representative decision-making at all levels	• Strengthening board health, transparency, and independence • Enhancing ethics and compliance capabilities with employee compliance training and more • Operate online and offline intake channels for reporting human rights grievances, compliance, unfair trade, etc. • Establishing enterprise-wide risk management policies and upgrading risk management systems	Company-wide risk management policies enacted
Strengthen the means of implementation and revitalize the global partnership for sustainable development	17.14 Enhance policy coherence for sustainable development 17.17 Encourage and promote effective public, public-private, and civil society partnerships	• Enhancing ESG initiatives and governance • Complying with and supporting global initiatives for sustainability management practices • Providing ESG management consulting and risk management activities for suppliers	ESG Council expanded and reorganized into 10 modules

ESG Performance



Environmental 26
- Climate Change Response 27
- Environmental Management 33

Social 42
- Safety and Health Management 43
- Talent Management 48
- Win–Win Cooperation 55
- Innovative Growth 60
- Social Contribution 65

Governance 69
- Corporate Governance 70
- Compliance 75
- Risk Management 79
- Information Security 82

Sustainable Solutions for All

Hanwha Corporation looks forward to a sustainable tomorrow where humanity coexists with nature, and a future that we can create together with various stakeholders.
This is the vision for which we practice authentic and responsible ESG management.

ENVIRONMENTAL

Hanwha Corporation is actively practicing carbon neutrality and transitioning to a system centered on eco-friendly management.
We will lead the way to overcome today's unprecedented climate crisis and create a sustainable global environment.

Climate Change Response
Environmental Management



Environmental
Climate Change Response

Developing clean energy and reducing carbon emissions to create a carbon-neutral society for both present and future generations.

Hanwha Corporation has firmly established its commitment to eco-friendly management by declaring "Hanwha Net Zero 2040" in response to the global climate crisis. To minimize negative environmental impacts at all stages of the corporate value chain, we are actively investing in various eco-friendly projects, including renewable energy, low-carbon technology, and energy efficiency.

Achievements in 2022

2022 GHG Reduction Performance (CDM)

250,000 tCO_2-eq

(Based on Korea Offset Credits (KOC) implementation year)

All divisions of Hanwha Corporation

Developed and expanded low-carbon, green businesses

Scope 3 emissions

Now under a more advanced estimation system

Going Forward

Hanwha Corporation will operate a comprehensive climate change response system by advancing company-wide and divisional targets and strategies for Scope 1, 2, and 3 emissions. We will also join the global clean energy transition by establishing company-wide and divisional initiatives to gradually convert electricity consumption to 100% renewable energy.

Alignment with UN SDGs

Climate Change Governance

Climate change response system

Hanwha Corporation has established the necessary governance for specialized and objective decision-making on climate change and eco-friendly policies and strategies centered on its Board of Directors (BOD). Quarterly environmental safety and health operation plans and climate change response risks are reported to the BOD, and it deliberates and resolves climate change response strategies and eco-friendly policies. In addition, the ESG Committee has been operating under the BOD since March 2021 and deliberates on eco-friendly policy goals and activities to respond to climate change risks and reduce emissions of harmful substances. Under the ESG Committee, we have formed the ESG Council, which includes the Chief Safety & Environment Officers (CSOs) of each division and team leaders and practitioners of the Environmental Safety & Health General Organization, to inspect and manage climate change response issues and tasks by division and business site based on the company-wide executive direction of ESG management. In 2023, we will separate the environmental management module, which is comprised of environmental managers by division within the ESG Council, Hanwha Corporation's working-level ESG organization, from the existing environmental safety module, with the aim to promote practical improvement tasks to respond to climate change. Through the enhanced environmental management module, Hanwha Corporation is reviewing the enhancement of a company-wide medium-to-long-term carbon neutrality strategy and the implementation of K-RE100, and further aims to systematically implement carbon neutrality by complementing carbon emission reduction and implementation tasks in consideration of investment-linked facilities and production targets.

Board of Directors	Deliberates and votes on climate change and green policies/strategies (quarterly reports). Reviews ESH operational plans and climate change risks
ESG Committee	Conducts expert, objective reviews of climate change and green policies (GHG emissions reduction plans, cap-and-trade status, etc.)
ESG Council	Consists of divisional CSOs and team leaders and practitioners at ESH General Group. Conducts quarterly performance and plan reviews, selects climate change improvement tasks by division, and manages progress.
Environmental Management Module	Consists of environmental officers from each division. Promotes climate change improvement tasks, manages data, and responds to stakeholders

The BOD's roles and responsibilities in addressing climate change

Centered on the ESG Committee of the BOD, Hanwha Corporation establishes strategic directions for its climate change response and finalizes and approves important issues for the transition to a low-carbon economy. In 2022, the BOD held a total of eight meetings on climate change and environment-related issues, discussing the issuance of green bonds, eco-friendly investments, and ESG management performance.

Top climate change and environmental agendas for the BOD in 2022

No.	Date	Category	Key Agenda
2nd	February 14, 2022	Reporting	Reported on ESG performance in 2021 and plans for 2022
5th	March 23, 2022	Resolutions	Approved investment to acquire a stake in REC Silicon Discussed 234th issuance of non-guaranteed public bonds (ESG bonds)
7th	May 13, 2022	Reporting	Reported on ESG performance in Q1 2022 and plans for Q2 2022
8th	June 21, 2022	Resolutions	Discussed changes to the 234th issue of non-guaranteed public bonds (ESG bonds)
11th	August 12, 2022	Reporting	Reported on ESG performance in H1 2022 and plans for H2 2022
13th	September 28, 2022	Resolutions	Discussed changes in investments into nitric acid production facilities for the Global Division
16th	November 11, 2022	Reporting	Reported on ESG performance for Q3 2022 and plans for Q4 2022
18th	December 21, 2022	Reporting	Reported on ESG performance in 2022 and plans for 2023

The management's roles and responsibilities in addressing climate change

Hanwha Corporation is actively responding to climate change by centering on the Chief Safety & Environment Officer (CSO), who is in charge of climate change response issues by division. The CSO is assigned KPIs such as external ESG assessments, CDP ratings, and greenhouse gas (GHG) emission reductions. In addition, through a financial compensation system based on these KPIs, we systematically manage climate change response goals and implementation performance in connection to the performance of executives and managers.

Climate Change Response Strategy and Key Actions

Risks and opportunities caused by climate change

Hanwha Corporation identifies and manages ESG risks across its business operations based on global sustainability standards, initiatives, and external assessments, selecting climate change response as the company's top-priority core issue for 2022. Hanwha Corporation has conducted an analysis based on the International Energy Agency's Net Zero Emissions by 2050 Scenario (IEA NZE 2050) and the RCP 8.5 scenario to establish reduction targets and manage climate change risks in line with the requirements of the global initiative for Net Zero 2040. Based on the analysis results, we classified climate change-related risks into physical and transition risks, and established optimized response measures for each issue to prepare a sustainable management environment.

Key climate change risks and opportunities identified by Hanwha Corporation

Category	Item	Duration			Key risks and opportunities	Potential financial impact	Hanwha Corporation's Response
		Short-term	Medium-term	Long-term			
Physical Risk	Acute	√			Typhoons, floods	• Increased construction and operating costs due to interruptions and delays in construction work • Decreased revenue due to restoration costs and production interruptions in the event of physical damage to manufacturing sites • Financial losses due to interruptions in the supply of raw materials and delivery of products	• Establishing an emergency response system for disasters and catastrophes • Enhancing facilities for extreme weather events, such as prevention of sediment loss • Diversifying supply channels to secure raw material procurement stability
		√			Wildfires	• Increased construction and operating costs due to interruptions and delays in construction work • Decreased revenue due to restoration costs and production interruptions in the event of physical damage to manufacturing sites	• Continuously monitoring the status of wildfires • Establishing an emergency response system for disasters and catastrophes • Conducting drills to relocate explosives in the event of a wildfire
	Chronic		√	√	Average temperature increase	• Increased operating costs due to reduced productivity • Increased cooling energy costs to maintain optimal temperatures for manufacturing processes • Increased facility investment costs to prevent high temperatures in manufacturing and storage facilities	• Establishing high-efficiency cooling facilities • Optimizing facility operation efficiency to prevent energy overload • Regularly inspecting explosives storage and establishing a temperature increase mitigation system
Transition Risk	Policy /Legal	√	√	√	Strengthened GHG regulations and policies	• Increased costs of responding to policies such as the carbon border tax and cap-and-trade system • Increased costs of purchasing carbon credits and paying carbon taxes • Increased costs of emission credits in line with increases in the paid allocation rate of the cap-and-trade system • Increased investment costs for applying carbon reduction technologies in business sites	• Establishing and implementing the Hanwha Net Zero 2040 strategy • Securing carbon credits through CDM projects (transitioning to SDM) • Identifying and implementing GHG reduction activities at business sites
			√	√	Increased demand for renewable energy transition	• Increased investment costs to install renewable power generation facilities on site • Decreased operating profit due to higher electricity bills and higher manufacturing costs when securing renewable power through PPAs	• Reducing energy use by promoting energy efficiency at business sites • Creating a plan and executing steps to achieve K-RE100
			√	√	Enhanced ESG disclosure mandates	• Increased costs to respond to information disclosure, including third-party verification costs and staffing • Newly-incurred costs to establish systems to respond to ESG information disclosure and assessment • Penalties for non-compliance with disclosure standards	• Disclosing climate change-related information through the environmental management module within the ESG Council • Continuously monitoring domestic and international ESG disclosure standardization trends
	Market		√	√	Increased demand for renewable energy-based products	• Decreased revenue due to reduced demand for internal combustion engine assembly lines • Increased costs for technology development and capital investment	• Promoting the transition to businesses related to renewable energy-based products
			√	√	Increased demand for low-carbon products	• Increased costs for low-carbon product development and capital expenditure	• Managing and reducing carbon emissions throughout manufacturing through lifecycle assessment (LCA) • Promoting new businesses related to low-carbon products
	Technology		√	√	Increased need for green and resource circulation technologies	• Increased R&D costs to develop green/recycled products and processes • Decreased corporate profits due to market and technology monopolization by leading companies	• Developing green and resource circulation technologies
	Reputation	√	√	√	Increased demand from climate change stakeholders	• Decreased profits due to divestment or loss of clients due to downgrades in ratings such as ESG, CDP, etc.	• Disclosing climate change-related information through participation in the Sustainability Report and CDP Climate Change • Enhancing climate change response through the environmental management module under the ESG Council
Opportunity	Market		√	√	Increased demand for renewable energy-based products	• Newly-generated revenue by promoting renewable energy-related businesses	• Expanding R&D and businesses related to EV production facilities such as secondary batteries • Manufacturing specialized facilities for solar cell modules • Expanding construction of renewable energy plants such as biomass-to-energy plants
			√	√	Increased demand for low-carbon products	• Newly-generated revenue by promoting businesses related to low-carbon products	• Supplying low-carbon products such as blue ammonia • Developing technologies for low-GWP gas manufacturing

Internal carbon pricing

Hanwha Corporation has introduced an internal carbon pricing system to calculate the amount of greenhouse gas emissions as well as deficits, surpluses, and costs associated with the carbon trading system, utilizing it for internal decision-making and performance measurement. For internal carbon pricing, we use the average transaction unit price of KAU for the previous year, and in 2022, we applied the average transaction unit price of KRW 24,902/tCO_2-eq, which corresponds to the period of July 1, 2021 to June 30, 2022 for KAU 21, to calculate the quantitative effect of GHG reduction activities such as investments in the installation of solar power facilities.

Implementing greenhouse gas emissions trading

Hanwha Corporation has been managing GHG emissions at all its business sites since June 2012, when it was designated as a target management company under the Framework Act on Low Carbon, Green Growth (present-day Framework Act on Carbon Neutrality). From the first phase (2015-2017), the Onsan plant was designated as an allocation target and participated in the emissions trading system, and from the third phase (2021-2025), the scope of allocation targets was expanded to all Hanwha Corporation plants. To this end, the company conducts periodic analysis of the emissions market and monitoring of trading prices through a dedicated organization, and establishes emissions management strategies through methods such as competitive trading on the emissions exchange, carryover, borrowing, buying, and selling.

CDM business certification

Since 2007, Hanwha Corporation's Onsan plant has been promoting the N_2O Reduction Project to remove N_2O, a greenhouse gas generated in the nitric acid manufacturing process, as a certified Clean Development Mechanism (CDM) project under the United Nations Framework Convention on Climate Change (UNFCCC). It is also securing carbon credits based on its annual greenhouse gas reduction performance.

In 2022, based on the implementation year for Korea Offset Credits (KOC), we reduced approximately 250,000 tCO_2-eq of GHG emissions, and we are promoting the transition of our businesses to the Sustainable Development Mechanism (SDM) with the implementation of the Paris Agreement in 2021. Hanwha Corporation's Global Division will also voluntarily install N_2O reduction facilities in the new nitric acid process currently under construction to implement more active GHG reduction activities.

Expanding eco-friendly businesses

Based on the goal of Hanwha Net Zero 2040, Hanwha Corporation is promoting the sustainable growth of the company and society through the discovery of low-carbon eco-friendly businesses, greenhouse gas reduction activities, and active transition to a renewable energy ecosystem. In addition, we are minimizing possible financial losses by proactively responding to domestic and international environmental regulations such as strengthened greenhouse gas emission regulations, increased carbon taxes, and the broader introduction of renewable energy.

Meanwhile, to promote K-EV100, we are piloting in-house charging facilities, and we plan to convert all vehicles in our domestic business sites to electric vehicles by 2030 with 15 electric vehicles (3% of the entire fleet). Furthermore, we are strengthening our eco-friendly business portfolio, including the green hydrogen business, battery manufacturing facilities, and renewable energy plants, to expand our eco-friendly and low-carbon-based business areas. In 2022, we issued KRW 150 billion worth of green bonds to actively invest in secondary battery business facilities and solar power generation. Through these strategic responses, Hanwha Corporation is contributing to solving the climate crisis and securing new growth engines for the future of the company.

Operating status of Hanwha Corporation's low-carbon businesses

Global Division

Distribution of clean ammonia
- Establishment of blue ammonia import and transportation infrastructure businesses

Development of low-GWP gas manufacturing technology
- Development of low-GWP (NO) manufacturing technology using nitric acid manufacturing process

*GWP(Global Warming Potential)

Momentum Division

Construction and operation of renewable energy plants
- Construction of a waste-based solid fuel plant in Wonju
- Construction and operation of biomass energy plants such as wood pellet manufacturing lines

Supply of specialized facilities for the entire manufacturing process of secondary batteries
- Materials, electrodes, assembly, formation, solar cells, module pack processes, etc.

Waste recycling research project
- Waste plastic pyrolysis oil production facilities, etc.

E&C Division

Development of a renewable energy (wind) farm
- Construction and operation of the Yeongyang Wind Power Plant Complex and Jeju Sumang Wind Farm
- Yangyangsuri Onshore Wind Farm (approximately 94MW) under construction
- Large-scale offshore wind farm projects in progress


Yeongyang Wind Power Plant Complex (Scale: 3.45 MW x 22 wind turbines)


Jeju Sumang Wind Farm (Scale: 3.6MW x 7 wind turbines)

Enhancing energy efficiency

Hanwha Corporation is enhancing energy efficiency by promoting Operation Excellence (OE), an activity to increase productivity in each business division. As part of OE activities, we identify items related to energy efficiency and greenhouse gas reduction, and analyze and manage their implementation effects. In particular, through OE activities at the Boeun Plant in 2022, we identified five items to reduce electricity and fuel use, and sequentially applied automation technologies to the plant, such as the application of an electric heat tracing (EHT) blocking system for non-operation time and the installation of a circulation pump timer, to achieve energy savings.

The Onsan Plant saves energy by converting waste heat energy from the nitric acid manufacturing process into steam energy to be utilized in the manufacturing process. The use of steam produced from waste heat energy emits zero GHG and therefore contributes significantly to reducing the Onsan Plant's net GHG emissions. Meanwhile, in 2022, additional revenue was generated by selling 166 TJ of residual steam energy. In addition, we are continuously improving the efficiency of energy use in the plant by controlling the operating temperature of the heating and cooling system, eliminating steam waste elements, and replacing power-efficient LED light bulbs.

Joining global initiatives for climate change

Hanwha Corporation has been participating in the climate change program of the Carbon Disclosure Program (CDP) since 2021 to establish greenhouse gas reduction targets that meet global standards and manage risks associated with climate change, and was awarded a B grade in the 2022 assessment. We are actively participating in global initiatives to respond to climate change, such as supporting the Task Force on Climate-related Financial Disclosures (TCFD) recommendations, and have disclosed the contents of "Governance, Strategy, Risk Management, Indicators, and Targets" on climate change response in line with the TCFD recommendations. We will continue to actively disclose our activities to respond to climate change, communicate transparently with stakeholders, and position ourselves as a global leader in eco-friendly management for the future of the environment worldwide.

Climate Change Risk Management

Climate change risk management process

Hanwha Corporation efficiently responds to climate change-related issues such as various laws and regulations, physical and environmental variables, market changes, and stakeholder demands through the establishment and operation of company-wide risk management regulations and processes, while creating a stable business promotion environment.

At least once a year, the ESG Council identifies risks in all areas of ESG, including climate change risks, based on an evaluation table, and conducts a materiality assessment based on the likelihood of occurrence (short-term, medium-term, long-term) and risk impact (strategic importance, urgency, management impact) to determine a risk rating for each risk. The executive in charge of each module submits the risk assessment results to the ESG Council, which reviews the assessment results and determines the ESG risks to be managed at the company-wide level.

In principle, regular assessments are conducted once a year, but assessments may be performed on an ad hoc basis in the event of changes in the external environment, response strategies, and risks, such as the launch of new products and services or changes to existing products and market conditions. Risks are graded from grade I to III, and the executive in charge of the module establishes an action plan to identify improvement targets, completion periods, persons in charge, and resources required, and then conducts response activities.

Procedures for identifying and responding to climate change risk based on financial impact

Criteria	Financial impact	Criteria for determining financial impact	Decision-making phase
Less than KRW 500 million	Non-material financial impact	Operating costs, internal carbon pricing, greenhouse gas emissions, energy usage, investment costs for energy efficiency improvements, etc	Opinions collected by ESG Council, final decisions made by CSO
KRW 500 million or above – less than KRW 5 billion	General financial impact		Opinions collected by ESG Committee, final decisions made by CEO
KRW 5 billion or above	Significant financial impact		Agendas discussed by ESG Committee, submitted to BOD, then final decisions made by BOD

Climate change risk management process

Identify climate change risks	• Identify climate change risks and opportunities at least once a year through the ESG Council. • Conduct a materiality assessment in line with the probability of occurrence and risk impact	• Determine risk ratings for each risk and report material risks to the ESG Committee
Define risks	• Define the risks identified by the ESG Council by type	• Establish response strategies and action items for identified risks
Manage and respond to risks	• Implement divisional strategies and assignments for identified risks	• Conduct periodic company-wide monitoring for critical issues
Conduct follow-up measures	• Monitor risk management performance and identify medium- to long-term improvements	• Reflect on risk assessment results and plan annual activities for the coming year

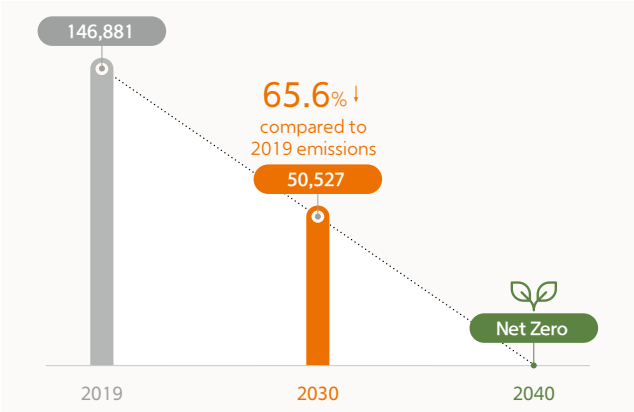
Metrics and Reduction Targets

Hanwha Net Zero 2040 Roadmap

Faced with the global climate crisis, governments and companies around the world are declaring the goal of carbon neutrality by 2050 and implementing mitigation activities to limit the global temperature rise to 1.5 ° C above pre-industrial levels. In 2021, in line with global trends, Hanwha Corporation declared the Hanwha Net Zero 2040 carbon neutrality goal and plan, which aims to reduce emissions by approximately 65% by 2030 and 100% by 2040 compared to 2019 emissions.
In 2022, we redefined a detailed plan to achieve the Hanwha Net Zero 2040 carbon neutrality goal in line with restructuring our business divisions. As part of such efforts, we advanced the environmental goals and strategy for each business division regarding Scope 1 and 2, alongside company-wide environmental goals and strategy across all business divisions. In addition, we established a strategy for securing renewable energy with the goal of joining K-RE100 in 2023, and plan to utilize conversion measures (installation of solar power facilities for our own consumption, PPA contracts, REC purchase, etc.) tailored to the characteristics of each business division and site to achieve a 100% renewable energy conversion rate by 2040. In 2023, we will also begin work to upgrade the GHG Scope 3 calculation system to identify the current status of emissions in the supply chain and advance the reduction plan.

Hanwha Net Zero 2040 Roadmap

(Unit: tCO_2-eq)

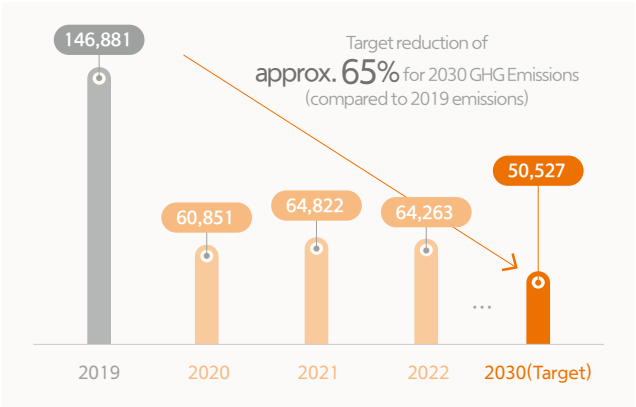


Current status of climate data management

Hanwha Corporation manages greenhouse gases emitted from each business site through the in-house greenhouse gas inventory system based on the declaration of its carbon neutrality goal as an active response to climate change. The GHG reduction activities of each business site are shared with all business sites through the inventory system, and the best reduction practices are benchmarked by other business sites to promote mutual growth through experience sharing.

Scope 1 and 2 greenhouse gas emissions management

(Unit: tCO_2-eq)



GHG and energy performance and targets (intensity)[1)]

Key Performance	Unit	Performance in 2021	Performance in 2022	Goals for 2023
Greenhouse gas emissions	tCO_2-eq/ KRW 100 million	1.24	1.06	1.03
Energy usage	TJ/KRW 100 million	0.01536	0.01507	0.01462

1) Intensity is calculated based on separate revenue for each business division (Global, Momentum, E&C) in 2022.

GHG Reduction[1)]

Key Performance	Unit	Performance in 2021	Performance in 2022	Goals for 2023
Greenhouse Gas Reductions	tCO_2-eq	241,532	249,001	250,000

1) As of the year of implementation for Korea Offset Credits (KOC)

Key greenhouse gas reduction measures

Identify and invest in internal reductions within business sites

- Promote energy use efficiency through process improvement
- Reduce energy use by eliminating energy waste factors
- Reduce energy use by replacing high-efficiency energy equipment

Increase renewable energy use

- Expand on-site self-generation (solar) installations
- Secure renewable energy through direct and indirect PPA contracts
- Offset emissions by purchasing renewable energy certificates (RECs)

Transition to greener fuels

- Switch from fossil fuels such as industrial boilers and heaters to green fuels such as electricity, hydrogen, and biomass
- Switch from diesel and gasoline vehicles to green vehicles (electric and hydrogen)

Managing Scope 3 greenhouse gas emissions

Since 2020, Hanwha Corporation has been calculating Scope 3 GHG emissions across the company's entire production and business process and transparently disclosing the related data. By expanding the scope of GHG management from the previous year, we identified GHG emissions for 12 of the 15 categories of Scope 3 in 2022. We will continue to make efforts across the entire value chain alongside our suppliers to reduce Scope 3 GHG emissions through more sophisticated management in the future.

Scope 3 calculation criteria

Accuracy

We used existing company-wide data to calculate accuracy, but separated the data to reflect the characteristics of each business division and applied the appropriate calculation methodology and emission factors to the separated data.

Completeness

We trained practitioners from each organization, conducted face-to-face interviews to ensure no omissions from the emissions calculations, and provided clear explanations for any deliberate exclusions to ensure the completeness of the data.

Consistency

To minimize fluctuations in the data collected due to changes in the personnel in charge, we collected data through ERP, procurement system, and waste system, and further developed the data collection route to record and calculate consistent data every year.

Scope 3 GHG Management

Categories	Emissions (tCO_2-eq)	Emissions calculation methodology	Description
1. Purchased products and services	1,743,325	Quantity of products purchased × LCA emissions factor Cost of products purchased × Basic cost unit per industry	GHG emissions from the entire lifecycle of the purchased products and services before delivery
2. Capital goods	349	Quantity of products purchased × LCA emissions factor Cost of products purchased × Basic cost unit per industry	GHG emissions from the entire lifecycle of the purchased capital goods before delivery
3. Fuel- and energy-related activities not included in Scope 1 and 2	3,705	Energy consumption × Production stage emission factor	GHG emissions from the production and transportation of purchased fuel and energy
4. Upstream transportation and distribution	8,568	(Distance traveled ÷ standard fuel economy) × emission factor Shipping cost × Basic shipping cost unit	GHG emissions from the transportation and distribution of purchased products and capital goods
5. Waste generated in operations	8,196	Waste volume × emission factor per waste disposal method	GHG emissions from outsourcing the disposal of waste generated at business sites to a third party
6. Business travel	5,829	Distance traveled per transport mode × number of people × emission factor per transport mode	GHG emissions from transportation during business travel by employees
7. Employee commuting	2,341	Number of employees × average daily trips per mode × working days × emission factor per transport mode	GHG emissions generated when employees use transportation to get to and from work
8. Upstream leased assets	–	Excluded from calculations (but reported as part of Scope 1 and 2 emissions)	
9. Downstream transportation and distribution	2,760	(Distance traveled ÷ fuel economy) × emission factor	Greenhouse gas emissions from the transportation and distribution of sold products
10. Processing of sold products	–	Excluded from calculations (Chemical companies can be excluded from reporting due to their diverse coverage and customer structure, which makes it difficult to obtain reliable data *Source: WBCSD, Guidance for Accounting & Reporting Corporate GHG Emissions in the Chemical Sector Value Chain)	
11. Use of sold products	1,701,867	Products sold × emission factors generated by products sold in the usage phase Total floor area x emission factor used per area Power usage for products sold x emissions factor	GHG emissions from end-user usage of sold products (finished goods)
12. End-of-life treatment of sold products	5,967	Weight of products sold × emission factor per waste disposal method Total floor area × waste emission factor per area	GHG emissions from the disposal of sold products
13. Downstream leased assets	18,063	Leased floor area × emission factor of use per area	GHG emissions produced by the lessee in the usage process, in cases If we lease where company property is leased to a third party
14. Franchises	–	Not relevant (not operating a franchise business)	
15. Investments	735,911	Investor revenue x shareholding x industry emissions factor	
Total	**4,236,881**		

Environmental
Environmental Management

We are making a difference to help our society and planet continue on the path of sustainable development.

Hanwha Corporation is responding to increasingly stringent domestic and international environmental regulations by establishing a company-wide and divisional environment, safety and health (ESH) management system under the core value of sustainable growth. In addition, we recognize the seriousness of issues such as waste, environmental pollution, and damage to biodiversity and seek to minimize our negative impact on the environment and stakeholders.

Achievements in 2022

Separated the environmental management module from safety and health module **for greater work efficiency**

Environmental investments and spending **KRW 20.4 billion**

Conducted the first ecological survey of biodiversity in the off-site vicinity of the Boeun Plant under the Global Division

Going Forward

Hanwha Corporation will actively respond to internal and external environmental issues by enhancing the company-wide ESH management system. In addition, we will continue to expand our environmental performance and activities by reorganizing the company-wide environmental goals and strategies that encompass the environmental objectives and strategies of each business division.

Alignment with UN SDGs

Environment, Safety, and Health (ESH) Management System

ESH management policy

Hanwha Corporation was the first Korean company to establish a group-wide environmental policy, titled "ECO-2000," in 1991. Since 2000, we have been actively responding to internal and external changes and continuously improving our ESH management system through our environment safety and health policy, titled "ECO-YHES" (Hanwha-YHES: Yes! Health-Environment-Safety), which applies environmental safety and health as core values in our management philosophy. In addition, we have established ESH management policies tailored to the characteristics of each business division in which we operate to effectively manage environmental, safety and health issues.

ESH management policies by division

Hanwha Corporation/ Global	Hanwha Corporation's Global Division is committed to creating a sustainable future through the establishment, implementation, and continuous improvement of the environmental safety and health management system.
Hanwha Corporation/ Momentum	Hanwha Corporation's Momentum Division recognizes environmental safety and health as top priority core values that are fundamental to corporate social responsibility and the company's sustainable growth, and our executives and employees make the following efforts to establish an advanced safety culture across all activities in performing their duties.
Hanwha Corporation/E&C	Hanwha Corporation's E&C Division is committed to realizing the values of human respect and environmental protection and dedicates its utmost efforts toward the settlement of a culture that prioritizes safety, health, and the environment.

Introduction of ESH Management Policy for Hanwha Corporation's Global Division Shortcut

Introduction of ESH Management Policy for Hanwha Corporation's Momentum Division Shortcut

Introduction of ESH Management Policy for Hanwha Corporation's E&C Division Shortcut

ESH management system

Hanwha Corporation actively reflects the environment, safety, and health of all stakeholders, including its employees, in its corporate management and establishes and operates a world-class environmental safety and health management system to create a sustainable future. We have established a global environmental safety and health management system tailored to the characteristics of each business site, and comprehensively monitor and manage the status of each business site to continuously renew international standard certifications and maintain qualifications. In 2023, we reorganized the environmental safety module within the ESG Council into the environmental management module from the safety and health module to place greater emphasis on each area, implementing the working plan for each module in sub-divided stages. In January, a senior meeting of the ESG Council was convened to discuss possible responses to major global ESG regulations and disclosure requirements, leading to the advancement of the calculation process for Scope 3 emissions and the establishment of K-RE100 implementation plans for the entire company and all business divisions. In addition, due to Hanwha Corporation's business restructuring, we reestablished Scope 1 and 2 emissions and detailed implementation plans to advance the company's carbon neutrality strategy.

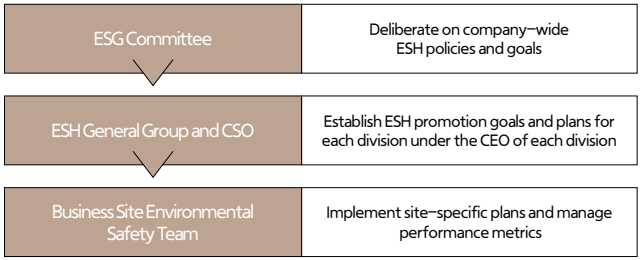
Current status of Hanwha Corporation's ESH management system

Certifications	Divisions and business sites		
	Global	Momentum	E&C
ISO 14001	Boeun	Changwon / Asan	Seoul (HQ) / Nationwide (Onsite)
KOSHA-MS	Boeun		Seoul (HQ) / Nationwide (Onsite)
ISO 45001		Changwon / Asan	Seoul (HQ) / Nationwide (Onsite)
Green Certification	Boeun		

ESH governance

Hanwha Corporation operates ESH governance at the company-wide, business division, and business site levels to systematically manage its environmental safety and health management plan. The ESG Committee under the Board of Directors, the company's top decision-making body for ESH, is responsible for reviewing and deliberating on company-wide ESH management policies and goals. To enable the BOD to regularly review the company-wide ESH status, we report the ESG Committee's activities and targets in the semi-annual ESG report. In addition, the ESH General Group and the Chief Safety & Environment Officer (CSO), which are directly under the CEO of each division, serve as ESH leadership and control towers to provide functions such as establishing environmental and safety systems and plans for domestic and overseas sites, and responding to issues. The ESH strategies, goals, detailed action plans, and performance indicators established by the ESH General Group are applied to the actual sites under the management of environmental safety teams organized for each business unit.

ESH governance organization chart



ESH performance evaluation

Hanwha Corporation conducts regular internal and external audits at least twice a year to upgrade its environmental safety and health management system, and reflects the issues and improvements identified through the audit process to each business site to maximize the effectiveness of its ESH management. In particular, Hanwha Corporation's Global Division sets and implements basic-unit environmental impact reduction targets for waste emissions, air and water pollutant emissions, and water usage in its environmental safety and health management plan each year, with the aim to minimize environmental impacts as well as prevent environmental accidents at manufacturing sites, and to comply with laws and regulations. In addition, we are continuing to make efforts to minimize the emission of environmental pollutants by reviewing the performance of each organization's environmental safety and health performance evaluation every year, adding points to the results of each organization's strategic KPI performance evaluation upon achieving reduction targets, and linking it to the employee performance-based pay system.

ESH risk management

Hanwha Corporation enacted a new risk management regulation in May 2023 and manages its non-financial risks, including the environmental, safety and health, under the company-wide risk management system. Through the system, we identify detailed ESH management risks and opportunities at an early stage and take preventive measures against risk factors. In addition, each module of the ESG Council identifies risks and establishes action plans at least once a year, evaluates the results, and reports them to the chairperson of the ESG Committee and the BOD

Green Financing

Green bond issuance and performance

Hanwha Corporation successfully issued KRW 150 billion's worth of green bonds in February 2022, following the issuance of its first green bond in May 2021, and utilized the proceeds to finance the manufacturing operations of secondary battery production facilities and solar cell and module production facilities in the Momentum Division. The green bond issued in 2023, named "246th Hanwha Non-Guaranteed Public Bond," was the first Korean green bond issued by a non-financial company based on the Korean Green Taxonomy (K-Taxonomy), and the proceeds were invested in manufacturing equipment for the Solar Hub, an integrated solar production complex to be established by Hanwha Solutions in Georgia, USA.
By conducting third-party verification of compliance with the green classification system and receiving a "suitable" grading from NICE Credit Rating, we are striving to prevent greenwashing and lead the way in corporate green economic activities.

Eligible projects for Hanwha Corporation Green Bond financing support in 2022

Category	Supported project areas	ICMA environmental goals	Bond allocation amount
Secondary Battery	Secondary battery business (Production of equipment for the secondary battery production process)	• Climate change mitigation • Transition to circular resources	KRW 150 billion
Renewable Energy (Solar)	Solar module production and photovoltaic power generation		

Additional issuance of Hanwha Green Bonds in 2023

Category	Supported project areas	Economic activity classification based on K-Taxonomy	Bond allocation amount
Renewable Energy (Solar)	Investment in solar equipment in the US Solar Hub	[GHG Reduction] Supplying equipment to produce solar cells facility	KRW 190 billion

Environmental Management Promotion System

Strengthening environmental management systems

Hanwha Corporation sets the slogan of "GROUP Safety & Environment Leading Company" as its mission in 2023, and has been implementing various policies and activities to upgrade the company's environmental safety and health management. To this end, we are not only establishing environmental management goals and strategies for each year, but also identifying and implementing improvements through the analysis of major environmental risks. In order to achieve global leadership by 2026, Hanwha Corporation will continue to protect the global environment and strengthen its efforts to build a sustainable future.

Goals and strategies to promote environmental management

Mission
2023 GROUP Safety & Environment Leading Company
2026 GLOBAL Safety & Environment Leading Company

Vision
Safe and Healthy Life to Everyone, Everywhere!
Beneficial to Our Environment and the Community!

Medium- to long-term goals

Net Zero 2040	Minimize Environmental Impact
65.5% reduction in greenhouse gas emissions by 2030 & 100% by 2040 compared to 2019	Reduced waste emissions and energy and water use by 3% year-over-year *Managed by intensity(Global, Momentum: General, Designated Waste / E&C : Construction Waste)

Strategic direction

Ⓐ Proactively addressing climate change	Ⓑ Strengthening ESG management	Ⓒ Advancing management	Ⓓ Capacity-building
① Efficiency and reduction of workplace energy use ② Reduction of greenhouse gas emissions ③ Increased use of renewable energy	④ Proactive response to internal and external systems and regulations ⑤ Continued participation in international initiatives related to the environment	⑥ Enhancement of the environmental management system ⑦ Establishment and improvement of the smart environmental system	⑧ Enhancement of expertise in environmental facilities and legal inspections ⑨ Enhancement of expertise among environmental practitioners

Key strategic initiatives

	GHG reductions[1]	Energy (intensity)[2]	Water (intensity)[2]	Waste (intensity)[2]
Environmental Goals for 2022	250,000 tCO_2-eq	0.0149 TJ/KRW 100 million	14.09 Ton/KRW 100 million	General/designated waste: 0.05 ton/KRW 100 million Construction waste: 9.81 Ton/KRW billion
Environmental Performance in 2022	249,001 tCO_2-eq	0.0151 TJ/KRW 100 million	17.41 Ton/ KRW 100 million	General/designated waste: 0.05 ton/KRW 100 million Construction waste: 10.47 Ton/KRW 100 million
Environmental Goals for 2023	250,000 tCO_2-eq	0.0146 TJ/KRW 100 million (3% reduction)	16.88 Ton/ KRW 100 million (3% reduction)	General/designated waste: 0.05 ton/KRW billion Construction waste: 10.16 Ton/KRW 100 million (3% reduction)

1) As of the year of implementation for Korea Offset Credits (KOC)
2) Intensity are calculated as separate revenue for each business division (Global, Momentum, E&C) in 2022.

Eco-friendly Management Activities

Eco-friendly revenue

Hanwha Corporation calculates eco-friendly revenue based on businesses that meet the criteria of the Korean Green Taxonomy (K-Taxonomy). In 2022, the Momentum Division calculated eco-friendly revenue by classifying green economic activities to include supplying solar cells, modules, and secondary battery manufacturing facilities required for renewable energy production. Hanwha Corporation will continue to identify and expand businesses that meet the green classification system in order to ensure its eco-friendly management.

Eco-friendly revenue for the Momentum Division

(Unit: KRW 100 million)

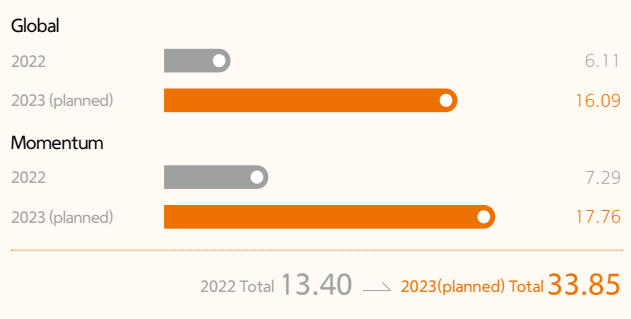


Environmental investment performance and targets

Hanwha Corporation continuously invests in improving facilities and technologies to improve the workplace environment as a way to ensure the safety of employees and prevent environmental pollution. In 2022, we implemented environmental investments such as improving air pollution prevention facilities, installing waste storage, replacing high-efficiency equipment to improve energy efficiency, and replacing outdated diesel vehicles to reduce air pollutant emissions. Through such efforts, we are improving environmental efficiency and creating a comfortable and safe working environment.

Environmental investment performance and targets by business division

(Unit: KRW 100 million)

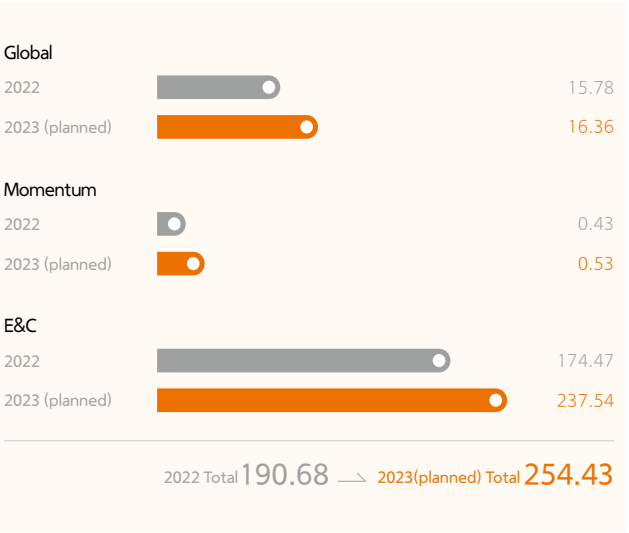


Environmental investment performance and targets

Hanwha Corporation continuously invests in improving facilities and technologies to improve the workplace environment as a way to ensure the safety of employees and prevent environmental pollution. In 2022, we implemented environmental investments such as improving air pollution prevention facilities, installing waste storage, replacing high-efficiency equipment to improve energy efficiency, and replacing outdated diesel vehicles to reduce air pollutant emissions. Through such efforts, we are improving environmental efficiency and creating a comfortable and safe working environment

Environmental investment performance and targets by business division

(Unit: KRW 100 million)



Environmental Impact Management

Environmental impact assessment

Analyzing opportunities and risks caused by environmental impacts

Hanwha Corporation operates a process to manage environmental risks and improve environmental performance across the entire process of corporate activities through the establishment and certification of an environmental management system (ISO14001). In accordance with the environmental management system, we identify stakeholders and internal and external environmental issues once a year, analyze financial and non-financial opportunities and risks exerted by environmental factors on the company, and establish and implement action plans for issues classified as risks.

Analyzed opportunities and risks from major environmental impacts.

Fields	Category		Related issues	Impact of opportunity or risk		Hanwha Corporation's Response
	Risk	Opportunity		Financial impact	Non-financial impact	
Air quality	√		Air pollutant emissions from facilities exceeding acceptable levels	• Costs incurred due to administrative enforcement (fines/penalties) • Reduced revenue due to temporary emissions (production) facility shutdown orders, etc. • Reduced revenue due to damaged corporate image • Additional costs incurred to respond to enhanced environmental policies and regulations	Damage to corporate brand image/reputation	• Monitoring emission concentrations at outlets through self measurement • Ensuring legally-compliant operation and regular maintenance of preventive facilities
Water quality	√		Effluent from wastewater discharge facilities exceeds water quality standards	• Costs incurred due to administrative enforcement (fines/penalties) • Reduced revenue due to temporary emissions (production) facility shutdown orders, etc. • Reduced revenue due to damaged corporate image • Additional costs incurred to respond to enhanced environmental policies and regulations	Damage to corporate brand image/reputation	• Monitoring emission concentrations through self-measurement • Ensuring legally-compliant operation and regular inspection of preventive facilities
Waste	√		Failure to follow waste segregation and storage practices	• Increased costs due to penalties • Additional costs incurred to respond to enhanced environmental policies and regulations	Damage to corporate brand image/reputation	• Separating and storing waste based on properties • Independently manufacturing and ensuring company-wide use of covers for arm-roll waste boxes • Complying with environmental regulations
		√	Growing social demand for resource circulation	• New revenue generated by venturing into new businesses utilizing plastic waste	Improvement of corporate brand image/ reputation	• Developing energy generation technology from plastic waste • Introducing post-consumer plastic upcycled workwear
Chemicals	√		Chemical leaks in business sites	• Cost of lost raw materials and products • Costs incurred due to administrative enforcement (fines/penalties) • Reduced revenue due to damaged corporate image	Damage to corporate brand image/reputation	• Meticulously complying with applicable laws and regulations • Installing and regularly inspecting leak detection sensors in hazardous chemical-handling facilities.

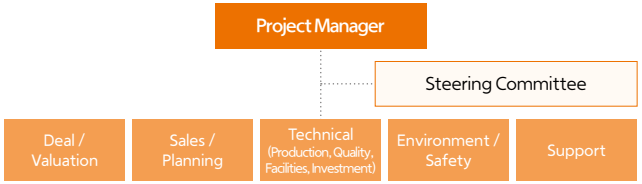
Understanding trends in ESH legislation

Every month, Hanwha Corporation continuously monitors and documents the enactment and revision of ESH-related laws and regulations, as well as the status of pre-announcement of legislation and administrations, while compiling changes in laws and regulations, implementation dates, and countermeasures in the ESH regulation register and shares them with relevant organizations. We also take measures at the company-wide and business site levels to respond promptly to any legislative enactment or revision that may directly or indirectly affect the company.

Conducting environmental and safety reviews for investments and new businesses

Hanwha Corporation stipulates in its investment management guidelines that, when making an investment proposal report, conducting environmental and safety reviews related to the investment is mandatory, while preventing risks of illegal activities by meticulously reflecting and implementing the necessary laws and regulations before, during, and after the investment process. In addition, we examine investment risks and opportunities for environmental improvement such as surveying reductions in greenhouse gases, hazardous chemicals, and environmental pollutants. Furthermore, when organizing a task force to review new businesses, we include an environmental safety officer to review environmental and safety opportunities and risks for the new businesses.

Organization chart for the new business assessment task force



Integrated Environmental Management System

Hanwha Corporation is a company subject to the Integrated Environmental Management System, and last year carried out a project to consolidate its environmental permits for air, water, and waste at major business sites. As a result, the management system of the Global Division's Onsan Plant, which previously approved and managed environmental pollutants such as air, water, and waste on an individual basis, was consolidated into a system granting a single permit for each site. This has allowed us to comprehensively consider the impact of pollutants on the environment and human health, and to minimize pollutant emissions by applying the principle of best available techniques (BAT). Hanwha Corporation's Global Division will continue to introduce and systematically manage pollution prevention facilities to minimize the amount of environmental pollutants emitted.

Major assessment criteria for ESH

Environmental	• Clean Air Conservation Act • Chemical Substances Control Act • Asbestos Safety Management Act • Water Quality and Aquatic Ecosystem Conservation Act • Malodor Prevention Act • Noise and Vibration Control Act • Wastes Control Act • Soil Environment Conservation Act	• Environmental Impact Assessment Act • Groundwater Act/Drinking Water Management Act/Water Supply and Waterworks Installation Act • Act on the Integrated Control of Pollutant-discharging Facilities • Framework Act on Carbon Neutrality • Act on Registration and Evaluation of Chemical Substances
Safety and Health	• Occupational Safety and Health Act/Rules • Act on the Safety Management of Guns, Swords, and Explosives • Act on the Safety Control of Hazardous Substances	• Act on Installation and Management of Firefighting Systems/Framework Act on Firefighting Services/Firefighting System Installation Business Act • High-pressure Gas Safety Control Act • Safety Control and Business of Liquefied Petroleum Gas Act

Managing air pollutants

Hanwha Corporation complies with relevant legal provisions with regard to the air pollutant emission facilities and prevention facilities at its business sites, in accordance with the Clean Air Conservation Act and the Act on the Integrated Control of Pollutant-discharging Facilities. In order to minimize the generation of air pollutants such as nitrogen oxides (NOx), sulfur oxides (SOx), and dust, and to manage the concentration of air pollutant emissions to 50% or less of the legal standard, we are continuously expanding and improving prevention facilities, and installing TMSs (tele-monitoring systems), a real-time measurement equipment for air pollutants, at major outlets to monitor the concentration of pollutant emissions. In addition, in connection with the CDM project (Project to Reduce N2O Catalysts for Nitric Acid Processing), the Onsan Plant has established and operated an automatic N2O concentration measurement system to monitor the status of N2O reduction in real-time, thus implementing intelligent environmental management. Moreover, the E&C Division has signed a voluntary agreement with the Ministry of Environment to reduce high-concentration fine dust as an active contribution to improving air quality and reducing air pollution. For processes that generate fugitive dust at all business sites, we implement mitigation measures such as installing suppression systems, adjusting construction hours, and restricting the use of outdated construction machinery. We also set internal management standards for spring, fall, and the period from February to April, when high concentrations of fine dust occur.

Managing soil resources

Hanwha Corporation complies with relevant legal provisions with regard to managing soil pollutants and facilities subject to specific soil pollution management in accordance with the Soil Environment Conservation Act and the Act on the Integrated Control of Pollutant-discharging Facilities. We conduct soil pollution inspections in compliance with legal standards, and conduct regular facility inspections and maintenance to prevent the leakage of soil pollutants from production and storage facilities.

Soil resource management activities by the E&C Division

Activities
• Conducts environmental impact assessments, design reviews, and site history research when conducting projects on sites with soil contamination concerns. – Reviews potential occurrence of soil contamination • Monitors soil contamination prior to earthwork – Prevents soil contamination in unexpected areas • Upon identifying suspected contaminated soil, analyzes the soil for contamination in accordance with soil environment management guidelines. – Determines if soil contamination thresholds have been exceeded • Separates used oil-based materials in sealed storage – Prevents and manages soil contamination

Water management

Hanwha Corporation complies with relevant legal provisions with regard to water pollutant discharge facilities and prevention facilities in accordance with the Water Quality and Aquatic Ecosystem Conservation Act and the Act on the Integrated Control of Pollutant-discharging Facilities, and strictly monitors the treatment efficiency of wastewater treatment facilities to manage the discharge concentration of water pollutants such as TOC, BOD, and SS to 50% or less of the legal standard. Through water stress analysis, we separately manage freshwater usage at plants located in water-scarce areas and implement various water management activities to reduce water usage and wastewater generation.

Water stress analysis results

Hanwha Corporation utilizes the World Resources Institute's (WRI) water stress analysis tool to analyze water stress at its manufacturing sites once or twice a year. In 2022, we conducted water stress analyses for six plants under the Global Division and two plants under the Momentum Division, which classified two as "High," four as "Medium-High," one as "Low," and one as "No Data." For the E&C Division, we also conducted water stress analyses for large-scale construction sites worth more than KRW 300 billion, which classified one as "High," nine as "Medium-High," and one as "Low." As a result, we continuously strive to manage freshwater usage at plants located in high-stress regions closely and discover methods to reduce water usage in anticipation of water shortages.

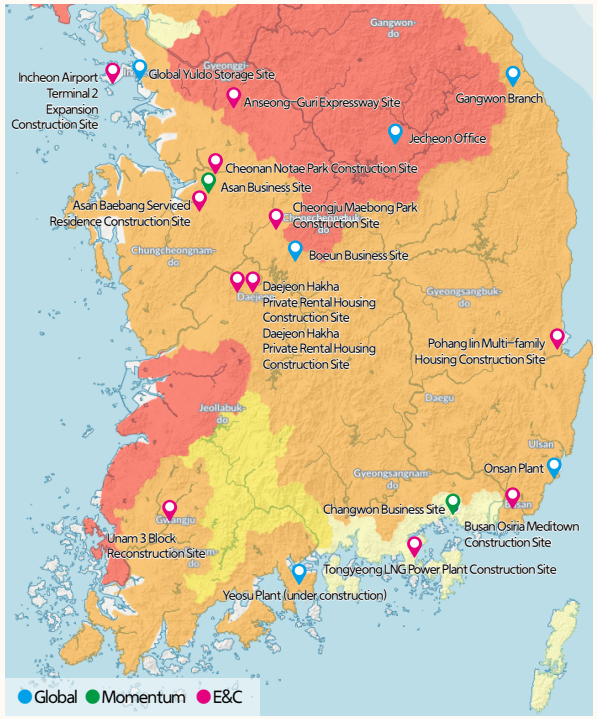
Major water management activities

Key Activities in 2022	Subsequent Effects
• Recycled scrubber water by installing a dust-collecting scrubber centrifuge in the CC manufacturing process	• Reduced wastewater generation • Reduced water fed into the scrubber
• Streamlined cleaning processes for Pentaerythritol Tetranitrate (PETN) synthesis	• Reduced water usage for cleaning • Reduced consigned wastewater generation that occurs after cleaning

Water stress analysis results for 2022

(Unit: No. of locations)

High	Medium-High	Low	No Data
3	13	2	1



Managing hazardous chemicals

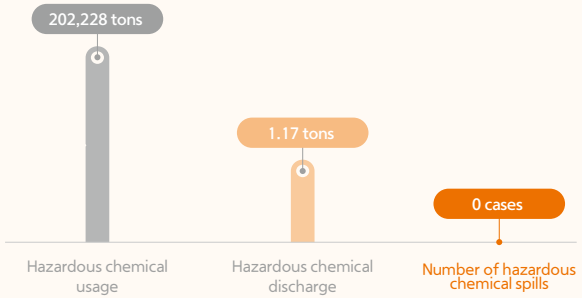
Responding to hazardous chemical regulations

Hanwha Corporation's Global Division has established a chemical pre-review system to review all chemicals for compliance with laws and regulations before purchasing them, and to purchase them only after obtaining final approval. The pre-review system is linked to the purchasing system and is strictly managed so that if the chemical pre-review number is not entered during the purchase request stage, the purchase request cannot proceed. In addition, when relevant laws and regulations are amended, the use of the relevant chemical pre-review number is automatically suspended so that it can undergo another ESH review. In accordance with the Act on Registration and Evaluation of Chemical Substances, we have completed the registration of a total of 11 existing chemicals by 2022 to continuously manage the substances and volumes handled.

Managing and reducing hazardous chemical usage

Hanwha Corporation is striving to reduce the amount of hazardous chemicals used in the manufacturing process to create safer manufacturing sites and provide safe products. In 2022, we replaced pigments containing chromium, a hazardous chemical, from the raw materials used in the manufacturing process in favor of eco-friendly chemicals that do not contain chromium.

Management of hazardous chemical use and discharge in 2022



Reinforcement of Resource Circulation Activities

Hanwha Corporation legally disposes of waste generated during the manufacturing process in accordance with the Wastes Control Act and the Act on the Integrated Control of Pollutant-discharging Facilities. We also strive to reduce the environmental impact of waste by minimizing waste generation and maximizing resource circulation through improved recycling rates.

Green purchasing policy

Hanwha Corporation makes an effort to minimize the negative impacts of its corporate activities by procuring raw materials and purchasing supplies under the principles of prioritizing eco-friendliness, safety and health. The Global Division strives to prevent the waste of resources and environmental pollution by following the guidelines for green purchasing and eco-friendly packaging material management in line with environmental considerations, managing its eco-friendly purchasing performance accordingly. In addition, when purchasing goods and services such as office supplies, office equipment, and construction materials, the E&C Division purchases green products that have less impact on the environment and human health as well as quality. In particular, by expanding the purchase of raw materials such as ready-mixed concrete, insulation materials, and gypsum board that have obtained environmental certifications, we are preventing energy and resource waste, reducing greenhouse gas emissions, and preventing environmental pollution.

Managing and reducing waste

Hanwha Corporation's Global Division has introduced a real-name system for waste discharge to encourage all employees to discharge and separate waste responsibly. In addition, in 2022, the Global Division improved its production process by separating manufacturing lines by product and adding unit facilities to reduce the amount of waste generated by mixing products, and actively reduced environmental impact by recycling angular wires (semi-finished products) classified as nonconforming products through separate operations instead of discarding them. Hanwha Corporation's E&C Division strives to minimize waste generation and increase the recycling rate by analyzing real-time waste emission data collected through the waste management computer system and preparing management and improvement measures.

Enhancing resource usage efficiency

Hanwha Corporation's Momentum Division has developed recycling technology for plastic waste from households and industrial sites based on its low-temperature pyrolysis emulsification technology, and is currently operating a pilot plant for demonstration testing. The Momentum Division is trying to complete the development of a recycled oil production facility by 2023 with additional capital investment. Based on this plastic recycling technology, we will continue to contribute to waste recycling and environmental protection.

Hanwha Corporation's E&C Division has replaced single-use disposable PVC safety nets at construction sites with recyclable PET safety nets. The PET safety net is a substitute that can be recycled as a fiber reinforcement for plain concrete and fire-resistant fiber for high-strength concrete, thereby minimizing resource consumption. In addition, the E&C Division is actively implementing resource recycling activities to increase the recycling rate of construction waste generated on-site, such as insulation, wood, and gypsum board, by consigning them to be recycled for raw material manufacturing, prototype reuse, and additives.

SPECIAL CASE



Hanwha Corporation's E&C Division wins a Ministerial Award for technology to convert plastic waste into hydrogen.

Hanwha Corporation's E&C Division and the Korea Institute of Energy Technology participated in the "Technomics Audition," a public participation science and technology management program organized by the Ministry of Science and ICT and hosted by the National Science and Technology Council (NST), winning first place for their "Plastic Waste Energy Conversion Plant" technology and receiving the Ministerial Award for Science and ICT.
Since 2022, Hanwha Corporation's E&C Division and the Korea Institute of Energy Technology have signed a business agreement to develop eco-friendly technologies to process plastic waste and convert it into hydrogen fuel or chemical fuel. This will not only reduce waste and carbon emissions by shifting from landfilling and incineration toward pyrolysis, but also contribute to the expansion of the high-value recycling market by selling the hydrogen fuel and chemical fuel produced through the process. Hanwha Corporation will continue to lead the transition to a carbon-neutral society by expanding the development of innovative eco-friendly technology.

SPECIAL CASE



Hanwha Corporation's E&C Division introduces workwear made from recycled plastic.

Hanwha Corporation's E&C Division produced "Forena workwear" made from upcycled plastic and distributed them to all construction sites to raise employees' eco-consciousness. The project was initiated by the younger generation of employees in the division and is made of 100% recycled polyester, which not only contributes to the virtuous cycle of resources, but also reduces energy consumption in production by about 60% and cuts down carbon dioxide emissions due to the simplicity of the fiber manufacturing process compared to other materials. Hanwha Corporation will continue to explore various eco-friendly activities that can be practiced at construction sites to ensure a sustainable future.

Dissemination of an Eco-friendly Management Culture

Eco-friendly capacity-building among employees

Hanwha Corporation continuously conducts training to strengthen the ability and expertise of environmental officers to comply with laws and regulations. In 2022, we conducted legally-mandated training on air quality management practices, the carbon emission trading system, and chemical handling, and we continue to participate in CDP Climate Change training to enhance our ability to respond to climate change. In addition, Hanwha Corporation's E&C Division operates an environmental academy for each position to secure employees' environmental management capabilities and build a management foundation to realize eco-friendly construction sites. In particular, in 2022, we conducted environmental work training twice in the first and second half of the year to reinforce the job capabilities of environmental officers, and uploaded the training content to a video platform to be accessible at all times. In addition to the environmental officer job competency curriculum, we provide environmental officers with information on issues such as environmental incidents, accidents, and external inspection trends once a week to improve their understanding of the importance of environmental management and enhance their professionalism.

Global Division

Boeun Plant designates June as "Environment Month" every year and conducts various environmental activities for employees. In 2022, it held an energy-saving discovery contest, an environmental quiz contest, and awards for environmental contributors, as well as a zero-leftover food campaign, a pledge to reduce greenhouse gas emissions by 1 ton per person, and a plant-sharing event for recycling plastic waste, in order to encourage employees to take an interest in the environment and take actions to protect it.

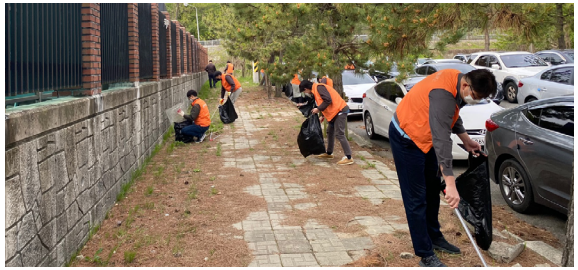




Momentum Division

The Momentum Division conducts environmental cleanup campaigns with the participation of all employees to protect the ecosystems around its business sites. It strives to preserve the environment by forming a consensus on the importance of environmental protection and realize social value through eco-friendly management by fulfilling our corporate responsibilities and roles.





E&C Division

The E&C Division is organizing an "Environment Day" event to clean up the environment around its construction sites. At sites across the country, it is continuing to work closely with local residents to provide assistance where needed, while our employees recognize the importance of environmental protection in their daily lives and actively participate in environmental protection activities.





Environmental capacity-building for suppliers

Hanwha Corporation is seeking ways to support its suppliers in implementing environmental management and environmental impact reduction as well as strengthening their capabilities. In the E&C Division, we distribute the Casebook of Outstanding Cases and Accidents in Environmental Management to our suppliers to help them better understand environmental laws and regulations, enhance their interest in responding to and managing accidents, and conduct training tailored to the characteristics of each site. With regard to any nonconformities that are discovered, we listen to our suppliers' opinions and explore appropriate countermeasures. In addition, we make an effort to minimize environmental damage by regularly conducting in-depth audits of major suppliers to monitor whether waste disposal procedures have been properly implemented, such as periodic on-site reviews of waste disposal companies. Hanwha Corporation will do its best to support continuous exchanges and eco-friendly activities with its suppliers in order to ensure mutual growth together.

Environmental capacity-building for local communities

Hanwha Corporation conducts various shared growth activities to support environmental capacity-building and environmental pollution management enhancement for SMEs in local communities and regions where its business sites are located. As part of its eco-mentoring activities for corporate environmental management, the Global Division's Boeun Plant visited SMEs in Boeun-gun and inspected their facilities for discharging and preventing environmental pollutants, supported education on laws and regulations necessary for operation, and provided a casebook of inspection violations and discharge water analysis results. Hanwha Corporation plans to continue to expand such activities to reduce environmental pollution and strengthen environmental capabilities in local communities.

Protection of Natural Ecosystems

Environmental protection activities in local communities

Hanwha Corporation selects mountains, rivers, and seas near its business sites to protect the ecosystems around them and conducts natural environment cleanup campaigns with all employees, such as "1 Company, 1 River, 1 Forest." The Global Division's Boeun Plant signed an agreement with the Geumgang River Basin Environmental Office in 2021 for the "1 Carbon Neutral Company, 1 Forest" project and planted 50 elm trees in an area of about 1,300m2. In 2022, we conducted maintenance activities such as tree watering, pruning, and mowing on three occasions, and will continue to strive to protect the environment so that young trees can grow into dense forests one day.



Hanwha Corporation's 1 Company, 1 Forest Campaign

Biodiversity conservation activities

Hanwha Corporation strives to preserve the natural environment in the areas where its business sites are located and minimize the impact of business activities on nearby flora and fauna through biodiversity and ecosystem protection activities.

In order to assess the impact of our business activities on biodiversity, the Boeun Plant of Hanwha Corporation's Global Division has started an ecological survey of the area around the Boeun Plant in 2022. Three sites were selected as starting points, including the Heukcheon stream that runs through the site, and changes in flora, land-based fauna, and aquatic fauna will be monitored over four seasons at each site. The Boeun Plant will continue to conduct ecological surveys every year and, based on the results of the ecological surveys, discover and implement additional activities such as removing invasive species to preserve biodiversity.

The E&C Division conducts environmental impact assessments to identify the status of the surrounding flora and fauna at the site opening stage. As part of this effort, it proactively analyzes the impacts on the ecosystem from the time of construction planning, and applies design and construction methods to maintain the terrain environment and biodiversity as close to the original state as possible, conducting ecological conservation activities such as preparing alternative habitats, tree transplantation, ecological migration corridors, and green space development. Furthermore, we plan to minimize negative impacts on the ecosystem through sufficient preliminary research and measures in the future.

SOCIAL

Hanwha Corporation works alongside various stakeholders, including customers, employees, suppliers, and local communities, to create balanced and sustainable value for a shared future together.

Safety and Health Management | Talent Management | Win–Win Cooperation | Innovative Growth | Social Contribution



Social
Safety and Health Management

We prioritize the safety and health of all our stakeholders, including our employees, to create a workplace where everyone is happy.

Hanwha Corporation is building a data–based safety and health management system to create a safe and comfortable workplace. To this end, we aim to minimize safety blind spots by thoroughly monitoring the work environment and health management, and create an environment where all employees at our business sites can work in good health.

Achievements in 2022

Safety and health governance
improved

Occupational illness frequency rate (OIFR) at domestic business sites maintained
at zero for 5 consecutive years
(Global & Momentum Divisions)

"Safety Day"
event conducted each month

Going Forward

Hanwha Corporation reports its safety and health plans to the BOD every year. In 2023, we plan to diagnose the level of fulfillment regarding our legal and institutional obligations related to safety and health at least once every half–year and conduct an evaluation of safety and health compliance. We will also conduct regular evaluations of the safety and health of our suppliers, provide consulting support for strengthening safety and health, and hold safety meetings with supplier representatives. Through such efforts, we will strengthen our sustainable safety and health management system by reducing legal risks and preventing serious accidents through the evaluation of the standard of compliance implementation.

Alignment with UN SDGs

Safety and Health Management Promotion System

Strengthening the safety and health management system

Hanwha Corporation operates a Safety and Health Management Committee for each division to prevent major accidents and oversee occupational safety. The committee holds semi–annual meetings to review the effectiveness of the safety and health management plan and examine the appropriateness of the safety management standard, budget, and personnel composition for each business site. In addition, the safety and health plan and performance based on compliance with laws and regulations such as the Serious Accidents Punishment Act and the Occupational Safety and Health Act are reported to the BOD at the beginning of the year, and the implementation of the safety and health system is continuously inspected and supplemented through a dedicated safety and health organization for each division. Through such efforts, we are identifying and improving compliance with laws and regulations and risk factors at each business site, while further strengthening the safety and health management system by promoting practical activities such as safety and health education. Furthermore, we regularly review external requirements such as laws and regulations, and enact and revise the safety and health management manual, workplace tips and guidelines as needed, not only to strengthen the standardization of our work, but also to create a safe and comfortable workplace culture by inducing the voluntary participation of employees.

Safety and health goals and strategies

Mission	2023 GROUP Safety & Environment Leading Company 2026 GLOBAL Safety & Environment Leading Company
Vision	Safe and Healthy Life to Everyone, Everywhere! Beneficial to our Environment and the Community!
Strategic Direction	Ⓐ Internalization/Consolidation of Safety Culture Ⓑ Advancement of Management Ⓒ Enhancement of Capabilities Ⓓ Stronger ESG Management
Safety and health Goals for 2022	• 10% average reduction in LTIR (compared to 3–year average) • 0% incident rate • 0 serious accidents
Safety and health Performance in 2022	• [Global] 0 serious accidents, 0 occupational diseases [Momentum] 0 serious accidents, 0 occupational diseases [E&C] 1 serious accidents
Safety and health Goals for 2023	• [Global] 0 serious accidents, 0 occupational diseases [Momentum] 0 serious accidents, 0 occupational diseases [E&C] 0 serious accidents

Implementing a data–driven safety and health system

Hanwha Corporation has established a data–driven safety and health system to minimize potential risks and environmental impacts related to safety and health arising from its business operations and product manufacturing processes, and utilizes it to set medium–to–long–term safety management goals. By constantly gathering user feedback, we plan to rectify inadequacies and continuously improve and upgrade the computerized system for customized safety management at each business site.

Hanwha Corporation's Global Division is strengthening its occupational safety and health system by separately developing and sequentially applying an integrated computerized system that encompasses safety, health, and the environment, as an improvement over the existing safety and health system. This has streamlined the existing handwritten document forms and improved work efficiency, with the further aim of advancing the company's medium–to–long–term safety and environment planning through data collection and analysis.

Hanwha Corporation's Momentum Division is improving its working environment by identifying the safety management status of machinery installation sites in real–time through a computerized safety management system. It also conducts on–site inspections and risk assessments to identify and eliminate risk factors in advance, sharing the outcomes and know–how of safety management measures across all business sites and making continuous efforts to achieve zero accidents.

Hanwha Corporation's E&C Division has developed and operates its Hanwha High–risk Integrated Management System (H–HIMS) to efficiently monitor high–risk work at all sites. Based on this, a mobile CCTV monitoring system on site has been established to strengthen the management of high–risk work based on prior risk assessment, and efforts are made to apply the system available to a wide range of sites. In addition, the E&C Division has linked harmful gas measurement results with the monitoring system to prevent suffocation accidents in enclosed spaces. In line with the government's roadmap for reducing serious accidents, it has established an intelligent safety and health platform customized for our company with the aim to implement it in 2024.

Safety Management at Business Sites

Managing safety risks

Hanwha Corporation complies with the Occupational Safety and Health Act and the Serious Accident Punishment Act, and establishes a risk assessment system that considers the characteristics of each business division to manage direct and indirect risk factors that may occur at business sites. Every year, we conduct regular and occasional risk assessments for each division to identify hazardous risk factors that may arise from various processes and tasks at business sites. Through these efforts, we minimize safety risks by inspecting risk factors for each type of accident, such as falls, constrictions, and collisions, and by identifying and improving upon crucial hazardous risk factors.

Periodic risk assessment process



Number of risk assessments conducted in 2022

(Unit: Number of cases)



Safely managing hazardous substances

In order to prevent risks that may arise during the transportation of hazardous substances, Hanwha Corporation's Global Division has introduced the night logistics control system, which restricts the warehousing and shipping of such substances at night. In addition, GPS is installed on vehicles transporting hazardous substances to monitor their location and regulated speed at all times, and periodic drills are conducted to prepare for emergencies such as accidents and terrorism. In addition, a chemicals and hazardous substances evacuation plan is in place for the storage of hazardous substances in case of natural disasters.

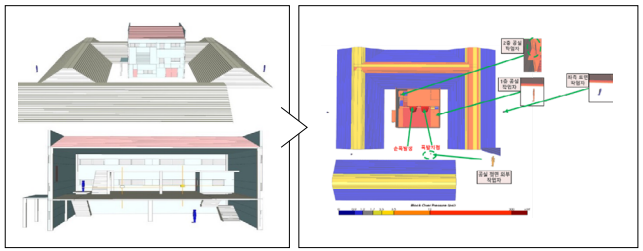
Simulating safety incidents

In order to prevent risks that may arise during the transportation of hazardous substances, Hanwha Corporation's Global Division has introduced the night logistics control system, which restricts the warehousing and shipping of such substances at night. In addition, GPS is installed on vehicles transporting hazardous substances to monitor their location and regulated speed at all times, and periodic drills are conducted to prepare for emergencies such as accidents and terrorism. In addition, a chemicals and hazardous substances evacuation plan is in place for the storage of hazardous substances in case of natural disasters.

Process for conducting safety accident simulation

① 3D modeling of a building's interior and exterior

② Review projected damage by changing damage parameters



Safely managing machinery installation sites

Hanwha Corporation's Momentum Division conducts advance safety kick–off meetings by establishing safety management policies, key contents, and risk management measures for each process when installing machinery at business sites. In addition, it regularly monitors the safety management manual for installation sites in addition to internal and external safety management trends, while thoroughly managing compliance with relevant laws and regulations. Furthermore, the Momentum Division is strengthening the safety and health management system by implementing the safety management system and on–site diagnosis of business sites through external specialist organizations

Weekly risk alert system

In order to prevent the risk of negligent accidents at business sites, Hanwha Corporation's E&C Division shares the status of safety management operations with the entire company by assigning colors to each risk alert grade. To this end, it collects and scores the weekly accident status, risk assessment analysis for high–risk tasks, and on–site safety inspection performance with objective data to diagnose problems and minimizes risks at business sites through advance warnings.

Enhancing incident prevention and emergency response systems

Hanwha Corporation operates an emergency response committee to ensure an immediate company–wide response in the event of natural disasters and emergencies. In addition, we have established emergency action management plans for various situations to minimize human and material damage, and conduct regular emergency response drills for each business division every year to build an emergency response system capable of a swift response. Not only are we strengthening the crisis–handling capabilities of our employees by conducting response drills for each scenario established through prior risk assessment and analysis of similar cases at home and abroad, but we are also identifying possible improvements through evaluation and analysis following the drills and actively reflecting them to create a safer workplace.

Dissemination of Safety and Health Culture

Diagnosing and assessing safety culture

Hanwha Corporation's Global and Momentum Divisions regularly conduct company–wide safety culture diagnostic assessments to promote safety awareness and safety culture among all employees, including executives. In order to quantitatively evaluate the standard of safety culture, They use questionnaire surveys on safety leadership, safety systems, education and training, on–site safety practices, and supplier management to identify weaknesses and inadequacies at business sites and establish strategies to improve the safety culture in a way that is optimized for the organization. In addition, the Global and Momentum Divisions strive to minimize the risk of accidents and disasters at business sites by reinforcing the voluntary safety management system centered on sites relevant to the company–wide safety culture and promoting safety awareness among employees. Furthermore, in 2023, we plan to conduct a safety culture diagnosis with the E&C Division to identify and implement practical safety activities to ensure safety–first management.

Safety culture assessment process



Capacity–building for safety management

Implementing a "Safety Day"

Hanwha Corporation's Global and Momentum Divisions operate "Safety Day" every month at each business site, where all employees participate in safety training and inspection activities, as well as on–site improvement activities, and share results and feedback with each other to raise awareness of safety culture. Through these efforts, they are constantly discovering improvements to create a safe workplace, preventing accidents in the field and strengthening the standard of safety culture within the organization.

Employee safety and health training

Hanwha Corporation operates a variety of specialized safety capacity–building programs to help employees accurately identify risk factors in the workplace and related tasks in advance and respond to such situations promptly.

Key safety and health capacity–building programs

	Program	Target	Content	Performance in 2022
Global Division	Professional workforce training	Safety and health practitioners	• Subsidizing exam and tuition fees for safety and environmental certifications • Rewarding high–performing employees	15 people certified, rewards given
Momentum Division	Supervisor safety environment capacity–building	Safety and health supervisors	• Conducting on–site inspections and identifying improvements with supervisors from each department for each business site • Providing specialized classes for safety and health leadership and pioneering safety culture • Conducting open meetings, including sharing of safety leadership across business sites	278 participants in total
E&C Division	Safety and health academy	Safety and health practitioners	• Establishing a self–regulated prevention system and providing training for employees and suppliers to improve their safety and health capabilities through external educational institutions	1,664 trainees Completed 6,656 times

Reinforcement of Safety Management for Suppliers

Improving safety and health for suppliers

Hanwha Corporation has established regulations on safety management standards for suppliers to secure a safe working environment and improve their safety and health management capabilities, and provides suppliers with a customized safety management support and evaluation system optimized for each process. In the Global Division, we provide accident prevention awareness training to various supplier representatives and employees. In the Momentum Division, 173 suppliers in the first half of 2022 and 99 suppliers in the second half of 2022 were invited to share and discuss major trends in safety and the environment, the status of safety accidents, preventive measures, results of supplier evaluations, and future plans. In addition, 65 suppliers who received low grades in the supplier evaluation participated in the activities to discuss safety development plans and provide feedback on deficiencies to help them reinforce their safety and health capabilities. In the E&C Division, we provided specialized consulting on disaster prevention to high–risk suppliers and those with low safety and health capabilities to improve their safety and health standards and reduce the incidence of occupational accidents.

Supplier safety management and evaluations

When selecting new suppliers, Hanwha Corporation evaluates safety and environmental qualifications across seven criteria, including the CEO's safety and health policies and goals, the current status of industrial accident rates, the organization in charge of conducting safety and health tasks, and the performance of risk assessments, thereby reflecting the results in its selection and bidding process for suppliers. We also conduct safety kick–off meetings with suppliers at the start of projects to review safety management plans and budget status for each key process. Throughout each project, we perform risk assessments and safety inspections on an ad hoc basis to verify compliance with safety rules and regulations, while providing safety and health training to suppliers to support a safer working environment. After the project is completed, we evaluate the number of safety violations and the standard of voluntary safety management to help suppliers Improve their voluntary safety management system.

Safety and Health Communication

Strengthening the employee feedback system

In accordance with the Occupational Safety and Health Act, Hanwha Corporation operates a Safety and Health Council comprised of representatives and practitioners from suppliers, such as the occupational safety and health committee in each business division or labor–management councils, which are composed of labor and management representatives for each business site. The Safety and Health Council discusses major issues related to safety and health and communicates on a continuous basis to create a safe industrial environment by preparing policies and measures to improve the safety and health environment at each business site. In addition, we have institutionalized the right of workers to suspend work in accordance with Article 52 of the Occupational Safety and Health Act, and we conduct bottom–up safety management by immediately requesting the suspension of work if there is an imminent risk of an industrial accident. As such, Hanwha Corporation supports employees to ensure their right to safety and strengthens its feedback system through voluntary participation by employees in safety management.

Key safety and health communication activities

Programs	Target	Description
Occupational safety and health committees and labor–management councils	Labor–management representatives at each site	• Gathering safety and health practitioners to highlight and discuss safety and health issues • Reviewing safety and health–related policy regulations and implementation for each business site, etc.
Safety and health site management by the CEO	Executive team (including CEO)	• Identifying safety and health issues related to all production activities of Hanwha Corporation and discussing countermeasures • Ensuring employer–led safety and health inspections and improvements • Facilitating safety and health communication between practitioners to gather suggestions and make improvements
CSO–led safety meetings	Safety and health leaders and employees	• Conducting on–site inspections and identifying improvements with safety and environmental departments and supervisors at each site • Providing specialized classes for safety and health leadership and pioneering safety culture • Conducting open meetings to discuss safety leadership, best practices, etc. among business sites
Safety and Health Council	Suppliers (representatives and staff)	• Conducting regular joint safety inspections and CEO meetings • Sharing safety and health policies and soliciting suggestions
Sharing safety and health information	Employees and suppliers	• Regularly sharing safety and health–related information such as internal and external trends and cases of accidents in each business division

Occupational Health Management

Employee wellness activities

Hanwha Corporation supports various programs for physical and mental health management to allow all employees to enjoy their workplace life in a pleasant working environment.

Employee wellness programs

Health management programs

- Operating healthcare centers at each workplace and strengthening follow–up management those with medical conditions (health counseling from primary care physicians, referrals to medical examination centers, etc.)
- Assessing, analyzing, and rectifying job stressors (e.g., counseling office)
- Assessing and following up on the risk of developing brain and cardiovascular diseases
- Conducting CPR training
- Providing comprehensive health screenings for all employees and spouses in consideration of individual needs
- Operating rest facility guidelines to protect workers' right to health and proactively preventing serious accidents by mandating the installation of rest facilities at all business sites

Health Screenings in 2022

Employee	Spouse	Total
3,165	1,578	4,743

Health promotion programs

- Implementing exercise programs and rewards for employees with high blood pressure, diabetes, dyslipidemia, and obesity.
- Providing anti–smoking, obesity clinic, anti–drinking, and sobriety programs: Rewards provided to successful participants
- Launching a mental health promotion campaign for employees
  - Hosting a mental health awareness booth and providing succulents (plants) to foster emotional safety
  - Supporting individual counseling and group psychology classes with external professional counselors for at–risk groups after identifying stress, depression, and alcohol dependence through surveys

Managing working environments

Hanwha Corporation secures material safety data sheets (MSDS) for all hazard factors at all business sites and shares the information with employees to ensure their right to know about their working environment. In addition, we measure and manage the degree of exposure to hazard factors by setting internal standards that exceed the legal requirements, and periodically assess the working environment through external organizations such as the Korea Industrial Hygiene Association to implement improvement measures in response to recommendations. We also conduct special medical examinations for workers exposed to certain hazard factors to closely monitor employees' health and create a healthier and safer working environment. Through these efforts, the Global and Momentum Divisions have achieved an occupational illness frequency rate (OIFR) of zero for five consecutive years.

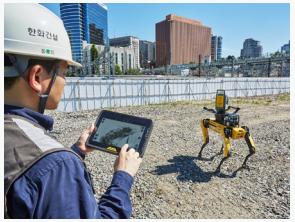
Hanwha Corporation's E&C Division recognizes the presence of numerous high–risk tasks at construction sites. To create a safe working environment, it actively introduces various innovative new technologies such as robot dogs equipped with 3D scanners and the mobile safety management system Hanwha Safety Eagle Eye (HS2E). In 2023, the E&C Division plans to establish its own system, the Hanwha High–risk Integrated Management System (H–HIMS), to prevent accidents and improve safety at construction sites.

Innovative construction technology in the E&C Division



▶ Mobile Safety Management System, Hanwha Safety Eagle Eye (HS2E)

- Photo sharing feature: Anyone who spots a hazard or safety improvement on a construction site can instantly snap a photo with their phone and share it with workers and stakeholders.
- Real–time alerts: Designed to alert all field staff in real–time to allow immediate action, thereby creating a safe environment.



▶ Robot dogs directly collecting data with 3D scanners

- Mount a 3D laser scanner on a robotic dog to measure site conditions, which can be used to measure elevations and calculate earthwork volumes.
- Useful in areas where security facilities are adjacent or where personnel access is restricted for safety reasons.

SPECIAL CASE

High–risk Integrated Management System (H–HIMS)



Hanwha Corporation established and introduced the High–risk Integrated Management System in 2023 to provide workers with a safe and comfortable working environment and reinforce its safety and environmental management system. Through this intelligent safety system, CCTVs installed at construction sites across the country are linked to monitoring systems at the company HQ to ensure redundancy–based safety management. The integrated management team at HQ assesses risk factors when performing high–risk work, analyzes the collected data to establish safety measures, and compiles them in manuals to provide safety recommendations to each site. In addition, risk factors at each site are categorized by frequency ratings based on the frequency of such accidents in each type of task and intensity ratings based on the severity of accidents. Furthermore, risk assessments are conducted at construction sites nationwide, and high–risk work must undergo the H–HIMS to maximize the prevention effect. Hanwha Corporation will continue to utilize new technologies to introduce and strengthen the safety and environmental management system and strive to achieve the goal of zero serious accidents.

Social
Talent Management

We respect each individual's diverse experiences and backgrounds and strive to create a company culture where employees can fully realize their capabilities and potential.

Hanwha Corporation recruits talent based on ability and required capabilities to strengthen business competitiveness, and is building a strategy to foster talent to grow into creative and innovative professionals in the global market. In addition, we are taking the lead in creating a happy workplace by establishing a horizontal organizational culture that embraces differences among employees and respects the value of diversity.

Achievements in 2022

Declaration of Human Rights Management Charter
in 2023

Certified as a family–friendly company
for 11 consecutive years

Total expenditure on benefits:
KRW 63.508 billion

Going Forward

Hanwha Corporation will take a step forward in its culture of respecting human rights and establish a human rights management declaration and a company–wide human rights management system that reflects global standards such as the UN Global Compact. We aim to establish ourselves as a leading company in human rights–based management by ensuring that stakeholders throughout the value chain, including employees, understand the impact of human rights and establish a series of systems to prevent, resolve, and correct human rights violations.

Alignment with UN SDGs

Talent Recruitment Activities

Competency–based recruiting

Hanwha Corporation conducts recruitment based on its core values of challenge, dedication, and integrity, and operates a fair and reasonable recruitment system by stipulating in its employment rules that "no discrimination is made in recruitment based on gender, age, region and school of origin, marriage, pregnancy, childbirth, etc. without valid grounds." In addition, the company operates its own recruitment website, "Hanwhain," to ensure access for all potential applicants, and conducts recruitment campaigns at various points throughout the year. The recruitment process is organized around job competencies, and in particular, when recruiting new employees, all information unrelated to job competencies is redacted in the document review process to establish a fair talent recruitment system. In addition, through various communication channels such as the official website, blogs, and social media, we deliver news about Hanwha Corporation's businesses and corporate culture to applicants in order to enhance their suitability for the job. In particular, the E&C Division uploads videos of role introductions by practitioners and a day in the life of new employees to its YouTube channel to allow applicants to garner realistic insights about the workplace.

Hanwha in Shortcut

Attracting outstanding talent

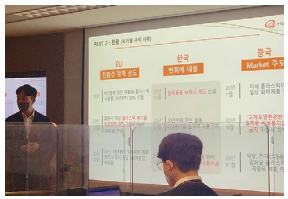
Hanwha Corporation strives to attract outstanding talent with skills and capabilities specialized for each of its businesses and to foster its employees into future leaders. To this end, we conduct industry–academia collaboration programs and technology exchanges to secure outstanding talents at an early stage, and select and manage overseas and external experts through various channels such as headhunting and employee recommendation systems.

Talent acquisition strategy

	Goals	Talent acquisition activities in 2022
Global Division	Become a technology–intensive specialty chemical and silicon gas–focused IT materials company	• Secured external expertise in R&D and business development • Built positive relationships with university researchers to gain early access to talent with essential skills and capabilities – Conducting industry–academia commissioned research projects and technology exchanges in collaboration with university research labs • Recruited local talent by conducting campus recruitment at Chungnam National University and Chungbuk National University
Momentum Division	Secure outstanding future talents/future core resources? in advance and maintain growth drivers	• Operated summer and fall internship programs and industry–academia programs to attract top R&D talent • Secured a pool of talented engineers through various channels such as on–call recruitment and headhunting systems • Recruited talented engineers from overseas to enhance global business capabilities
E&C Division	Become a leader in mixed–use development and green energy industries	• Secured external expertise to drive future strategic businesses, such as wind power and ammonia and hydrogen production • Acquired talent through multiple channels, including employee referral programs and direct recruitment

SPECIAL CASE

Hanwha Corporation Internship Program for prospective employees





Hanwha Corporation's internship program is designed to secure outstanding talents in advance and to observe and verify their practical skills and compatibility with Hanwha's organizational culture. Selected interns are provided with introductory training, a mentor–buddy program, and practical on–the–job training to cultivate their professional capabilities to become future members of Hanwha Corporation. Hanwha Corporation supports its prospective employees to smoothly settle into the organization through its systematic talent attraction and management programs.

Selection/ Training	Commence program planning from mentor selection to program introduction
Introductory training (3 days)	Conduct business training from company introduction and introduction to life at Hanwha
On–site practical training (8 weeks)	Establish a training plan, observe work progress, and determine hiring suitability
Evaluation	Hold completion ceremony with personal presentation, interview, and comprehensive evaluation

Employee Capacity–building and Management

Talent development strategy

Hanwha Corporation is establishing a future talent development training plan linked to the future strategy and business portfolio of each business division, and is planning and operating a wide range of programs to help individual employees grow into next–generation leaders by maximizing their potential. In particular, the E&C Division has outlined three main development stages for each position, providing common competencies and directions for the advancement of job competencies within the organization at each stage. In addition, by defining the relevant key job competencies and qualifications required for each position and managing them in connection with core KPIs, we are not only strengthening the competencies of employees but also improving the competitiveness of the organization.

Talent development strategies by business division

Global Division	
Vision	**A chemical technology–based solutions company that links energy to the environment**
Talent development direction	Expanding the talent base in chemical technologies as a way to link energy to the environment
Talent development programs	• Designing a personalized career path • Conducting various courses in chemistry, trade, inorganic chemistry, etc.
Momentum Division	
Vision	**A global leader in engineering solutions and processing equipment**
Talent development direction	Securing dynamic, innovative talent to lead the global machinery industry
Talent development programs	• Creating a personalized talent development roadmap by skill and role • Operating intensive engineer training programs and curriculums
E&C Division	
Vision	**A leader in mixed–use development and green energy industries**
Talent development direction	Attracting talent to lead mixed–use development and green construction projects
Talent development programs	• Establishing a self–directed nurturing system (CRM) • Managing and nurturing a talent pool for strategic businesses

Employee capacity–building programs

Hanwha Corporation operates systematic and diverse training programs to improve the job, leadership, and global competencies of all employees, from new recruits to executives. Furthermore, we strive to enhance our organizational capabilities by ensuring each employee's right to learn and creating an atmosphere of self–directed learning, while also providing access to external training.

Supporting individual employees to improve their capabilities

Hanwha Corporation's Global Division implements various programs to help employees enhance their capabilities while learning in a flexible, autonomous way. To enhance job competencies, it has improved the certification system and run training courses to obtain certifications. To foster global talent, the Global Division has reinforced the in–house language support system to expand the scope of support and allow employees to select their desired courses autonomously. In addition, insight courses for each business division to enhance understanding of different business divisions are in operation to create a collaborative organizational culture.

Since introducing the job competency certification system in 2021, Hanwha Corporation's Momentum Division has been continuously fostering talent with core job competencies. In particular, quarterly internal and external training programs for engineers for various competency levels have been conducted to systematically strengthen their capabilities. In addition, it operates in–house instructor training and education programs to spread expertise and know–how specialized in its core business items and strives to build an organizational culture of shared growth through exchanges among employees.

In order to provide opportunities for employees to grow by encouraging continuous education and self–development, Hanwha Corporation's E&C Division operates under a structure that allows employees to create a career roadmap each year, which is approved by the team leader and submitted to the Human Resources team for support in improving their capabilities. It also provides the Job Market, an internal free agent system that allows employees to proactively design their career paths and develop their capabilities so that it can recruit the right talent at the right time while respecting the wide range of possibilities and potential within employees. Furthermore, we share business–related expertise and know–how through on–the–job training in each business division to enhance individual job skills and the company's technological assets.

Cultivating global talent

Hanwha Corporation supports job–specific language qualification systems and online and offline training in foreign languages to help employees cultivate global competitiveness, and operates global talent development programs for each business division that take into account the characteristics of each business. In addition, through the Global Talent Program (GTP), Hanwha Corporation provides employees with the opportunity to work at its overseas subsidiaries for a period of two years to broaden their horizons, while also supporting programs such as global leadership courses and business communication skills.

Global talent development programs by business division

Global Division	Operates the Mining Engineer Training Program (METP) to train overseas technicians and dispatches technicians to Indonesia, Australia, etc
Momentum Division	Operates tier–based intensive language courses for prospective overseas–based employees and employees performing international duties
E&C Division	Conducts training for M&A professionals, overseas MBA programs, etc., to cultivate key global construction talent

Leadership Development Workshop

Hanwha Corporation conducts regular capacity–building training programs and workshops for executives to foster their professional competence and horizontal leadership to address important issues within the organization. To cultivate leadership among our executives, we have organized and operated in–house programs such as vision–setting, awareness–raising, and special lectures on leadership. Through these courses, we have strengthened their ability to communicate smoothly with team members and exercise outstanding leadership in the event of issues.
In particular, the Momentum Division provides special lectures on organizational and performance management and trends in innovative technology, including innovations in leadership skills, in order to help the executives proactively improve their organizational management capabilities amid the rapidly–changing business environment and to instill the culture of innovation. By doing so, it aims to enhance its own organizational performance and competitiveness, while fostering leaders for future growth.

Culture of Respect for Human Rights

Human rights policy

Hanwha Corporation protects and respects the human rights of all stakeholders who are affected by the company's business activities, including its employees, partners, and customers. In order to systematically manage our human rights policy, we have established a human rights management charter and guidelines, complying with and supporting international standards on human rights such as the Universal Declaration of Human Rights, the UN Guiding Principles on Business and Human Rights, the UN Global Compact, and the International Labor Organization (ILO). In addition, by Article 13 of the ESG Committee Regulations, the committee reviews the company's activities to improve the working environment, such as workplace safety management and gender equality, while deliberating and resolving internal human rights safeguarding measures to prevent and mitigate negative impacts on human rights. In 2023, we established a medium–to–long–term human rights management roadmap to enhance our executive capacity to this end, and we will continue to dedicate our utmost efforts to faithfully implementing the roadmap as a way to establish a corporate culture of respect for human rights.

Hanwha Corporation's Human Rights Management Charter Shortcut

Guiding Principles for Human Rights Management

- Respect for Human Rights
- Prohibiting Discrimination in Working Conditions and Ensuring Favorable Working Conditions
- Ensuring freedom of association and collective bargaining
- No Child Labor
- No Forced Labor
- Ensuring Industrial Safety
- Preventing Sexual Harassment and Workplace Bullying
- Responsible Supply Chain Management
- Ensuring the Human Rights and Environmental Rights of Citizens
- Protecting Consumers' Human Rights

Managing risks to human rights

Hanwha Corporation has established a system to review risks related to human rights management through the ESG Committee and BOD, while stipulating its Risk Management Regulations in 2023. In addition, through the Human Rights Management Policy and Code of Ethics, we support all employees to practice a high standard of respect for human rights and recognize the importance of ethical behavior and responsibilities. Accordingly, we prohibit the unfair discriminatory treatment of employees and provide fair evaluation and opportunities based on their abilities and qualities to ensure equal treatment for all members. Furthermore, in accordance with the Supplier Code of Conduct, we strive to spread a culture of respect for human rights by sharing the code of conduct with our suppliers and encouraging them to comply with Hanwha Corporation's human rights and labor–related guidelines. In the future, we will continue to advance the standard of human rights management by conducting human rights impact assessments, and establish a trustworthy corporate culture based on respect and responsibility for all stakeholders.

Hanwha Corporation's Code of Ethics Shortcut

Human rights management roadmap

Develop Human Rights Management System (2023–2024)	• Develop human rights policies and activities for human rights–related departments • Establish and implement a human rights impact assessment
Establish Human Rights Management System (2024–2025)	• Implement a human rights impact assessment • Monitor and manage human rights risks
Strengthen Human Rights Management System (2026–)	• Expand the scope of human rights risk management • Strengthen preemptive risk management

Human rights training for employees

Hanwha Corporation operates various training programs related to human rights every year to protect human rights and promote ethical awareness among employees. We conduct online and offline training programs to expand employee participation, addressing topics such as the prevention of workplace bullying and sexual harassment and enhancing disability awareness. By emphasizing and practicing human rights and ethics, Hanwha Corporation aims to create a sustainable corporate culture based on mutual respect among employees.

Processing human rights grievances

Hanwha Corporation operates various internal reporting channels, including a cyber whistleblower and sexual harassment counselors for each business site, as outlets to report illegal and unfair acts and grievances that may occur during work–related tasks. Information on the informant's identity, counseling, and reports are kept strictly confidential, and any human rights reports received are followed up within 48 hours. In particular, reports related to sexual offenses and human rights violations are reported to the CEO within 24 hours and are promptly investigated and resolved. Hanwha Corporation will continue to make an effort to protect the human rights of its employees and create an equal working environment, strengthening its human rights management,

Main channels for human rights grievances

Online

Cyber Ethics Hotline
A 24–hour reporting channel for unethical and discriminatory behavior, including workplace bullying, sexual harassment, lack of respect for diversity, and human rights violations.

Hanwha Corporation's Global • Momentum Division Shortcut

Hanwha Corporation's E&C Division Shortcut

Offline

Workplace sexual harassment counselor
One man and one woman per business site to provide free counseling on human rights grievances

Respect for Diversity and Inclusion

Creating a culture of non–discrimination and respect for diversity

Hanwha Corporation pursues innovative business interests with diverse talents, and to this end, we operate a fair and equal personnel system and prohibit discrimination as our fundamental values. We strictly prohibit discrimination based on race, age, religion, disability, social status, etc. in recruitment, dismissal, promotion, wage, and training opportunities to ensure that all employees are happy in the workplace and exercise their full capabilities. In addition, we provide special opportunities and additional points for people with disabilities and national meritorious persons in the recruitment process, while also offering a special recruitment track for the families of the victims of the ROKS Cheonan incident. Hanwha Corporation will continue striving to create an organizational culture that respects diversity and coexistence beyond discrimination and prejudice.

Enhancing intergenerational communication

Hanwha Corporation is striving to narrow the distance between employees and build a flexible and horizontal organizational culture with Generation MZ, who will become the leaders of future growth, as a way to effectively enhance organizational synergy. To this end, we are introducing various programs such as an autonomous seating system, coffee lounge, and training for each business division, while also creating and disseminating content on various social channels to communicate with employees and build consensus on the purpose and direction of these changes.

Hanwha Corporation's Social Media Channel : Gen MZ at the Hanwha Office Shortcut

Operation of communication–enhancing programs for each business division

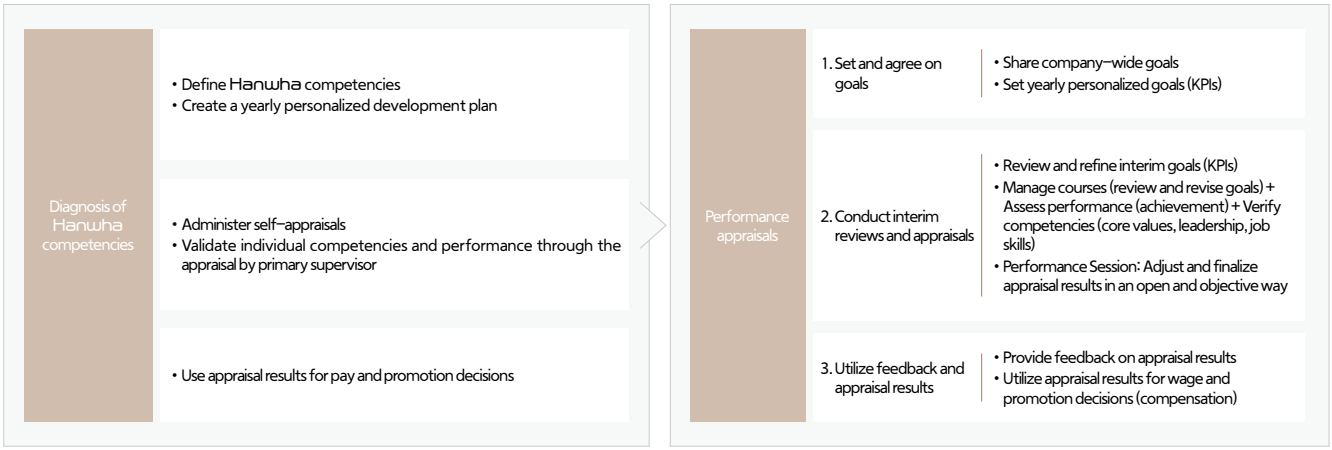
Division	Program	Content	Expected Result
Global Division	Introduction of an autonomous seating system	• Eliminating the practice of sitting at desks in order of seniority and creating a work environment that allows for free–flowing, creative work.	• Enhance creativity • Enable collaboration and engagement among employees • 90% employee satisfaction rating
Momentum Division	Operation of Next Level training courses	• Providing soft–landing training for new Gen MZ employees within the first year of employment to allow smooth communication and collaboration with older generation	• Respect differences, communicate harmoniously, and increase teamwork
E&C Division	Operation of the Coffee lounge	• Providing on–demand tea breaks by providing vouchers for cafes near the office	• Encourage free–flowing communication between members

Performance Appraisals and Rewards

Fair performance appraisals

Hanwha Corporation defines "Hanwha competencies" based on core values and leadership, and establishes a development plan for each individual employee. We also appraise performance against goals by linking the development plan to the annual performance evaluation system. The company conducts objective appraisals through a systematic three–step performance appraisal system, which enables it to provide reasonable compensation based on work performance and improve employee competencies. We also conduct fairer performance appraisals by assigning different weights to various achievements and competencies for each position, and by clearly defining the division of key roles for senior and junior positions.
In particular, we operate company–wide "Performance Sessions" facilitated by the Human Resources team to continuously verify and monitor compliance with evaluation procedures, substantiveness of evaluation contents, reasonableness of goals and appraisal criteria, and validity of appraisals to ensure compliance and improvement of the overall appropriateness of the performance appraisals. Hanwha Corporation is creating a performance–oriented organizational culture that fairly and objectively appraises and reasonably rewards work performance to motivate employees and improve work efficiency.

Competency diagnosis and performance appraisal process



Fair compensation

Hanwha Corporation operates a performance management and compensation system in conjunction with the HR compensation principle of "High Performance, High Reward." In line with this principle, we operate an individualized annual salary system that reflects comprehensive employee evaluations in rewards according to individual performance and capabilities, in addition to various monetary and non–monetary compensation systems to motivate employees.

Reward system for each business division

Global Division

- Additional pay for work–relevant certifications to enhance employee expertise
- Separate rewards for individuals or teams responsible for company–wide achievements

Momentum Division

- Incentive system for outstanding projects in R&D, sales, innovation, etc.
- In–house "Hall of Fame" established to recognize and showcase outstanding R&D achievements.

E&C Division

- Rewards expanded to attract top talent for strategic businesses
- Separate performance–related pay system operated to improve employee capabilities and motivate outstanding workers

Better Corporate Culture

Improving the organizational culture

Hanwha Corporation strives to build an organizational culture that creates a positive working environment and a driving force for business performance. To this end, we conduct a survey for organizational culture diagnosis with 52 questions for all employees every year. Based on the survey results, we derive points for improvement and reflect them in our systems and policies to promote changes and improvements in organizational culture and substantially improve the working environment for our employees. Hanwha Corporation has also established a global work environment improvement strategy to accelerate the transformation of employees to become drivers of business innovation and the advancement of new businesses. Through these efforts, we are simultaneously promoting changes in both the work environment and work–related policies. In addition, the collection of employee feedback on improvements to the global working environment revealed a high employee satisfaction rate of 90%, which we further raised by building upon additional improvement needs. Hanwha Corporation will continue to improve the environment surrounding our employees, including policies, systems, and workspaces, in order to enhance work immersion, and gather candid opinions from employees through surveys and Focus Group Interviews (FGIs) to continuously improve the organizational culture as a way to innovate our organizational mindset.

Strategic framework for improving the global working environment

Strategic Direction: Innovation of existing businesses, early success in new businesses

Impactful Improvement Direction: Improvement of work environment, policies, awareness, and behaviors to support the business pursuit

Strengthen connections, create synergy	Create a company everyone wants to work for	Spread an extroverted mindset	Improve productivity and immersion
• Break down departmental silos • Encourage inter–department interaction and collaboration • Ensure collaboration and synergy	• Enhance competitiveness for hiring top talent • Present compelling reasons for existing employees to stay	• Enhance sensitivity to markets and customers • Beat the competition and strengthen capacity to dominate the market • Build relationships with stakeholders	• Work efficiently and productively anytime, anywhere • Work smarter, and achieve more results

Sub–tasks

Change in workspaces	Changes in policies and systems	Changes in awareness and behavior
• Renovate aging facilities, expand amenities • Create workspaces that accommodate diverse tastes • Become more space efficient	• Vitalize remote work (work from home) • Improve information security policy: Over–come limitations of workspace • Strengthen flexible work arrangements: Allow efficient use of time • Improve performance management and appraisal systems	• Free seating: Flexible adaptation to changes • Activities to foster interactions between various departments and teams • Use of collaboration tools: Strengthen sharing and linkage • Manage goals and tasks: Evolution of working process

Major workplace improvements

- Remodeled offices and established 11 different meeting rooms to provide a comfortable workspace
- Increased work immersion and maximized spatial utilization by instituting autonomous seating and work–from–home arrangements
- Installed five different types of desks to allow employees to work in a new space and sit at a different type of seat every day
- Improved work efficiency with quality office equipment, personal lockers, phone booths, etc.
- Established common areas and amenities such as refreshment rooms, lounges, snack bars, and stationery stations to help employees recharge and socialize
- Introduced a voluntary clock–in/out system to account for peak work hours based on job function Momentum Division
- Operated a psychological counseling room (Rapporena) and individual and group psychological training through resident professional counselors to help employees recover emotionally and improve work immersion E&C Division
- Implemented food truck events at more than 50 sites nationwide to boost the morale of employees at project sites E&C Division

Work–life balance

Hanwha Corporation provides various welfare programs to improve its employees' quality of life and work satisfaction. In particular, we actively implement support policies to reduce the burden of childbirth and childcare as a way to create a positive working environment for women. In recognition of these efforts, we have been awarded the Family Friendly Certification by the Ministry of Gender Equality and Family Affairs for 11 consecutive years since 2013.

Major benefit programs

Support for childbirth and childcare	• Support for pregnancy and childbirth by employees through fertility treatments and subsidized medical procedures • Support for employees to balance work and childcare through reduced work hours during pregnancy and flexible work hours during childcare periods • Support for "Hanwha Moms Package," a package of pregnancy and childcare products • Support for new and expectant moms with on–site childcare • Support for healthy lifestyles for employees and their families with mandatory paternity leave and childcare leave programs • Reduced burden of childcare on employees through schooling subsidies for their children
Establishment of a family–friendly workplace culture	• Support for "Refreshment Leave" of up to 10 days off • Provision of Hanwha People benefits for employee families to use services and leisure facilities within the group, including Hanwha Resorts • Operation of the PC–Off system to automatically switch off computers after the end of business hours
Flexible organizational culture	• Provision of a flexible working environment by offering remote work, flexitime, and autonomous seating • Operation of a "sabbatical" program that allows employees to take a month off to celebrate a promotion or long–term employment
Support for employee wellness	• Provision of psychological counseling to employees • Support for health screenings for employees and spouses • Protection of employees from various accidents with collective accident insurance
Support for personal development and hobbies	• Support for personal development, such as obtaining a degree or work–related qualifications, learning a language, etc., for a minimum of six months and a maximum of two years through a "productive leave" system

Ensuring employee job security

Hanwha Corporation has been providing reemployment support services to voluntary and age–based retired employees since 2021. This is a career planning process for a second life after retirement, which provides various career exploration opportunities along with job recommendations and life planning consulting services that reflect the needs of those planning to retire. Furthermore, we introduced a new individual pension product to support employees' retirement planning and hold retirement pension briefings at the end of each year.

Enhancing employee communication

Hanwha Corporation holds an annual management briefing session to transparently share all aspects of its business management and major industry issues with employees. Since the COVID–19 pandemic, we have been utilizing non–face–to–face video conferencing to facilitate communication regardless of location and scale to improve employee participation. In addition, through various communication channels such as surveys, interviews, and meetings, we are actively collecting employee feedback and reflecting them in our organizational decision–making to build a mature labor–management relationship.

Employee engagement activities by business division

Division	Activities	Effects
Global Division	• Conducts annual town hall meeting for all employees (expanding to twice a year starting in 2023) – Shares key management issues, including the company's vision, business goals, performance, etc. • Conducts regular surveys on systems and policies • Plans activities such as departmental workshops amid the transition to the "Living with COVID–19" era	• Provides a venue for communication and creates empathy between executives and employees • Gathers and actively reflects employee feedback to improve systems • Increases efficiency by encouraging communication and interaction among employees
Momentum Division	• Conducts a regular review of employee satisfaction for each department – Surveys employee satisfaction through interviews with HR officers	• Improves organizational culture in a healthy and sustainable direction by collecting employees' opinions on the overall organizational system including HR policies
E&C Division	• Collects worker feedback through construction site visits by the CEO – CEO listens directly to workers in the field under the management principle of "field–based management" • Conducts regular job training programs and job–specific meetings for each department	• Gathers and communicates worker feedback to management and rectifies grievances • Shares workplace grievances at various generations and levels to foster understanding among employees

Win–win labor relations

Hanwha Corporation guarantees employees' freedom of association in accordance with the Constitution and related laws and regulations, and observes fundamental rights that must be respected, such as the right to organize, the right to collective bargaining, and the right to collective action. In particular, Hanwha Corporation's Global and Momentum Divisions have formed labor unions to build a mutually beneficial labor–management culture based on labor–management harmony and mutual trust. In this regard, we hold quarterly labor–management councils and regular meetings to gather on–site feedback from workers and discuss various issues related to employee rights and human rights, such as employee welfare, working environment, and workplace safety. Through these meetings, the company discusses issues that require joint labor–management efforts and makes mutually constructive improvements. In 2022, in order to overcome internal and external management crises, union members unified and delegated the right to negotiate wages to the company, and we will continue our path of cooperation and consultation based on mutual benefit to both labor and management.



2022 Wage Bargaining Right Delegation Ceremony

Social
Win–Win Cooperation

We are leading the way in creating a fair and reasonable collaborative ecosystem.

Hanwha Corporation aims to build a sustainable industrial ecosystem of mutual growth with suppliers based on the corporate philosophy of trust and loyalty. To this end, we conduct regular assessments to enhance the ESG capabilities and market competitiveness of our suppliers as a way to achieve greater synergy.

Achievements in 2022

Established a Supplier Code of Conduct
(2023)

Size of Win–Win Fund
KRW 58 billion

Win–Win Growth Index
Rated outstanding for four consecutive years
(6th consecutive year for the E&C Division)

Going Forward

Hanwha Corporation identifies outstanding suppliers through regular supplier registration and evaluation in the second half of each year. Furthermore, we plan to expand various supplier support activities, such as the management clinic program and job training, to establish an integrated management system for responsible supply chain management beyond win–win activities with suppliers.

Alignment with UN SDGs

Win–Win Cooperation System

Strategy and direction of win–win cooperation

Hanwha Corporation recognizes that the growth and competitiveness of its suppliers are directly linked to the growth of the company, and pursues mutual and sustainable growth based on the shared growth spirit of “going far together.” Under the principle of Article 7 of the Hanwha Code of Ethics, titled "Fair Trade with Suppliers," we take the lead in building an equal and fair cooperation ecosystem. To this end, we have established the "Four Practical Guidelines for Shared Growth" that can be practically applied to all businesses. Based on the guidelines, we have set financial support, management and technical support, education and manpower support, and open communication as the four action strategies to practice win–win cooperation with suppliers actively. In 2023, we established a new code of conduct for suppliers and shared it with them. We will actively guide our suppliers to comply with the code of conduct under a unified standard system and conduct regular performance monitoring to develop into a global company that grows together.

Hanwha Corporation's Win–Win Cooperation Promotion Strategy Shortcut
Hanwha Corporation's Four Practical Guidelines for Shared Growth Shortcut

Scope of ESG management in the Code of Conduct for Suppliers

Supplier Code of Conduct

Human Rights and Labor
- Voluntary labor and prohibition of forced labor
- Nondiscrimination
- Prohibition of child labor
- Wages and benefits
- Humane treatment
- Freedom of association
- Compliance with working hours

Safety and Health
- Compliance with safety and health laws and regulations
- Establishment of a safety and health management system
- Risk assessment
- Management of vulnerable workers
- Emergency response
- Occupational accident and disease prevention
- Management of hazard factors
- Machine, appliance/tool, and equipment safety
- Healthcare management
- Safety and health training

Environment
- Compliance with environmental regulations and operation of an environmental management system
- Management of energy use and greenhouse gas emissions
- Water resource management
- Air pollution management
- Waste management
- Chemical substance management

Business Ethics
- Transparent management with no unfair profits
- Prevention of conflicts of interest
- nformation disclosure
- Protection of intellectual property
- Compliance with fair and transparent trade
- Identity protection and anti–retaliation
- Personal information protection
- Compliance and ethical management

Management Systems
- Declaration of executive commitment to compliance and clarification of responsibilities
- Risk management and reviews
- Training and communication
- Record–keeping/management
- Supplier responsibilities

Governance to promote win–win cooperation

Hanwha Corporation has a Win–Win Cooperation Module, a dedicated organization within the ESG Council, which is responsible for overall tasks related to suppliers, from existing win–win cooperation to supply chain management and fair–trade subcontract management. Through these efforts, we plan company–wide win–win strategies and activities for shared growth, and manage all aspects of subcontractor transactions as well as shared growth systems and activities. In addition, we have established a shared growth council within each business division to ensure smooth communication with suppliers and operate a governance structure that can efficiently respond to related issues and tasks.

Win–win cooperation organization chart



Sustainable Supply Chain Management

Supply chain management strategy

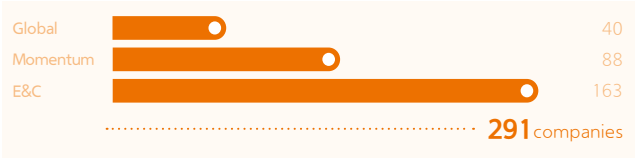
In 2022, we strengthened our supplier verification process and expanded the discovery of new suppliers to ensure the sustainable management of supply chains. To this end, we conducted a comprehensive evaluation of new and existing suppliers, including their financial capabilities, construction and delivery capabilities, bidding performance, and on–site and headquarters evaluations to identify outstanding suppliers. In addition, we actively sought new suppliers on a limited–time basis to respond to supply and demand instability and rising costs, while promoting cost efficiency and risk management. Through these efforts, we are maintaining a sustainable supply chain and enabling stable business operations.

Selecting new suppliers

Hanwha Corporation has established a new supplier registration process to select suppliers with excellent capabilities. After an automated screening process for asset health and compliance issues, suppliers are evaluated in six due diligence areas: management, finance, technology, security, quality system, and process evaluation. The evaluation divides potential suppliers into four grades: excellent, good, acceptable, and poor. Subsequently, we determine whether to register new suppliers based on their grades.

Number of new supplier registrations in 2022 by business division

(Unit: Number of suppliers)

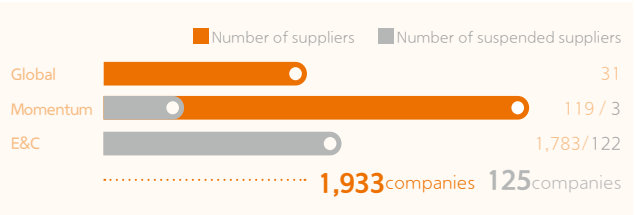


Evaluating and managing suppliers

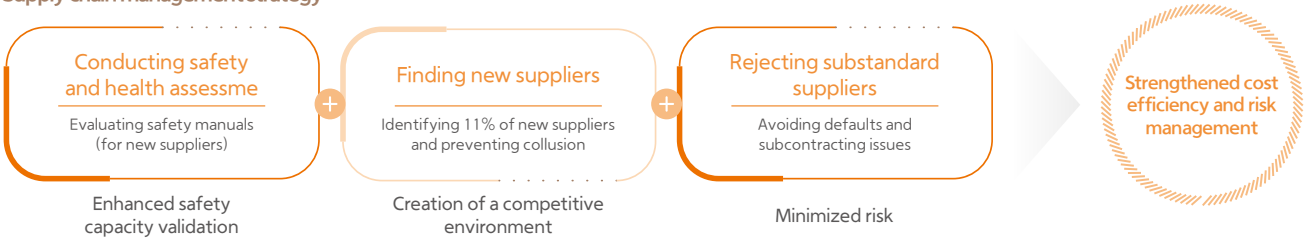
Hanwha Corporation prevents potential risks by conducting regular evaluations of its suppliers in accordance with the ISO Supplier Evaluation Procedure. The supplier evaluation process is divided into five main areas: management capabilities, production capabilities, quality control, cooperation, and environmental, safety, and social evaluation. In 2022, we conducted regular evaluations of 1,933 companies that met a set average transaction amount over the last three years, and took measures to suspend transactions with 125 companies for reasons such as credit rating downgrades and business closures. We are building a stable and sustainable supply chain by verifying the capabilities of our suppliers and evaluating their potential for continued partnership.
Furthermore, Hanwha Corporation provides various incentives such as finance and welfare to suppliers who receive excellent and good evaluation grades, and conducts meetings and consultations with suppliers who receive lower grades to encourage their voluntary improvement.

Number of suppliers that underwent the comprehensive supplier assessment

(Unit: Number of suppliers)



Supply chain management strategy



Support for excellent and good suppliers

Hanwha Corporation selects companies with excellent or good grades in its annual supplier evaluations and provides them with plaques and prizes, in addition to various programs such as financial and contract support and memorial day support. In particular, we have introduced a management clinic program for suppliers to gain management know-how from management experts on topics such as establishing HR and financial systems, formulating overseas expansion plans, and improving technology, production, and quality. Hanwha Corporation will continue to dedicate its utmost efforts to discovering excellent suppliers and creating a business management environment for mutual growth and survival.

SPECIAL CASE



Food truck event for excellent suppliers

Every year, Hanwha Corporation rewards its key suppliers by selecting and recognizing outstanding suppliers through a year-long evaluation of their activities and performance. In 2022, 14 suppliers were selected as exceptional suppliers in the evaluation in the areas of shared growth and win-win cooperation, and Daesung Precision in Gumi, North Gyeongsang Province, which was selected as the most excellent supplier, received a plaque and cash prize, as well as a coffee truck to show appreciation for its efforts toward shared growth. Hanwha Corporation strives to provide opportunities for fulfillment and motivation to its suppliers, and will continue to discover and implement various support activities for growth and change among its suppliers.

Hanwha Corporation's Shared Growth Activities Video Shortcut

ESG assessment for suppliers

Since 2021, Hanwha Corporation has added 60 major ESG management items in areas such as environment, safety, and society to its regular assessments to measure the degree of social and environmental impact made by its suppliers. With these efforts, we are enhancing the awareness of suppliers toward practicing ESG management, while requesting and supporting sustainable risk management and its improvement. In particular, in light of the merger of the E&C Division, we have strengthened the assessment of employee safety and health, alongside follow-up measures such as encouraging the establishment of environmental management strategies and systems for all suppliers to improve their environmental assessments.

Supplier ESG assessment items

Environmental	Environment	• Environmental permits and reports • Pollution prevention and resource conservation • Hazardous materials and waste • Substance control	• Water resource management • Energy consumption and greenhouse gas management • Environmental management
Social	Social responsibilities and human rights	• Voluntary employment • Working hours • Payroll and benefits	• Humane treatment • Nondiscrimination • Training
	Occupational safety and health	• Occupational safety • Emergency response plans • Occupational accidents and illnesses • Physical labor	• Food, sanitation, and housing • Safety and health management • Safety culture
Governance	Organization	• Executive team (ESG leadership) • In-house stakeholders (ESG Followership)	
	Ethical management	• Corporate integrity • Information disclosure • Protection of intellectual property • ersonal information protection	• Industrial protection and anti-retaliation • Responsible procurement • Social contribution

Building supplier ESG capabilities

Hanwha Corporation conducted ESG management consulting for 31 of its suppliers who received excellent and good grades in the 2022 annual supplier evaluation. To this end, we performed a management diagnosis on key ESG areas such as environment, safety, human rights, and governance through E Credible, Nice Information Service, and Nice D&B, yielding a moderate outcome with an overall average score of 4.5. Furthermore, we provided customized solutions for each company based on ESG results and feedback to strengthen our suppliers' capability to recognize and self-manage ESG risks.

ESG management consulting results for outstanding suppliers in 2022

Consulting target	• Identified 31 excellent and good suppliers in the 2022 supplier evaluation
Consulting content	• Diagnostic survey of current status in each of the E, S, and G areas, including eco-friendly investment, safety management, information protection, shared growth, and ESG management disclosure • Diagnosis by ESG field : ① Environment: Need to supplement overall environmental management strategy and system ② Social: Need to review additional training for suppliers in the areas of safety management and working hours compliance ③ Governance: Need to maintain the implementation of bid restrictions for suppliers who violate ethical regulations
Consulting results	• Guidance on ways to improve deficiencies in areas such as environmental understanding and ethical management through consultation. • Guidance on how to maintain areas of excellence, such as safety management and accounting transparency, through consultation.

Strengthening supply chain risk management

Hanwha Corporation strives to realize transparent and responsible purchasing to secure global purchasing competitiveness and fulfill its social responsibilities at the same time. We do not purchase materials containing minerals from conflict zones where serious human rights abuses and environmental destruction occur, diversifying our supply channels to secure a stable corporate operating environment in anticipation of global geopolitical risks.

Win–Win Cooperation Programs

Hanwha Corporation implements its win–win cooperation programs through four main strategies: financial support, management and technical support, education and manpower support, and open communication. In addition, we plan and operate various shared growth programs, including welfare support for employees of suppliers, to build a win–win ecosystem in line with the spirit of "going far together."

Financial support

Hanwha Corporation operates a win–win fund with low–interest rates in cooperation with various financial institutions in Korea to improve the liquidity of its suppliers and support their business stability. In addition, to improve the payment conditions for suppliers' goods, we have introduced methods such as supporting bond issuance, ensuring full cash payments, shortening payment due dates, and allowing early payments before holidays to practice genuine shared growth activities for suppliers.

In particular, in 2022, we established a KRW 58 billion win–win fund with financial institutions such as Woori Bank, Shinhan Bank, and the Industrial Bank of Korea to support our Tier 1–3 suppliers who were experiencing difficulties in business stability due to COVID–19. This contributed to improving the liquidity of our suppliers, and at the same time, we aim to pursue sustainable management and create a win–win business environment through close cooperation with our suppliers.

Introduction of Hanwha Corporation's Financial Support Program Shortcut

Financial support performance in 2022

Percentage of cash and cash equivalents payments	Pay for holiday items early	Size of Win–Win Fund
Cash 81% / Cash equivalents 5.3% / Other 13.7%	KRW 35.9 billion	KRW 58 billion

Management and technical support

Hanwha Corporation operates management and financial diagnosis and consulting programs to enhance productivity as well as the management capabilities of suppliers. We also provide customized solutions and equipment based on the technical know–how of in–house experts to help suppliers improve their competitiveness and stabilize quality through technical improvements. Furthermore, we have introduced a performance sharing system to mutually share the results of our joint efforts with our suppliers, as well as customized programs for our suppliers such as collaborative technical R&D, technical data entrustment system, and sales channel support.

Introduction of Hanwha Corporation's Management and Technical Support Program Shortcut

Management and technical support performance in 2022

Technical support amount	Number of technical support cases*	Number of technical protection cases
KRW 8.74 billion	162 cases	18 cases

* Technical support: Technical consulting, development of investment projects (to improve bidding competitiveness), travel for technical support by in–house experts, development of new technologies, operation of technical proposal centers, etc.

Training and manpower support

Hanwha Corporation offers annual online job training to employees of Tier 1–3 suppliers to help them strengthen their practical competencies. In 2022, the company provided information on trends in industry–related laws and systems, such as the Serious Accidents Punishment Act and ESG management and response plans to suppliers to help them prevent potential risks in advance and improve their understanding of ESG management. In addition, Hanwha Corporation selects key employees of suppliers who have made significant contributions to enhancing industrial competitiveness and management performance and provides incentives worth KRW 10 million to encourage their long–term employment to support human resource management by suppliers.

Introduction of Hanwha Corporation's Training and Manpower Support Program Shortcut

Training support performance in 2022

Round	Duration	Topics	Performance
1st round	April 29, 2022 – July 29, 2022	• Serious Accidents Punishment Act • Technology protection policies and support for SMEs	326 companies (366 participants)
2nd round	July 1, 2022 – August 31, 2022	• ESG issues and response plans • ESG management in the age of digital transformation • Financing and policy funding for SMEs	83 companies (105 participants)
3rd round	September 05, 2022 – October 31, 2022	• Tips for responding to different types of National Tax Service investigations • Key points in labor management for foreign workers	102 companies (110 participants)
4th round (E&C Division)	November 14 – December 31, 2022	• Technology protection for SMEs in the construction industry • Enactment of the Serious Accidents Punishment Act and corporate risk	279 companies (837 participants)

Open communication

Enhancing supplier communication

Hold a win–win meeting
Every year, we hold online and offline seminars to share market environment and management status, management, technology, and sales information, and shared growth activity plans and support systems with key suppliers.

Shared Growth Council
The CEOs of Hanwha Corporation's Global, Momentum, and E&C divisions, heads of purchasing departments, and outstanding suppliers will participate to discuss key issues and issues related to shared growth, fair trade, and support for suppliers.

Suggestions Forum
We promote win–win development with our suppliers by receiving proposals for new transactions or business joint ventures directly from them, as well as any difficulties or issues in the transaction process.

Application	Registration and confirmation	Confirmation and Appropriateness Review	Notification of review results
Suppliers	Strategy Part	Relevant department in each business division	Strategy or the appropriate review unit

Ethics Hotline and Dispute Resolution
We operate a window to report various disputes and unfairness–related matters that occur in the course of transactions between Hanwha Corporation and its suppliers.

Introduction of Hanwha Corporation's Open Communication Program Shortcut

Benefits support

Hanwha Corporation operates the "Shared Growth Mall," an online shopping platform for SME products that can be used by both employees and suppliers. We also provide various welfare programs for our suppliers, such as food truck events, tickets to sporting and cultural events, hotel accommodation vouchers, gifts for suppliers' founding anniversaries, and gifts for supplier employees' anniversaries, in order to improve the welfare of our suppliers and maintain a close working relationship.

Shared Growth Food Truck Event	• Providing food trucks for various services from massages to drinks and cookies for supplier employees to take a break from work to rest and recover
Cheering on the Hanwha Eagles baseball team	• Cheering Hanwha Eagles with employees of Hanwha and its suppliers, thereby fostering a sense of "One Team, One Goal"
Attending the Symphonic Festival with Hanwha event	• Supporting our suppliers to enjoy art and culture, by providing tickets to Symphonic Festival with Hanwha, Korea's premier classical music event
Supporting the Culture Way program	• Sharing opportunities to participate in cultural events by supporting the Hanwha Classic golf tournament and admission to exhibitions and performances
Sending anniversary gifts	• Sending gifts to celebrate suppliers' anniversaries, supplier employee anniversaries, etc.

SPECIAL CASE



Healing Event with Hanwha Corporation

Hanwha Corporation held the "Healing Event with Hanwha Corporation" to create an organizational culture of collaboration with its suppliers. In 2022, we visited seven suppliers and held a therapeutic massage event in their lounges to relieve employees' fatigue. Afterward, we served snacks and tea with tteokbokki (spicy stir–fried rice cakes) and dakgangjeong (battered chicken pieces in a sweet and sour sauce), as employees enjoyed together to mingle and boost morale. In the future, we will continue to promote communication and exchanges with our suppliers to relieve their work stress and improve their quality of life.

Social
Innovative Growth

Through innovative product development and outstanding technical capacity, we satisfy our customer's values and open up a new world.

Hanwha Corporation provides optimal products and services to meet customer needs and ensure their satisfaction under the vision of becoming a "Trusted Global Partner." In addition, we are continuously discovering R&D tasks for future businesses and sparing no effort to invest in growth.

Achievements in 2022

All sites achieved Quality Management System (ISO 9001) certification

A discovery process was established for new R&D projects

Number of product recalls
0cases

Going Forward

Hanwha Corporation will improve its existing quality management system to further enhance the operation of the system by identifying expected risks and inspection items for each work process. Additionally, we will continue to discover R&D tasks for future-oriented growth and expand functions for sustainable future growth with the environment and our customers, while reflecting them in our business operation strategy.

Alignment with UN SDGs

Innovative Growth Promotion System

Direction for promoting innovative growth

Hanwha Corporation strives to provide products and services that meet customer needs and expectations by establishing quality management criteria that have a crucial impact on customer satisfaction and value, and establishing and implementing specific plans to achieve quality objectives centered on these criteria. We implement strict quality management under the principle of the "Respect for Customers" clause in Article 4 of the Hanwha Corporation Code of Ethics, and continuously seek to improve quality through a systematic PDCA (Plan–Do–Check–Assess) quality management system and policies in consideration of the business characteristics of each division to ensure stable production and product innovation.

Article 4 [Respect for Customers]

① The Company must always think and act from the customer's point of view and strives to realize customer satisfaction by providing optimal products and services worthy of customer trust and satisfaction.

② The Company must provide customers with accurate information about its products and services without engaging in exaggerated promotion or advertisement.

PDCA cycle for quality management



Building an organization dedicated to innovative growth

Hanwha Corporation is evolving its growth strategy to pursue sustainable growth with the environment and customers, moving away from the conventional business strategy of maximizing profits. To this end, we aim to expand and change the quality management module into a future growth module and establish and implement viable improvement plans across all business areas such as research, investment, production, sales, and after-sales management. In addition, we operate an optimized quality management system based on the ISO 9001 international standard and continuously discover improvements in various aspects so that the company can provide safe and excellent products and services while satisfying our responsibilities to environmental issues and customer needs.

Quality Management System Certification

Hanwha Corporation has acquired and maintained the international standard Quality Management System (ISO 9001) certification at all of its business sites to provide the highest quality products and services. For example, the Momentum Division has acquired the anti-explosion quality management system (ISO/IEC 80079-34) certification to comply with international standards for customer safety and product reliability. Meanwhile, the E&C Division has acquired nuclear quality assurance certifications (KEPIC-MN, KEPIC-EN, KEPIC-SN, KEPIC-MH) required by the Korea Electric Power Industry Code (KEPIC) of the Korea Electric Association to ensure the quality competitiveness of its nuclear power generation business, thereby ensuring customer safety and reliability.

Product quality and safety certifications by business division

Division	Category	Certification status
Global	Explosives Certification	CE certification, Ex certification
	Primer Certification	CE certification, Ex certification
Momentum	Anti-explosion Quality Management System	ISO/IEC 80079-34
	Robotic Machinery Safety Certification	EN ISO 12100, EN ISO 13849-1, EN ISO 10218-1, EN 60204-1
	Industrial Machinery Safety Certification	KCs voluntary safety certification, CE certification, Ex certification
	Anti-explosion Product Safety Certification (PECVD models, T-aSi models)	ISO/IEC 60079-7
E&C	Nuclear Quality Assurance Certification	KEPIC-MN, KEPIC-EN, KEPIC-SN, KEPIC-MH

Enhanced Technological Competitiveness

Structure for identifying new R&D tasks

Hanwha Corporation is continuously discovering R&D projects with growth potential and sustainability to improve our technological capabilities and business competitiveness. The process of promoting future technology projects is systematically conducted in four stages, from the hypothesis review stage to validation, task identification, and finalization of the field to enter. The Global Division conducts development work that considers the environment, safety, and health in accordance with the development work guidelines with the aim of achieving business targets in safety, environment, health, quality, and production by developing eco-friendly and safe products that meet customer needs. In the Momentum Division, we formed the Future Technology Research Taskforce to create unique product appeal and further strengthen our technological capabilities by focusing on the perspective of sustainability as a way to positively impact society and the environment, rather than simply focusing on short-term, small-scale R&D. In the E&C Division, we have established a medium-to-long-term strategy to increase the proportion of environmental businesses, and are improving processes to respond to environmental issues and continuously discover eco-friendly businesses.

Multi-stage plan for discovering new R&D tasks

Stage 1 Review and formulate hypotheses	• Refine hypotheses for product differentiation and expansion of original technology	• Set the scope of hypothesis reviews
Stage 2 Validate hypotheses	• Develop ESG responses and explore breakthrough technologies and processes	• Explore candidate original technologies and validate design feasibility
Stage 3 Identify tasks	• Organize and analyze identified candidates	• Prioritize candidates
Stage 4 Finalize field of entry	• Establish business models for each field of entry and conduct detailed reviews by internal and external experts	• Finalize the field of entry

Assessing project risk

Hanwha Corporation makes an effort to minimize risks and improve profitability for newly-ordered projects. Through the Order Review Committee, which is part of the RM Team in the Planning Office, we proactively identify and derive risks for ordered projects and meticulously evaluate profitability, payment collection conditions, transportation conditions, and whether to accept identified risks. In addition, we manage projects transparently by requiring the mandatory input of progress-related information through the Project Management System (PMS), and monitor project progress in real-time to detect abnormalities such as schedule delays, budget increases, and deadline expiration at an early stage. This allows us to identify risk factors for new development tasks and ongoing projects in advance and take proactive measures to ensure project stability and success.

Quality Safety Program

To fulfill its corporate responsibility for product quality, Hanwha Corporation not only maintains strict nonconforming product control and quality verification procedures for all products, but has also obtained various global and national official product certifications to enhance its credibility. Furthermore, we are actively investing in activities to stably supply top–quality products by establishing an extensive quality management system, including training quality management experts and monitoring the quality of our suppliers' products.

Data–driven quality management

Hanwha Corporation's Global and Momentum Divisions operate a Quality Information System (QIS) to digitize and streamline quality management in line with the digital transformation (DT) era. The QIS is a system that creates a database for and systematically manages the entire process of quality management, including product development, design, production, manufacturing, supplier management, nonconformance and improvement management, and quality performance management. Besides, all divisions are applying inspection data for each stage and various quality–related data to the field so that all employees can easily access and share information through the network systemization of databases such as Quality Library and Eagle–TIMS (Technical Information Management System). Hanwha Corporation is pursuing company–wide quality management to continuously improve data–based quality management and to provide excellent products by enhancing efficiency and transparency.

Responsible product management

Managing counterfeit and nonconforming products

Hanwha Corporation's Momentum Division conducts responsible product quality management by tracking and identifying counterfeit and nonconforming products throughout its entire production process. It tracks counterfeit and nonconforming products by issuing QR codes and inspection product numbers to screen for the falsification of certified test reports for quality assurance, and provides transparent quality information such as test reports and warranties so that customers can view accurate information about products. We also manage the input and output of all quality–related data through the Quality Data Management System (QDMS) to prevent the falsification and misuse of data related to production and products, and utilize the system to strengthen the traceability of quality information and improve processes such as design, production, and purchasing. Suppliers that incur quality issues are placed under strong sanctions and recurrence prevention processes to prevent product counterfeiting and non–conformities.

Reliable quality management for customer safety

Hanwha Corporation provides user training and manuals for its products to ensure their safe use by all customers. In particular, in the case of the Ex anti–explosion product group, we cooperate with internationally recognized organizations to verify and approve technical information such as design changes. In the event that unsafe or incomplete products are introduced to customers, we immediately implement product identification and control processes to prevent potential accidents and ensure the safety of our customers after sending written notifications to certification institutions and media organizations, including target customers.

Quality risk management

Hanwha Corporation enhances product and service quality and manages quality risks through Sales and Operations Planning (S&OP) activities. To prevent difficulties in production activities, we monitor compliance with the Human Error Prevention Plan (HEPP) and standard operating procedures (SOP), while automating manufacturing and inspection processes to increase productivity and secure quality competitiveness. In addition, to maintain a systematic and advanced quality level, we identify quality risks at each stage and manage them as input conditions from the development and design stages to proactively prevent possible risks. Through periodic quality diagnosis activities, we analyze issues and causes of quality control failures and deficiencies, and derive implications for quality innovation to improve the quality management system based on the discovered problems and risks. In particular, we distribute casebooks and conduct regular training to prevent identical and similar issues from recurring in the future by analyzing successful and failed cases of quality management.

Quality management enhancement activities

Supplying quality and safety–certified products

At each stage of sales, development, design, manufacturing, and service operations, Hanwha Corporation identifies domestic and international laws and regulations related to the environment and safety to exclusively supply customers with safe products that comply with such standards. In particular, in order to provide products that meet both explicit and implicit safety management standards, such as international standards, national safety standards, and customer requirements, the company thoroughly evaluates compliance with such standards from the design input requirements stage to the design review and verification stages. In the E&C Division, we assess the safety and health qualifications of new bids and conduct regular safety and health evaluations of existing suppliers to maintain business with only those that pass. In addition, considering the characteristics of the construction industry, it complies with quality, environment, and safety through pre– and post–completion inspections upon the end of construction works, and conducts the handover after confirmation with the ordering organization. Hanwha Corporation will continue to ensure the reliability of product quality and protect the lives and property of customers by acquiring and continuously renewing safety certifications specialized for each product and service.

Verifying technology development and patent quality

Hanwha Corporation has been developing leading technologies and acquiring patents by establishing technology development roadmaps based on the diverse requirements of customers and their short–, medium–, and long–term needs. We contribute to providing innovative products and securing competitiveness through our technological advantage by strengthening quality verification before products are delivered to customers, and ensure the reliability of technology production quality through the management of international standard certifications (ISO, IEC) specialized for each product type. Furthermore, Hanwha Corporation's E&C Division is continuously developing technology for sewage treatment systems such as DF–MBR, HDF, and Pro–MBR, while immediately applying the developed sewage treatment processes to business sites in order to improve construction and operation on–site.

Optimizing quality cost

Hanwha Corporation has selected quality cost (Q–Cost) management as a key performance indicator (KPI) in promoting quality management, and is focusing on activities to reduce costs of failure in accordance with the annual Q–Cost improvement target. In particular, the Hanwha Corporation's E&C Division has selected major defect–prone items and issues as quality priority management items to contribute to optimizing Q–Cost management by reducing the failure rate and building customer trust to prevent unnecessary cost expenditure. Furthermore, in addition to direct Q–Costs incurred in production stages such as development, sales, design, and manufacturing, we are also conducting indirect Q–Cost reduction activities to improve customer satisfaction in connection with the Customer–Oriented Process in production and services.

Cultivating quality management professionals

Hanwha Corporation maintains an outstanding quality management system by conducting company–wide quality training to raise employees' awareness of product and service quality management and strengthen their professional capabilities.

Developing quality talent by business division

Purpose
Strengthen customer–oriented process (COP) expertise and quality management capabilities

Division	Talent development and application
Global	• Establish and operate a quality education roadmap and master plan (3 years) to foster quality management talents by acquiring basic knowledge of quality and enhancing the quality capabilities of employees • Establish business unit quality management systems and ensure system validity and conformity by training internal auditors and operational personnel
Momentum	• Develop customized human resources for business areas by defining quality competencies and skills for each functional unit through the operation of the Quality Maturity Model (QMM) • Train certified professional auditors to comply with international standard requirements and enhance the accuracy and speed of quality management
E&C	• Ensure continuous training and management of key personnel for quality management for each site, centered on the Quality Council • Develop specialized talent to centralize quality control across sites

Supplier quality management

Hanwha Corporation operates Hanwha Corporation Supplier Quality Audit (H–SQA), a regular supplier competency evaluation system, to improve the competency and productivity of suppliers as well as product quality. Through transparent and fair evaluation and diagnosis, we derive improvement tasks for customer satisfaction and reflect the contents of continuous improvement through strict task management in the supplier quality evaluation as a way to improve supplier capabilities. Suppliers selected as outstanding suppliers are provided support for establishing quality goals to improve and horizontally spread their quality levels, while in the case of suppliers with excessive nonconformity rates in parts and processing stages, we analyze the causes and derive improvement measures to prevent the recurrence of such issues, thereby helping them to strengthen their own quality capabilities.
Meanwhile, Hanwha Corporation's E&C Division conducts wide–ranging quality management, including quality assessment of suppliers, to improve constructability and quality. It runs preemptive risk management by diagnosing the quality capabilities of its suppliers in advance, and continuously monitors and manages the quality level through follow–up assessments, thereby establishing and complying with its own standards to secure the trust and safety of the customers.

H–SQA implementation process

Conduct competency evaluation for major suppliers	• Evaluation criteria Quality assessment (quality systems, nonconformance rates), Business management (management system, financial health), delivery compliance rate, cost reduction performance
Analyze causes and identify improvement tasks	• Analyze the evaluation results to develop improvement measures for each stage and implementation management plans for suppliers
Notify evaluation results	• Global Division Recognized 33 suppliers, including two best and 10 runners–up • Momentum Division Implemented selection and remediation plans for 10 suppliers, including one B–grade and nine C–D grades (2023 goal: 80% or more B–grade)
Conduct monitoring and corrective actions	• Rewards and support Good suppliers – Offer incentives Inadequate Suppliers – Assign and track medium–to–long–term improvement tasks for quality system improvement

Enhancement of Customer Satisfaction

Increasing customer value

Commercializing customized products

Hanwha Corporation actively reflects customer requirements, opinions, and needs at all stages of production to improve customer satisfaction. We ensure the completeness and satisfaction of product development through customer participation from the product design review and commissioning stages. In addition, we also establish improvement measures for problems encountered at each stage and apply them to the development of new technologies to provide customized products and services optimized for customers.

Enhancing customer value through technology innovation

Hanwha Corporation's E&C Division is creating customer value by achieving high efficiency through the introduction of intelligent construction technologies such as BIM and 3D scanning to sites. With the application of BIM to underground frames, it provides preliminary support such as earthwork volume calculation and interference review between various construction works, and through 3D scanning, it reviews the displacement of retaining walls to satisfy clients with a design process with both high productivity and accuracy. In addition, the E&C Division is actively developing the Hanwha BIM Solution (H-BIMS), an in-house automation solution that calculates optimized quantity and term of works, and WBS, a specialized PC construction method for logistics warehouses, as ways to reduce costs and expand our competitiveness in winning orders through advanced intelligent construction technologies.

Customer communication

Customer satisfaction surveys

Hanwha Corporation strives to improve its products and services by conducting annual customer satisfaction surveys in accordance with its obligation to comply with the Quality Management System (ISO 9001). In particular, the Momentum Division operates a system to identify and reflect customer needs throughout the entire production process due to the nature of the Make-to-Order (MTO) production method, and endeavors to improve product quality through active communication with customers. In 2022, 22 customers were selected for a total of 29 projects, and we conducted written satisfaction surveys covering all areas of the business process, from design to on-site installation and commissioning, and actively listened to customer VOC opinions through in-depth interviews by personally visiting major customers. By reviewing the collected opinions and improvements, we distinguished between areas that can be systematically improved and those that can be managed subsequently, and established a response plan to provide better products and services.

Operating a dedicated customer satisfaction channel

Hanwha Corporation operates a dedicated customer service organization to listen to the voice of the customer (VOC) in order to continuously communicate with customers and increase their satisfaction. To this end, we not only operate various VOC channels, but also conduct regular customer satisfaction surveys to reflect improvement needs in our annual operating plans and performance indicators. In addition, we actively reflect customer needs in developing and improving new products to enhance customer satisfaction and secure business continuity. In particular, the Momentum Division has established a comprehensive response process to listen to VOC about the quality of use for products and services after they have been delivered to customers, visiting customer sites to listen to complaints and improvement plans for not only the products but also the quality management system, and delivering feedback to the relevant departments. In the future, Hanwha Corporation will continue to explore additional ways to derive more realistic and reasonable improvement plans to realize the value of customer satisfaction.

Customer satisfaction survey for Hanwha Corporation's Momentum Division

Common assessment questions
- ☐ Compliance with delivery schedules
- ☐ Reflection of customer requirements
- ☐ Representative response capabilities

1. Design capacity evaluation
- ☐ Consistency ☐ Convenience ☐ Stability
- ☐ Operability ☐ Application of new technologies

2. Production
- ☐ Welding (appearance) ☐ Painting ☐ Plating
- ☐ Assembly ☐ Reliability, durability

3. Shop Test
- ☐ Understanding of procedures and standards
- ☐ Implementation of preliminary tests and improvement of problems
- ☐ Quality satisfaction

4. Site installation and commissioning
- ☐ Understanding of procedures and standards
- ☐ Improvement of issues identified through the Shop Test
- ☐ Quality satisfaction

Social
Social Contributions

We are creating a green and sustainable future for the next generations and communities.

As a responsible corporate citizen, Hanwha Corporation is actively implementing various social contribution programs to create a world where everyone lives together, based on the philosophy of "Going Further Together."

Achievements in 2022

Total contributions in 2022
KRW 3.236 billion

The 101st Forena Library
(Established by Hanwha Corporation's E&C Division)

Seoul International Fireworks Festival 2022 with Hanwha

Going Forward

Hanwha Corporation plans to reorganize social contribution programs that were suspended and reduced due to the merger and separation of affiliates, and re-establish representative social contribution activities and targets in line with the characteristics of each division's business. We will also conduct an internal contest to derive social contribution ideas among employees, and plan and operate new programs to create a better tomorrow.

Alignment with UN SDGs

Social Contribution Promotion System

Direction of social contributions

Hanwha Corporation plans to reorganize social contribution programs that were suspended and reduced due to the merger and separation of affiliates, and re-establish representative social contribution activities and targets in line with the characteristics of each division's business. We will also conduct an internal contest to derive social contribution ideas among employees, and plan and operate new programs to create a better tomorrow.

Social contribution promotion system

Vision

Hanwha Corporation accompanies everyone on the long journey for a happy tomorrow.

Theme

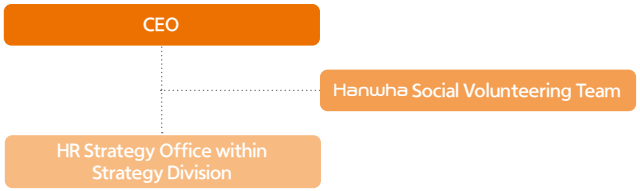
Talent development	Eco-friendliness	Art and culture	Donations and service
Hanwha Corporation pursues a world where all dreams are respected.	Hanwha Corporation is building a healthy future from the closest areas in our lives.	Hanwha Corporation seeks to present the experience of encountering a new today to everyone in their daily lives.	Hanwha Corporation pursues a world where everyone can discover and share the true meaning and value of sharing.
Hanwha Corporation believes that everyone should be given equal opportunities to pursue their dreams. The more people who pursue their dreams, challenge themselves, and share their achievements, the happier and more prosperous society will be	A healthy life together for the current and future generations. This is why Hanwha Corporation cares about the environment. The idea of a sustainable environment will guide all of our actions.	Hanwha Corporation is continuously conducting various activities to share the emotional resonance of culture and arts with more people. We will strive to enrich the lives of all by providing opportunities for people to experience cultural and artistic activities close to their surroundings as a way to support their emotional stability and creative growth.	Hanwha Corporation believes that we all need hope, and that hope requires sincerity. When we share our heartfelt hopes, we can move forward to a better tomorrow together.

Philosophy

Based on the founding ideology of "fostering social growth and prosperity" and the Hanwha Corporation spirit of "trust and loyalty," we aim to fulfill our social responsibility as corporate citizens with the philosophy of "going far together" rather than "going fast alone."

Social contribution organizations

Hanwha Corporation established the Hanwha Social Volunteering Team in 2007 to lay the foundation for a more systematic and efficient social contribution program. Through its business sites nationwide, we conduct voluntary and active social contribution activities centered on human resource development, eco-friendliness, art and culture, and donation and service. In addition, the Human Resources Strategy Office within the Strategy Part conducts quarterly reviews of activities and directions to ensure that Hanwha Corporation's social contribution programs are carried out properly. Furthermore, we faithfully strive for transparent execution and efficient operation of the "Creating a Brighter World" fund, which collects donations from employees and the company.



Spreading the culture of participation in social contributions

Encouraging employee participation in social contribution activities

Hanwha Corporation practices "participatory social contribution activities," which are based on the voluntary participation of employees. To this end, we encourage employees to actively participate in volunteer activities by establishing ties with various welfare facilities at the company level and operating a paid volunteer system that recognizes working hours spent on volunteer activities by employees during office hours. In addition, we promote harmony among employee families through volunteer programs that bring employees and their families together, which have been met with positive responses from both participants and beneficiary organizations.

Recognizing outstanding social contributions

Hanwha Corporation rewards outstanding activities and programs by evaluating the performance of social contribution activities and social value creation at each business site. We encourage employees to actively participate in social contribution activities by granting awards to outstanding managers and volunteer participants in each category of expertise, specialization, and joint events, while strengthening our internal capabilities for performance management of social contribution activities.

Communication with Local Communities

Hanwha Corporation continuously identifies various social contribution activities to contribute to the development of local communities and solve problems by organizing local coalitions in the areas where each division's business sites are located. Through this, we plan and operate a wide range of social contribution activities such as volunteering, public campaigns, material support, and solidarity activities that align with the characteristics of each local community. As part of these activities, we cooperate with local NGOs and welfare foundations affiliated with local governments to support vulnerable people such as children, the elderly, and the disabled, and contribute to revitalizing the local economy by sponsoring various local events. Hanwha Corporation is working actively to fulfill its corporate responsibility by listening to the voices of local residents in order to build a community that coexists with various stakeholders.

Hanwha Social Volunteering Team

From a praised company to a responsible company

For more than 70 years since its founding, Hanwha Corporation has pursued a corporate culture of shared growth that fulfills its social responsibilities based on the group's spirit of "trust and loyalty."

Systematic and ongoing social contribution activities

We are systematically and continuously bringing together human and material capabilities with the mindset of giving back for the profits that society provides to the company.



SPECIAL CASE



Seoul International Fireworks Festival 2022 with Hanwha

Since 2000, Hanwha Group has been hosting the Seoul International Fireworks Festival, the largest fireworks festival in Korea and Hanwha's signature social contribution program, under the slogan "Sharing Hope Through Fireworks." The 2022 Seoul International Fireworks Festival, which was held three years after it was suspended due to the COVID-19 pandemic, brought together the world's best fireworks company, Hanwha, and overseas fireworks teams from Japan, Italy, etc. Hanwha Corporation presented a colorful 70-minute fireworks display under the theme of "We Hope Again – Starry Night," which was meant to comfort the daily lives of Seoulites who were exhausted by COVID-19 and to reignite the spark of their dreams and hopes. In addition, more than 1,200 employees of Hanwha Group and its affiliates participated in the event and conducted a cleaning campaign to ensure a clean and safe festival.

Social Contribution Activities

Hanwha Corporation operates various social contribution programs based on the spirit of "Going Far Together" and centered on four themes: human resource development, eco-friendliness, art and culture, and donation and service.

HUMAN RESOURCE DEVELOPMENT



A Nation of Science for Hanwha and the Future

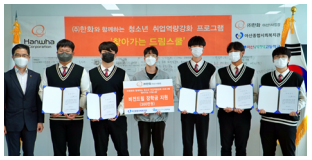
Since 2011, Hanwha Corporation has operated a program called "A Nation of Science for Hanwha and the Future" to nurture children's dreams through basic science education and experimental activities, as well as science-related field trips and hands-on activities. The program provides after-school experience activities for culturally underprivileged children at local children's centers and welfare centers on topics such as aviation, space, and computer software, and lays the foundation for fostering the next generation of scientific talent by conveying the joy of science.



Hanwha Science Challenge

Hanwha Corporation, alongside Hanwha Group, has been organizing the Hanwha Science Challenge competition since 2011 with the motto of 'Nurturing young Korean Nobel Prize winners." An average of 600-700 teams participates in the program each year, and in 2022, the competition was held under the theme of 'Saving the earth' for sustainable growth of humanity. In addition to cash prizes, the winners receive programs such as overseas trips, step-by-step mentoring, and career management, and we continue to actively support them to foster future talents who will lead the Korean scientific community.

Hanwha Science Challenge Shortcut



Go in Quest of Dream School

Hanwha Corporation's Momentum Division operates the "Go in Quest of Dream School," an employment support program for underprivileged youths in Asan and Changwon, where our plants are located. We provide a variety of educational activities and career mentoring programs such as voice training, image making, and interview coaching to local youth to strengthen their confidence in career exploration and employment, and actively support them to grow into successful members of society.

ECO-FRIENDLINESS



Environmental Education for Children at Local Children's Centers

Hanwha Corporation's Momentum Division provides environmental education to local children's centers near the Asan plant to raise awareness of the importance of nature and eco-friendliness, recognizing the seriousness of the air pollution problem.
We work with local children to educate them on the scientific principles of air purifiers and help them make DIY air purifiers, raising awareness of the importance of the global environment.



Volunteer for Marine Clean-up

Hanwha Corporation's E&C Division conducted a "plogging" campaign to clean up the marine environment at Daecheon Beach in Boryeong, South Chungcheong Province. More than 60 employees and family members of Hanwha Corporation participated in the campaign, picking up trash around the beach while taking a light walk to protect the marine environment.



Sponsor Environmental Project for Cheonggyecheon Museum

Hanwha Corporation's E&C Division held "All Together!," a project to raise awareness of climate change caused by environmental degradation and to consider the importance of the environment, together with the Seongdong Welfare Center for the Disabled. Disabled authors and local residents created fairy tale books with environmental themes, and sponsored by Hanwha, a total of 88 original paintings and materials related to the production process were collected and exhibited at the Cheonggyecheon Museum to introduce them to local residents. Through this exhibition, all members of society were encouraged to recognize the importance of environmental protection.

Art and culture

Cultural Support Program for the Underprivileged



Hanwha Corporation actively participates in solving problems of culturally marginalized groups such as the elderly, the disabled, and children protected from domestic violence in the local community, making every effort to enrich the lives of all. Through programs such as barista training for people with disabilities and emotional stability and cultural support activities for families affected by domestic violence, we provide emotional support to children and local residents who receive relatively few cultural benefits and strive to help them achieve positive interactions and amicable relationships as healthy members of society.

Symphonic Festival with Hanwha



Hanwha Corporation, together with the Hanwha Group, has been sponsoring the “Symphonic Festival with Hanwha” at the Seoul Arts Center since 2000. By providing opportunities for Korean city and provincial symphony orchestras, mid-career musicians, and talented next-generation musicians to perform at the Seoul Arts Center, we are contributing to the popularization of classical music.
In addition, Hanwha Corporation contributed KRW 9 billion to the Hanwha Foundation to support the establishment of the Pompidou Center Hanwha Seoul (tentative name), which will open in 63 Square in 2025, and actively contributes to the sustainable development of the cultural sector by discovering and supporting emerging global artists.

Donation and service

Forena Library Project



Since 2011, Hanwha Corporation’s E&C Division has actively promoted the "Forena Library" project, which remodels idle spaces in social welfare facilities nationwide and donates books to create small libraries. In 2022, we revived a small pine library in Cheongju, North Chungcheong Province, which was destroyed by a fire, as the Forena Library (No. 101) with the local community, utilizing the Creating a Brighter World Fund raised by employees and company funds. In 2023, we opened the Ansan Forena Library (No. 102) in collaboration with Kakao, and established the Forena Library (No. 103) at the only elementary school in Yeonpyeong Island in cooperation with the Korea Midland Power Co. We are also promoting activities such as the " Forena 100 Walk Together" challenge, where books are donated for every mile walked, and making Braille books.

Volunteering for Voice Donation



Hanwha Corporation’s E&C Division operates a voice donation program in which employees read books with their families to create audiobooks for children who have difficulty reading and donate them to welfare facilities for the blind, residential facilities for children with disabilities, and special schools. The audiobooks provide an opportunity for children who face difficulties in reading, such as the blind, multicultural children, and orphaned children, to easily access books and help them improve their language skills and emotional development.

GOVERNANCE

Hanwha Corporation ensures procedural fairness based on sound governance principles and systems, while not only growing the company but also creating prosperity for society and opportunities for its members.

Corporate Governance | Compliance | Risk Management | Information Security



Governance
Corporate Governance

We aim to realize the values of various stakeholders and establish transparent and trustworthy corporate governance.

Hanwha Corporation has formed an objective and transparent Board of Directors centered on outside directors with an emphasis on diversity and expertise, and ensures the exercise of shareholders' voting rights through a shareholder return policy. Continuing these efforts, we will strive to achieve sustainable growth while enhancing shareholder value and protecting their rights and interests based on transparent and sound corporate governance.

Achievements in 2022

Enhanced BOD diversityr (including 2023)
Appointed two female and foreign outside directors

BOD meetings held
18times

Average BOD attendance
97.6%

Going Forward

Hanwha Corporation will establish a disclosure information control system commensurate with ICFR (Internal Control over Financial Reporting) standards from 2024 in preparation for the mandatory ESG disclosure policy to be implemented in 2025. In addition, we plan to provide training for outside directors to fulfill their duties with a good understanding of the field to strengthen the capabilities of the BOD, and practice ESG management more actively.

Alignment with UN SDGs

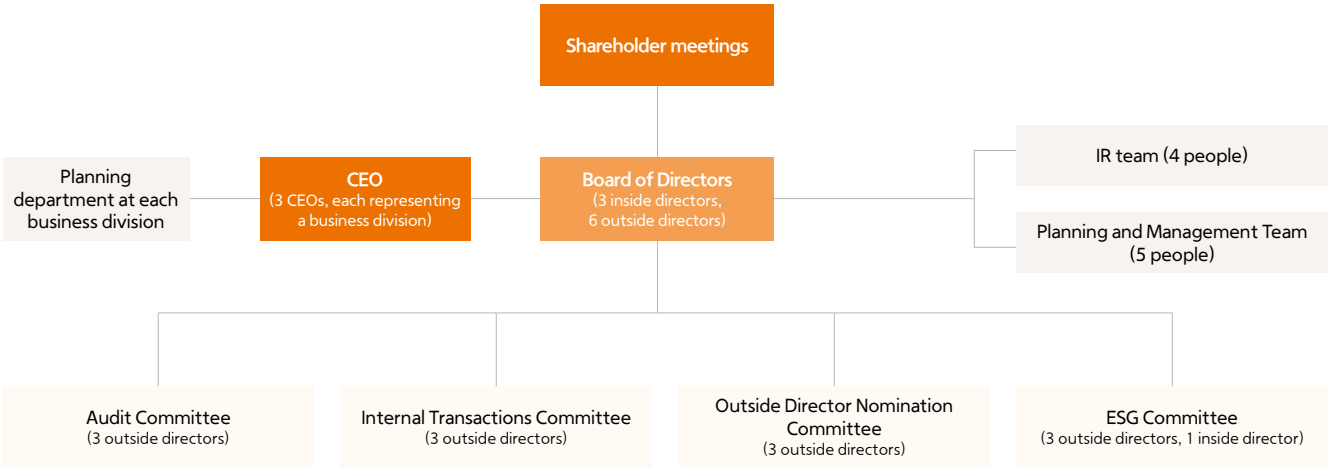
Sound Corporate Governance Structure

BOD composition

As of the end of May 2023, the BOD of Hanwha Corporation is composed of nine directors, including three inside directors and six outside directors (66.67% comprised of outside directors). As the company's top standing decision-making body, the BOD has the authority to appoint and dismiss the CEO and deliberates and resolves matters stipulated by laws and regulations or the Articles of Incorporation, matters delegated by the General Meeting of Shareholders, basic management policies, and other important matters related to business operations. Moreover, through regular and ad hoc meetings, the BOD is responsible for efficiently resolving various challenges and issues facing the company, as well as establishing ESG management strategies and making decisions to promote sustainable management. In order to ensure the transparent operation of the BOD, all directors are appointed by the general meeting of shareholders in accordance with the Articles of Incorporation, and the BOD is chaired by Mr. Kim Seung Mo, CEO of the E&C Division, whom the BOD appointed under the regulations of the BOD.

Board of Directors organization chart

(as of May 2023)



Operations and activities of the BOD

Hanwha Corporation holds regular BOD meetings once a quarter based on the Hanwha Corporate Governance Charter and BOD Regulations and extraordinary BOD meetings when necessary. For the smooth operation of the BOD, we collect the agenda 7 days before the date of the meeting, provide each director with BOD meeting materials such as resolutions and report agendas 3 days before the meeting, and publish the convening notice. Since 2022, we have held a preliminary explanation session on the BOD agenda one week before the BOD meeting to ensure that outside directors fulfill their duties, reporting on management issues from time to time. In 2022, the BOD was held 18 times, with an average attendance rate of 97.6%, and a total of 99 resolutions and reports were faithfully deliberated and resolved.

Composition of the Board of Directors

(As of May 2023)

Category	Name	Job Title	Gender	Date of birth	Specialties	Career Highlights	Tenure
Inside Directors	Kim Seung Mo	Chairman of the Board/ CEO of the E&C Division	Male	August 1967	Management	• Former) Other Non-executive Director, Hanwha Aerospace • Former) CEO, Hanwha Defense	March 29, 2023 – March 29, 2025
	Kim Dong Kwan	CEO of the Strategic Division	Male	October 1983	Management	• Current) CEO, Hanwha Solutions • Current) CEO, Hanwha Aerospace • Current) Non-executive Director, Hanwha Ocean	March 29, 2022 – March 29, 2024
	Yang Ki Won	CEO of the Global/ Momentum Divisions	Male	May 1970	Management	• Former) Head of Business Development, Hanwha Solutions • Former) Head of Strategic Planning, Strategic Division, Hanwha Solutions	September 28, 2022 – March 29, 2024
Outside Directors	Kim Seung Heon	Outside Director/ Audit Committee Chair	Male	October 1967	Finance	• Former) Auditor/Advisor, Samil PwC • Current) Part-time Advisor, Korea Defense Acquisition Program Institute	March 29, 2022 – March 29, 2024
	Lee Suk Jae	Outside Director	Male	November 1967	Humanities	• Current) Professor, Department of Philosophy, College of HUMANITIES, Seoul National University • Current) Outside Director, Shinsegae I&C (Auditor)	March 29, 2022 – March 29, 2024
	Kwon Ik Hwan	Outside Director /Audit Committee Commissioner	Male	September 1967	Legal	• Current) Outside Director (Auditor), SK Bioscience • Current) Attorney, Kim & Chang Law Office	March 29, 2022 – March 29, 2024
	Byeon Hye Ryung	Outside Director	Female	January 1979	Chemistry (Energy)	• Former) Head researcher, RIKEN • Current) Associate Professor, Department of Chemistry, College of Natural Sciences, Korea Advanced Institute of Science and Technology	September 28, 2022 – March 29, 2024
	Edwin Feulner	Outside Director	Male	August 1941	International Management & Society	• Former) Fellow, Center For Strategic and International Studies • Current) President, Asian Studies Center, The Heritage Foundation	March 29, 2023 – March 29, 2025
	Lee Yong Gyu	Outside Director /Audit Committee Commissioner	Male	January 1975	Finance	• Current) Outside Director (Auditor), PlayD • Current) Associate Professor, College of Business Administration, Seoul National University	March 29, 2023 – March 29, 2025

BOD activities and attendance

Times held	Resolutions	Reports submitted	Average attendance	Inside director attendance	Outside director attendance
18 times	71cases	28cases	97.6%	96.7%	98.9%

Independence, diversity, and expertise of the BOD

Hanwha Corporation promulgated the Hanwha Corporate Governance Charter in 2021 to ensure transparent and sound management. Through these efforts, we are not only establishing policies to secure the independence, diversity, and expertise of the BOD, but also protecting the rights and interests of various stakeholders to expand sustainable value.

The composition of the BOD is centered on outside directors to enhance efficiency and independence by involving people with experience and expertise in different fields. Accordingly, when appointing outside directors, we consider diversity in terms of gender, race, nationality, background, and religion, and appoint experts from a wide range of fields, such as management, law, finance, humanities, and anthropology, to avoid representing specific interests. In particular, we appointed two new outside directors, Byeon Hye Ryung and Edwin Feulner, to further enhance the expertise and diversity of the BOD. In addition, in order to implement a sound and stable corporate governance structure, we delegate the company's decision-making and business progress to the BOD and management separately, and report the business progress of the management to the BOD. Furthermore, to ensure that the BOD can effectively exercise its checks and balances on management, we constitute more than a majority (60%) of the BOD with independent outside directors with the authority to appoint and remove the CEO and executives and supervise the execution of duties by other directors.

Director appointment process and criteria

Hanwha Corporation follows a fair and transparent process for the appointment of directors at the general meeting of shareholders. In the case of inside directors, candidates with the most suitable capabilities for the management of the company are appointed from a group of candidates who have undergone a long-term development plan through the human resources department and presented to the general meeting of shareholders, following which they are finally appointed based on a comprehensive evaluation of the candidate's capabilities, understanding of management, expertise, and experience. In the case of outside directors, the Outside Director Nomination Committee, which is composed entirely of outside directors, conducts a qualification screening and evaluation of the candidates by carefully verifying their qualifications, expertise, and independence. The general meeting of shareholders then decides on their final appointment, and the confirmation of their eligibility and qualification is submitted to the Korea Exchange.

Board Committees

Forming board committees

Hanwha Corporation operates the Audit Committee and the Outside Director Nomination Committee per the Commercial Act, and has established and operated the Internal Transaction Committee and the ESG Committee to enhance the expertise, independence, and efficiency of the BOD. The Audit Committee, Outside Director Nomination Committee, and Internal Transaction Committee are all composed of outside directors, and an outside director with high expertise in their respective field is appointed as the chairperson to enhance the professionalism and transparency of corporate governance. In addition, according to Article 12 of the Audit Committee Regulations, the committees may seek advice from experts when necessary. Furthermore, the ESG Committee plays a role in sharing ESG management performance and deliberating on compliance control activities and matters related to the environment (E), society (S), and governance (G).

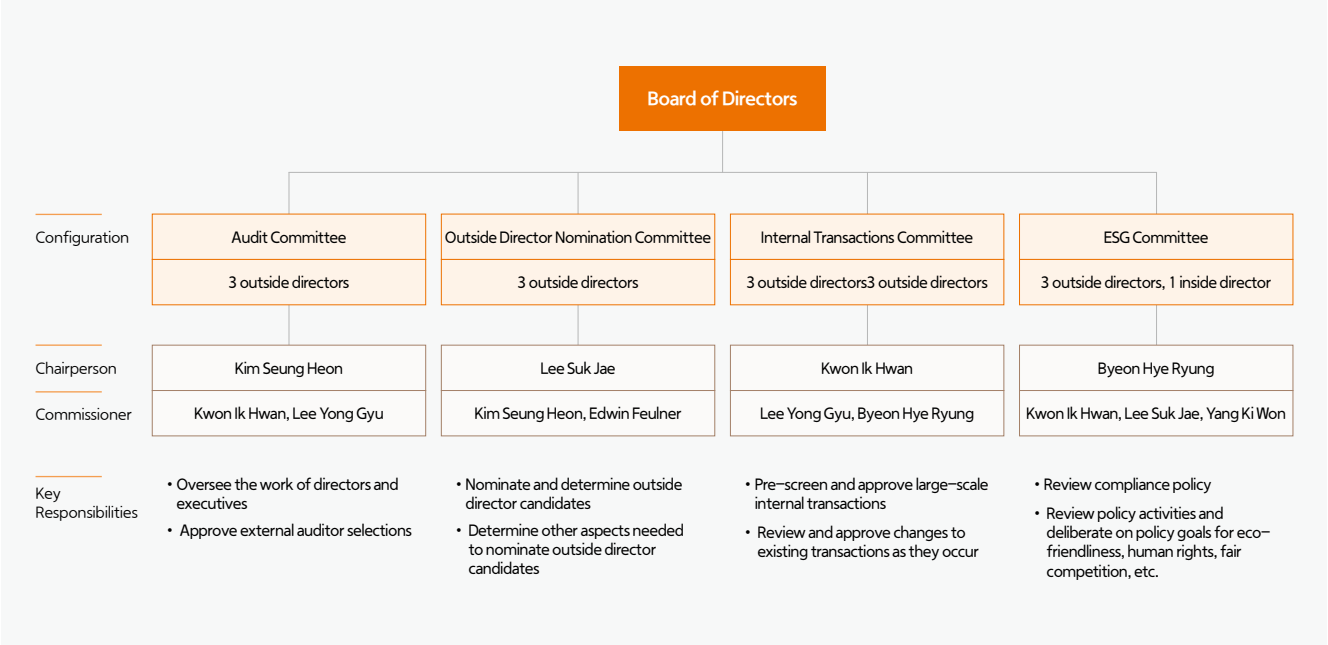
Board committee meetings in 2022

(As of December 2022)

Committee	Number of meetings	Agenda items
Audit Committee	8	27 (7 resolutions, 20 reports)
Outside Director Nomination Committee	3	3 (resolutions)
Internal Transactions Committee	7	10 (resolutions)
ESG Committee	8	11 (3 resolutions, 8 reports)

Board committees and their roles

(As of May 2023)



Board Evaluation and Compensation

Training BOD members

Hanwha Corporation supports various systems and programs to help outside directors objectively monitor the company's management and effectively make decisions on important management policies. We have established a dedicated department for BOD-related affairs to promptly respond to the information needs of outside directors and regularly share information on management issues. In particular, we provide training for outside directors to enhance their efficiency and professionalism. In 2022, we offered external training on internal control over financial reporting (ICFR) for commissioners of the Audit Committee to strengthen their audit capabilities.

Outside director training in 2022

Training date	Attending outside directors	Training highlights
August 29, 2022	Nam Il Ho, Park Jun Seon, Kim Seung Heon, Lee Suk Jae, Kwon Ik Hwan, Byeon Hye Ryung (All 6 outside directors)	Training to improve ESG management literacy for sustainable growth

Audit Committee training in 2022

Training date	Attending outside directors	Training highlights
November 11, 2022	Nam Il Ho, Park Jun Seon, Kim Seung Heon (All Audit Committee commissioners)	Training on internal control over financial reporting (ICFR)

Evaluating outside directors

To ensure transparent and independent management, Hanwha Corporation evaluates the competence and contribution of outside directors through the Outside Director Nomination Committee. The committee conducts a comprehensive performance appraisal of outside directors, including their expertise, integrity, responsibility, and ability to perform their duties fairly, and reflects the results of this appraisal in the decision to appoint and re-appoint outside directors.

Board compensation

Hanwha Corporation pays directors within the limits of the executive salary determined by the general meeting of shareholders in accordance with the company's policies and executive remuneration regulations. The remuneration of inside directors consists of a fixed base salary and a variable performance bonus linked to performance. Meanwhile, in order to ensure the independence of outside directors, a fixed monthly activity allowance is paid in addition to basic salary to cover expenses incurred for company business without linking it to appraisal, and no separate stock options and retirement benefits are provided.

CEO Succession Policy

CEO succession policy and procedures

Hanwha Corporation has established and operates an internal process for CEO succession to ensure the soundness of the company's operations and ability to generate business performance. Pursuant to Article 33 of the Articles of Incorporation, the Board of Directors is authorized to appoint and remove the CEO and initiate the company's CEO succession process when it is necessary to replace the CEO. The BOD identifies candidates based on their leadership and expertise from a pool of CEO candidates systematically cultivated under the company's program, and appoints a candidate as an inside director through the general meeting of shareholders. Subsequently, the appointed inside director will serve as CEO after the final review and deliberation by the BOD.

Training CEO candidates

Hanwha Corporation is constantly managing suitable candidates for CEO. It implements a smooth process to secure multiple candidates and ensure that the CEO succession is carried out to the best candidate. In addition to providing internal and external training for CEO candidates to encourage their self-directed capacity-building, we operate various in-house programs (mentoring, shadowing, etc.) to cultivate leadership by actively fostering junior colleagues. We also operate the Global Executive Leadership Program (GELP), a program that dispatches candidates to overseas universities to strengthen their leadership and global capabilities, and the Advanced Leaders Program for National Future Security & Strategy (ALPS2) program, which provides candidates from specific business areas with the opportunity to train at domestic universities to enhance their industry expertise.

CEO candidate training in 2022

Course name	Institution	Participants	Training duration
KAIST Management Capacity-Building Course	Hanwha Global HRD Center	1 person	September to November 2022
Leadership Coaching Course		1 person	August to December 2022
Execution Excellence Academy(EEA) Course		5 people	June to December 2022
CEO Executive		1 person	March to December 2022

Shareholder-friendly Management

Share and capital structure

The total number of shares authorized for issuance under the Articles of Incorporation is 200,000,000, and the par value of one share is KRW 5,000. As of December 31, 2022, the number of common shares with voting rights was 74,958,735, with one vote per share, the number of treasury shares with restricted voting rights under the Commercial Act was 1,132,437, and the number of non-voting preferred shares was 22,951,294.

Shareholder return policy

Hanwha Corporation strives to enhance shareholder value by continuously implementing a certain level of dividends every year as part of its shareholder return policy. In order to increase predictability for shareholders, dividend-related information is disclosed through the "Decision on Cash Dividends and Dividends in Kind" disclosure four weeks before the general meeting. In 2022, we paid out dividends at a yield level of 2.7% for common shares, 2.4% for 1st preferred shares, and 5.4% for 3rd preferred shares. We will spare no effort to meet shareholders' dividend expectations by generating stable profits.

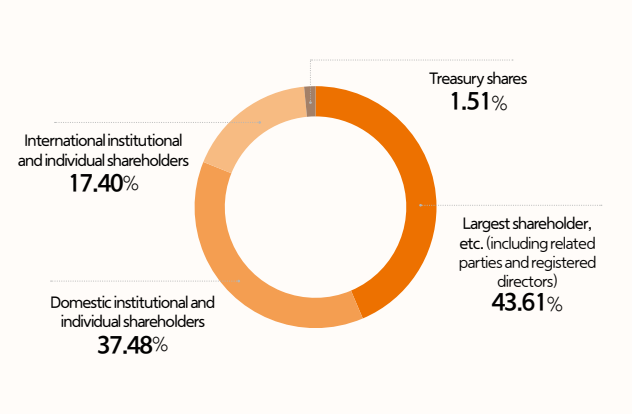
Types of shares and voting rights

(as of December 31, 2022)

Category	Share type	Number of shares	Notes
Total shares outstanding	Common shares	74,958,735	
	1st preferred shares	479,294	
	3rd preferred shares	22,472,000	
Number of non-voting shares	Common shares	1,132,437	Treasury shares
	1st preferred shares	479,294	
	3rd preferred shares	22,472,000	
Number of voting shares	Common shares	72,455,193	

Shareholder composition

(as of December 2022)



Key dividend indicators

Category	Unit	Types of shares	2019	2020	2021	2022
(Consolidated) Net income	KRW Million	–	-303,431	805,701	973,499	1,312,179
(Consolidated) Earnings per share	KRW		-4,605	8,745	10,568	14,169
Total cash dividends	KRW Million		65,569	65,443	69,877	73,731
(Consolidated) Dividend payout ratio	%		-21.6	8.1	7.2	5.6
Cash dividend yield		Common shares	2.8	2.6	2.4	2.7
		1st preferred shares	2.7	1.7	2.1	2.4
		3rd preferred shares	5.3	5.3	4.8	5.4

Acquiring and disposing of treasury stock

Hanwha Corporation acquired approximately 300,000 treasury shares of common shares in May 2022 for approximately KRW 9.1 billion for the purpose of performance compensation for the CEO and key executives. In addition, we exchanged about 5.43 million treasury shares for a business alliance and strategic partnership with Korea Zinc. As a result, we expect to strengthen future businesses related to green energy such as hydrogen and wind power, which are new growth engines for the E&C Division, and participate in Korea Zinc's overseas resource development projects through the Global Division to enhance the company's intrinsic value as well as shareholder value. The results of the above acquisition and disposal of treasury shares were transparently disclosed through the electronic disclosure system.

Protecting shareholder interests

In order to ensure the voting rights of shareholders who do not attend the general meeting of shareholders, Hanwha Corporation has adopted a mail voting system and an electronic voting system. To encourage shareholders to exercise their voting rights properly, we also actively encourage the exercise of voting rights through a proxy for all shareholders listed in the shareholder register as of the end of each business year. In addition, to provide shareholders with sufficient information on the general meeting of shareholders in advance so that they can exercise their rights, the company discloses the meeting resolution, including the date, place, and agenda of the general meeting of shareholders, four weeks prior to the event. With regard to the AGM, we strive to ensure that shareholders can exercise their rights smoothly by spreading out the dates for the general meeting of shareholders to avoid meetings being held on the same day. When announcing the general meeting of shareholders, we submit accurate financial statements reflecting the financial settlements of our subsidiaries at least two weeks before the disclosure deadline in order to support shareholders' effective exercise of voting rights. Hanwha Corporation will endeavor to comply with the four-week notice of a general meeting of shareholders following the Corporate Governance Standards by continuously improving its business processes.

Communicating with shareholders

Hanwha Corporation discloses various corporate activities and performance data through the company's official website and electronic disclosure system to enhance shareholders' and investors' understanding and timeliness of the information. In addition, we have created an environment to actively communicate with stakeholders through regular conference calls and Non-Deal Roadshows (NDR) for domestic and overseas analysts and institutional investors. In particular, following the first publication of the Sustainability Report in 2021, we have published an updated version of the report every year to share our management plans, financial and non-financial performance, and targets with stakeholders and reinforce our commitment to ESG management. We will continue to actively communicate with domestic and international stakeholders, including shareholders and investors, through various channels such as conferences, seminars, and social media, while endeavoring to provide corporate information in a timely manner.

Key shareholder and investor communication activities in 2022

Category	Target	Key content	실적
Seminars	Individual investors with a focus on high-net-worth individuals	IR briefing session for wealth managers at securities companies	2 times (ad hoc)
Roundtables	Analysts	Analyst roundtable	1 time (ad hoc)
Conferences	Analysts and domestic institutional investors	Securities companies conference	4 times (quarterly)
NDRs	Domestic institutional investors	Domestic NDR	4 times (quarterly)
	International institutional investors	International NDR	1 time (ad hoc)
Conference calls	Analysts and domestic institutional investors	Disclosure of quarterly financial results	4 times (quarterly)
	Domestic institutional investors	Korea Exchange Online IR	2 times (semi-annual)

Governance
Compliance

We are committed to practicing integrity-based management to secure transparency in our corporate activities and fulfill our social responsibilities.

Hanwha Corporation strives to create a transparent corporate culture by regularly inspecting the compliance organization and system and allowing employees to internalize an ethical and compliance consciousness through various compliance activities in order to practice ethical and compliance management throughout our business activities.

Achievements in 2022

Number of compliance checks performed
2times

Introduced the Fair Trade Compliance Program
Appointed the Fair Trade Compliance Officer

Number of suppliers with Fair Trade Agreements
307

Going Forward

Hanwha Corporation reorganized its compliance organization and regulations in response to the company's split and merger, and the newly established compliance control system was evaluated by an external agency to be operating effectively. Furthermore, to promote the Fair Trade Compliance Program (CP) in earnest, Hanwha Corporation has enacted relevant regulations and appointed a fair trade compliance officer, and will continue its active compliance activities by constantly conducting compliance training related to the Monopoly Regulation and Fair Trade Act and Improper Solicitation and Graft Act to raise employees' compliance consciousness and minimize compliance risks.

Alignment with UN SDGs

Compliance Management System

Compliance policies

Hanwha Corporation practices integrity-based management to create a transparent and fair corporate culture and establish itself as a company trusted by stakeholders. We conduct fair and reliable corporate activities by setting compliance control standards and a Code of Ethics that embodies the values of ethics and compliance. Furthermore, the employee practice guidelines and area-specific guidelines established to refine these further are presented as judgment criteria for all members in performing their duties, clarifying the ethical principles that Hanwha Corporation pursues and sharing them with stakeholders.

Hanwha Corporation's Code of Ethics Shortcut
Hanwha Corporation's Compliance Policy Shortcut

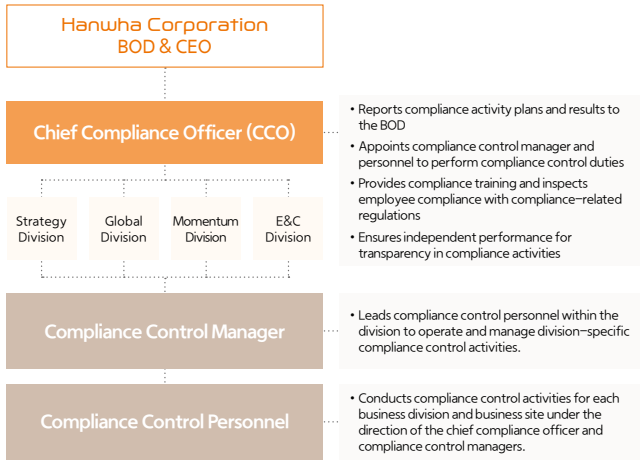
Compliance governance

Hanwha Corporation appoints a chief compliance officer (CCO) whose independent performance is guaranteed through a resolution of the BOD, to which the officer periodically reports the results and plans of compliance activities. The CCO is responsible for the overall operation and implementation of compliance control activities in each business division through the compliance control managers and personnel appointed for each division. With the merger of Hanwha E&C in November 2022, we rebuilt the compliance organization by newly appointing compliance control managers and personnel within the E&C Division, and reorganized the compliance control system by establishing a compliance control checklist that largely consists of laws and regulations related to construction projects.

Compliance Policy System



Compliance management organization chart



Compliance management framework

Hanwha Corporation has established a compliance management system and continuously reinforces it to practice practical compliance activities. We support ethical and compliance activities in various areas such as fair trade, anti-corruption, and personal information protection through a three-step process of prevention, inspection of implementation, and reporting and effectiveness evaluation.
The compliance control personnel conduct team-based compliance inspections twice a year using company-wide and divisional compliance checklists and report the results to the CCO. In 2022, no significant inadequacies, risks, or abnormalities were identified as a result of the Inspections. In addition, an external law firm conducted an evaluation of the effectiveness of Hanwha Corporation's compliance control system in 2022, which resulted in the assessment that the company's compliance control system is operating effectively in accordance with the Commercial Act.

Compliance control process

Prevention

- Conducts online and offline ethics and compliance training for employees
- Creates and distributes work-related compliance issue-specific guides
- Provides information about relevant regulations and policies

Inspection of implementation

- [Regular inspections]
  Compliance control personnel inspect compliance control activities through a checklist for each business division → Compliance control managers report the results of inspections to the CCO → Corrective actions are taken when violations are identified
- [Ad hoc inspections]
  Conducts ad hoc inspections for key compliance issues → In the case of inadequacies, distributes guidelines to employees to prevent violations

Reporting and effectiveness evaluation

- The CCO reports to the Board of Directors and CEO on key compliance issues, countermeasures, and compliance control activity performance and plans.
- Evaluates the effectiveness of compliance management systems and operations through external legal experts

Key Compliance Activities

Key compliance activities in 2022

Target	Category	Program name	Date	Training content	Notes
Compliance Control Personnel	Training	Domestic Compliance Workshop	Dec. 2022	Understanding compliance control operations (34 participants)	Written and online
Employee	Training	Fair Transactions in Subcontracting Act training	Jun. 2022 Dec. 2022	Training on Fair Transactions in Subcontracting Act in the first and second half (1,343 participants)	Online
		Personal Information Protection Act	Dec. 2022	Training on Personal Information Protection Act (4,161 participants)	
		Internal transactions between affiliates	Apr. 2023	Introduction to laws and cases on internal transactions between affiliates (54 participants, additional training planned)	In-person
		Improper Solicitation and Graft Act	Apr. 2023	Training with actual rulings based on the Improper Solicitation and Graft Act (19 participants, additional training planned)	
		Unfair Trade Practices, Fair Agency Transactions Act	May 2023	Training centered on matters of note when dealing with agents (14 participants, additional training planned)	
		Compliance and ethics training	Jun. 2023	Training on compliance and ethics (ongoing)	Online
	Correspondence	Notices of amendments to the Fair Transactions in Subcontracting Act	Jan. 2022	Sending out notices of amendments to the Fair Transactions in Subcontracting Act and standard non-disclosure agreements to all employees	
	Resources	Information on new and revised legal laws	Constant (17 cases)	Posting important new and revised legal information on the company bulletin board on a constant basis	
		Notification of amendments to the Improper Solicitation and Graft Act	Jan. 2022	Posting notices of the amendment to the Improper Solicitation and Graft Act on the company bulletin board	

Conducting employee compliance training

Hanwha Corporation produces and distributes guides for each compliance issue, such as the Fair Transactions in Subcontracting Act, the Improper Solicitation and Graft Act, and the Monopoly Regulation and Fair Trade Act, as reference materials for employees to perform their duties, and conducts related training to strengthen the compliance capabilities and expertise of all members. Moreover, customized training is conducted by selecting topics with high business relevance or legal risk for each business division, and training materials are organized and taught by training personnel in the Legal Office to create workplace-friendly and practical compliance training.

Employee compliance training in 2022

Category	Training time (hours)	Participants (people)
Ethics and Compliance (ongoing)	65	186
Anti-corruption	243	243
Fair Trade	1,541	1,343

Publishing information on major new and revised laws

Hanwha Corporation conducts regular monitoring of ethics and compliance–related laws and regulations as well as major legislative enactments and amendments related to its businesses, and posts major promulgated and enforced laws and regulations on the company's bulletin board to prevent violations of compliance and ethical management. In addition, to make complex compliance–related information easier for employees to understand, we develop educational materials and distribute them throughout the company. Furthermore, we strive to make ethics and compliance information accessible to foreign employees by posting the English versions of the Compliance Control Standards, Code of Ethics, and Ethical Guidelines on our website

Protecting suppliers' technical data

When Hanwha Corporation receives technical data from its suppliers, it concludes a confidentiality agreement following the amendment to the Fair Transactions in Subcontracting Act implemented in February 2022, and manages the list of employees who handles technical data through the contract. We support the protection of trade secrets and the sustainable growth of our suppliers by stipulating the contractual obligation for compensation in the event that technical data is used for purposes other than the intended purpose.

Disseminating the culture of compliance

Hanwha Corporation complies with all relevant laws and regulations and makes an effort to internalize a sound and fair compliance culture within the organization. Throughout the year, we send compliance management letters from the CEO and CCO to employees or post them for constant access to express our commitment to compliance management and reaffirm its importance. In 2022, we strengthened the compliance consciousness of all members by sending out compliance control letters to employees regarding the commencement of the revised Fair Transactions in Subcontracting Act and distributing standard confidentiality agreement forms for technical data. In the E&C Division, we promote the practice and establishment of ethical management by requiring suppliers to fill out an ethics pledge when signing contracts.

Reorganizing the internal transaction review system

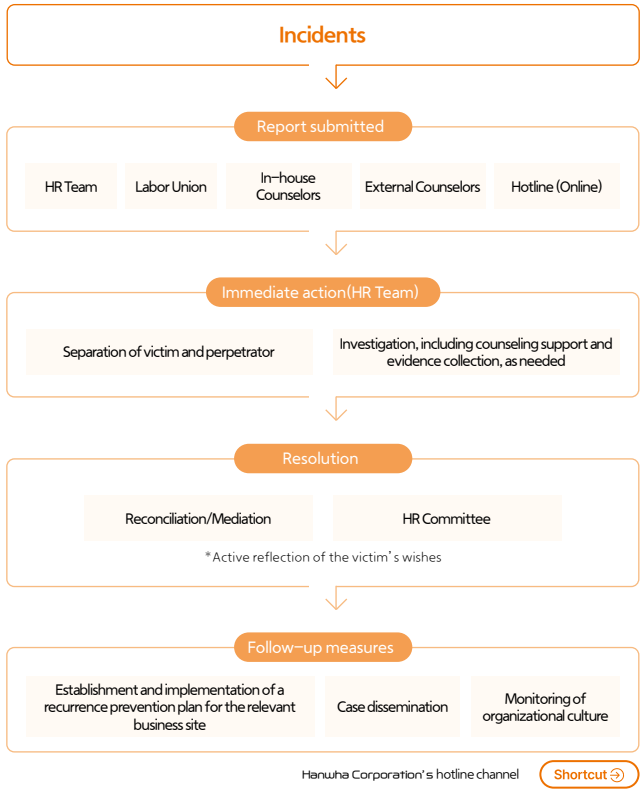
Hanwha Corporation revised the internal transaction review regulations and reorganized the process to comply with the Monopoly Regulation and Fair Trade Act and maintain a fair trade ecosystem. In 2022, we strengthened the review on transaction procedures, necessity, and appropriateness of internal transactions between affiliates, and face–to–face training on the revised internal transaction review process was conducted to allow employees to reflect it in their actual work.

Operating compliance reporting channels

Hanwha Corporation operates a hotline system on its website to allow not only employees but also external stakeholders, such as suppliers and customers, to report illegal or unfair acts that may occur in the course of corporate management or the performance of employees' duties. Reports are directly forwarded to the CCO, who responds within 48 hours to facilitate the swift resolution of issues. The personal information of the whistleblower and the contents of the report are kept strictly confidential in accordance with compliance control standards.

In addition, we have established an internal reporting system for employees to immediately report human rights violations and unethical behavior, such as workplace harassment and sexual harassment, to the relevant personnel, and provide clear guidance on the procedures and timeframes for handling reports. Upon receipt of a report, critical cases are immediately reported to the CEO, and measures are taken through an immediate investigation process. In particular, sexual harassment counselors are assigned to each business site, one male and one female, to create an environment where employees can freely receive counseling in case of related grievances. In order to prevent retaliatory measures or job disadvantages from occurring as a result of the report, we ensure strict confidentiality regarding the identity of the informant and the contents of the consultation and reception, and separately inform the informant about the reception and consultation of the Korea Workers' Compensation and Welfare Service, an external reporting channel for workplace harassment, to ensure complete anonymity.

Whistleblower response process



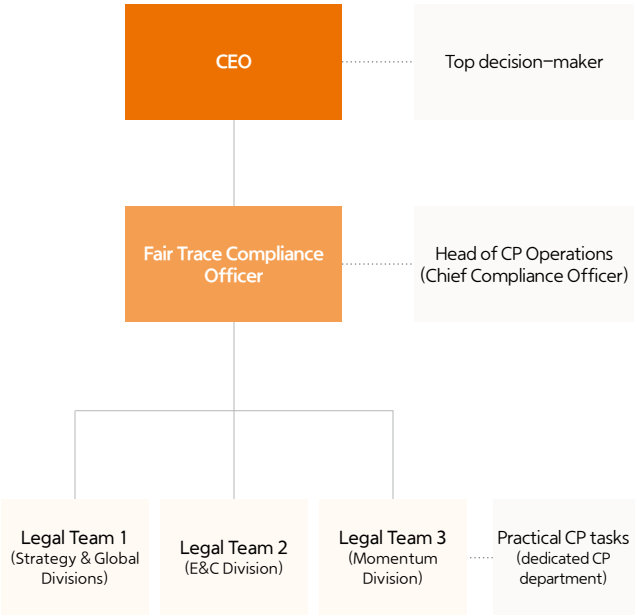
Hanwha Corporation's hotline channel Shortcut

Fair Trade Compliance

Introducing the Fair Trade Compliance Program

Hanwha Corporation introduced the Fair Trade Compliance Program (CP) to raise employees' awareness of compliance and prevent violations of fair trade laws and regulations by creating and spreading a culture of fair trade compliance. In 2023, to ensure the smooth operation of the CP, we enacted the CP Operating Regulations across all divisions, and established a governance system in which the CCO appointed through the BOD serves as the Fair Trade Compliance Officer, and reports the operation status and performance of the CP to the CEO.

Operating organization for the Fair Trade Compliance Program (CP)



Fair Trade Compliance Activities

Hanwha Corporation has established four fair trade guidelines to promote win-win growth through fair trade with suppliers, and employees are strictly prohibited from receiving money, gifts, or entertainment from suppliers and other stakeholders. In addition, to create a fair trade ecosystem, we conduct preliminary contract reviews and legal consultations to prevent possible violations of the Fair Transactions in Subcontracting Act. Furthermore, we monitor whether there are any violations of the Fair Transactions in Subcontracting Act in the course of transaction execution through regular inspections, and take immediate improvement measures if any violations are found.



Fair Trade Agreements

Fair Trade Agreement Conten	Number of suppliers with Fair Trade Agreements
• Legal compliance • Comply with the Fair Trade Commission's four guidelines • Fair contract signing and implementation • Prevention of subcontracting violations • Financial, technical, and administrative support	307

Notifying the prohibition of receiving gifts and bribery from suppliers

Hanwha Corporation sent out a letter emphasizing compliance and ethical management under the name of the CEO to 2,301 suppliers before Chuseok (Korean Thanksgiving) to prevent illegal and fraudulent activities related to suppliers in 2022. Through this letter, suppliers were informed that it is strictly prohibited for everyone at Hanwha Corporation to receive money, gifts, or entertainment from stakeholders including suppliers, and we have taken steps to ensure and maintain a fair cooperative relationship based on sound and transparent transactions by instructing suppliers to report any such requests to the CCO.

Channels for reporting unfair trade

Hanwha Corporation receives reports through the Ethics Hotline on the website and processes them in a timely manner upon identifying unfair business treatment or demands based on work-related positions in the course of transactions with suppliers. After receiving a report through the Ethics Hotline, we disclose the results to the complainant after fact-checking, reviewing, and taking action on the complaint through the Internal Subcontracting Transaction Review Committee. Hanwha Corporation will continue its efforts to eradicate all kinds of unfair transactions such as entertainment, hospitality, bribery, unethical behavior, leakage of confidential information, exclusive trading conditions, and discrimination through the operation of transparent communication channels.

Hanwha Corporation's Cyber Complaint Center Shortcut

Governance
Risk Management

We strive for the stability of our businesses and the sustainability of our company through company-wide risk management processes.

Hanwha Corporation has established a company-wide integrated risk management system to proactively identify and respond to various risks that may arise in the course of business activities and the rapidly-changing business environment. We are also striving to minimize the impacts of risks by encouraging our employees to internalize the culture of risk management.

Achievements in 2022

Established Hanwha Risk Management Regulations
May 2023

Strengthened company-wide risk management governance
Reorganized the ESG Council modules

Going Forward

Hanwha Corporation established the Risk Management Regulations in 2023 to minimize various risks that may arise in the course of the company's management activities and to enhance stakeholder value by promoting a sustainable management environment. In the future, we will continue to upgrade the company-wide risk management system to prevent various uncertainties or possible losses in advance and reinforce flexible reaction capabilities in line with internal and external environmental changes.

Alignment with UN SDGs

Risk Management System

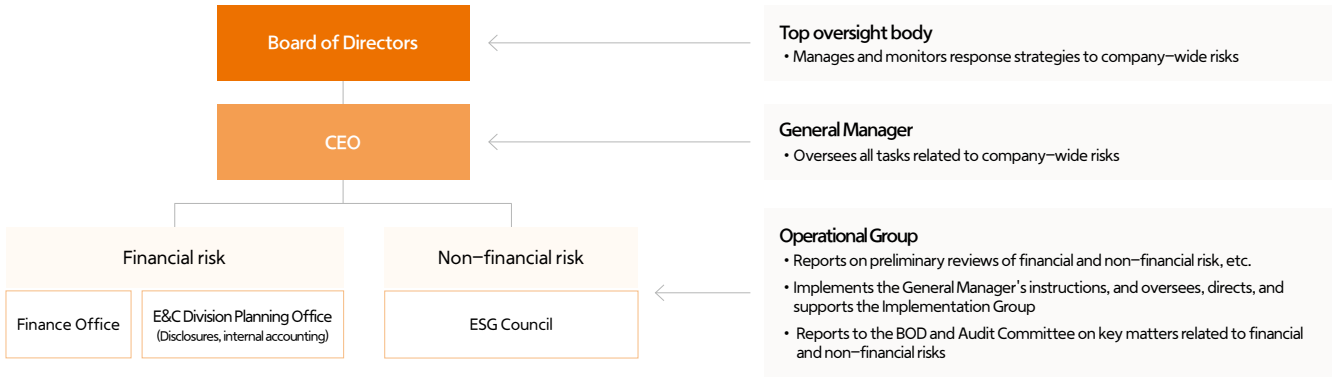
Company-wide integrated risk management

Hanwha Corporation has established and operates proactive and systematic management procedures for financial and non-financial risks that may arise in the course of business activities. Based on a risk management system centered on a dedicated internal organization, we have a three-step proactive risk management process of identification and analysis, assessment and processing, and follow-up measures, with major issues reported to the BOD on a regular basis in December each year. In 2023, we newly enacted the Risk Management Regulations, which stipulate the basic principles of risk management, with the aim to unify risk management principles and procedures across the entire organization, making efforts to efficiently reorganize and operate the risk identification and reporting system.

Risk management governance

Hanwha Corporation has established a company-wide risk management governance system under the purview of the CEO as the General Manager, and manages company-wide risks centered on the General Manager, the Operational Group, and the Implementation Group. The Implementation Group, as the smallest organizational unit within the company, is responsible for reporting to the Operational Group with regard to risk assessments and preliminary reviews. The Operational Group, comprised of the Finance Office, the E&C Division Planning Office, and the ESG Council, is responsible for reviewing financial and non-financial risks, implementing the General Manager's instructions, and overseeing, directing, and supporting the Implementation Group. In addition, risk management takes place from a company-wide perspective through the ESG Council, and the General Manager reports on major risks to the BOD and related subcommittees, thereby establishing and operating a company-wide risk management governance with a strict management and supervision system.

Risk management organization chart



Risk management process

Hanwha Corporation has established a company-wide risk management process consisting of four stages, from proactive risk identification to analysis and evaluation, risk response decision-making, and follow-up measures. To ensure more systematic and proper risk management, we conduct preliminary reviews by assessing and analyzing the probability of risk occurrence, scale, and overall impact of each type of risk, based on which we strengthen our risk responsiveness by preparing appropriate reactions and measures for risk transfer, avoidance, reduction, and acceptance. Furthermore, we are enhancing the risk management process by inspecting the implementation of risk management measures and gathering continuous feedback on the results.

Risk management process

01 Risk identification	• Identify types and characteristics of risk factors
02 Risk analysis and assessment	• Analyze the probability and magnitude of risk occurrence • Conduct quantitative and non-quantitative assessments of the individual or aggregate impact of risk variables
03 Decision-making on risk response	• Create appropriate response and action plans for each risk • Continuously monitor the current status of risk response
04 Follow-up measures on risk response decisions	• Conduct follow-up reports on decisions • Identify and implement improvements to enhance risk management effectiveness

Risk Management by Type

Hanwha Corporation defines risk as "the potential for various uncertainties arising in the course of a company's business activities to adversely affect the company's equity, earnings, business opportunities, financing, organizational operations, and reputation" and manages various risks by classifying them into financial and non-financial risks. We ensure that risk management is carried out in the pre-planning stage for all tasks, and the risk management system is designed in accordance with the basic principles of risk management to oversee and respond to risks from a company-wide perspective. Hanwha Corporation continuously monitors risks arising from changes in the internal and external environment, including relevant laws and regulations, policy trends, and opinions of key stakeholders, while supporting employees to recognize the latest industry trends and prevent risks in advance through various channels such as the company intranet and internal bulletin boards.

Managing financial risks

Financial risk encompasses all finance-related threats related to accounting, internal control over financial reporting, external audit, declaration and payment of taxes, interest rates, liquidity, exchange rates, and credit ratings that may arise in the course of business activities, including the company's accounting, tax, financing, finance, and disclosure policies. Hanwha Corporation's financial risk management organizations, namely the Finance Office and the E&C Division Planning Office, respond professionally and systematically to the increasing financial and financing risks associated with its continuous business expansion, thereby securing financial stability and laying the foundation for the company's sustainable economic growth.

Financial risks

Key risks	Response activities
Accounting, tax, interest rate, and liquidity risk	• Constant monitoring of asset-liability ratio to maintain financial health • Establishment of internal policies and regulations based on authoritative interpretation
Internal accounting risk	• Operation and advancement of internal control systems
Foreign exchange risk	• Constant monitoring of exchange rate volatility and establishment of a risk-hedging system • Periodic inspections of company-wide currency risks via a currency risk management committee

Managing non-financial risks

Non-financial risks encompass all threats unrelated to finances that may arise in the course of business activities, including the environment, safety, health, social contributions, supply chains, win-win cooperation, human resources, talent management, governance, information security, compliance, business strategy and operation, reputations, and related information disclosure. In order to actively respond to ESG-related risks, which has become a strong demand for companies in recent times, Hanwha Corporation has recently subdivided the existing ESG Council, a working organization, into 10 modules to continuously monitor and systematically manage non-financial risks.

Non-financial risks

Key risks	Hanwha Corporation's risk response activities
Business and operational risks	• Constant monitoring of trends and regulations in domestic and international industry and technology • Development of technology and enhancement of internal operational processes in line with digital transformation • Management and operation of a strategic business portfolio for future market leadership • Enhancement of competitiveness by attracting top talent and empowering employees to specialize • Enhancement of project risk management through strict compliance and management through the project management system (PMS) upon winning project orders
Compliance risk	• Constant monitoring of new and revised domestic and international laws and regulations • Provision of and support for compliance training for employees and suppliers
ESG risks	• Establishment of an ESG management system in accordance with domestic and international ESG initiative standards and regulations • Review of the company's medium-to-long-term ESG strategy and its implementation • Establishment and implementation of reaction goals for identification, analysis, and scenario-based response regarding potential risks of climate change • Establishment of a dedicated management organization for each ESG area and ongoing identification of risks • Establishment of risk management policies and controls • Sustainable supply chain management through supplier ESG training, consulting, and risk assessment

Internal Control over Financial Reporting (ICFR)

Evaluating and managing the internal control system

Hanwha Corporation ensures the reliability of its financial information and manages risks that may arise in accounting reporting through internal control over financial reporting. The internal management accounting regulations stipulate the roles and responsibilities of the CEO, internal accounting manager, and Audit Committee, the design/operation and evaluation/reporting of the system, and measures to be taken in case of violations. The management monitors the effectiveness of internal control over financial reporting every year, reporting on its operation to the general meeting of shareholders, the BOD, and the Audit Committee to ensure the system's effective operation. The Audit Committee also evaluates the design and operation of internal control over financial reporting and reports the results to the BOD. Based on the "Conceptual System for Design and Operation of Internal Control over Financial Reporting" as of the end of 2022, it was evaluated to be effectively designed and operated in terms of its priorities, and an external audit also delivered the same opinion.

Introducing consolidated internal control over financial reporting

Hanwha Corporation consulted Samjong KPMG to design a system to respond to the introduction of internal control over financial reporting based on consolidated financial statements, which will be mandatory from 2023. To prepare for the introduction of the system, we conducted preliminary tests to identify possible risks and developed countermeasures to ensure transparency in our accounting reporting. In addition, to prepare for the audit of subsidiary internal control over financial reporting on consolidated financial statements and to maintain consistency in the system, we conducted a diagnostic assessment of our directly held, non-listed subsidiaries, including Hanwha Hotels & Resorts, with the aim to establish a proactive management system.

Tax Risk Management

Tax management policies

Hanwha Corporation complies with domestic and international tax laws and regulations as a responsible corporate citizen and faithfully fulfills its tax obligations. Based on a thorough understanding of each country's tax authorities and the purpose of tax laws and regulations, we conduct all transactions arising from our business activities in accordance with the tax laws and regulations of each country, and manage tax risks according to domestic and international tax policies. In addition, we continuously monitor tax trends in each country to prohibit illegal acts under tax laws, such as tax evasion and tax avoidance, and strictly comply with related regulations.

Governance
Information Security

We aim to promote a culture of meticulous information security to ensure peace of mind for all users.

Hanwha Corporation operates a systematic and safe information security management system to protect the company's important information assets and the personal information of various stakeholders. In addition, we are eliminating information security blind spots by implementing security policies, level assessment, accident response, and training.

Achievements in 2022

Personal information protection training for employees
3,211 participants

Number of information security breaches and cybersecurity incidents
0 cases

Number of personal information leakage
0 cases

Going Forward

Hanwha Corporation will acquire international certifications in information security and personal information protection, and implement a systematic and comprehensive information security management system to improve the accountability and reliability of its information services. At the same time, we will establish an ESG system for the integrated management of greenhouse gases to ensure more objective and systematic data management, and accelerate ESG integrated management through data-based analysis and improvements.

Alignment with UN SDGs

Information Security Promotion System

Information Security Declaration

Hanwha Corporation has established a safe information security management system to protect internal information assets and customer information, while ensuring business continuity in response to the rising incidence and sophistication of cyber threats. We strictly comply with relevant laws and regulations at home and abroad to prevent the loss, damage, or leakage of our core technologies and valuable information assets, in addition to monitoring and updating our internal information security regulations and policies according to changes in the internal and external environment to manage our information security systems and processes more reliably. Furthermore, we have established and shared the Information Security Declaration with all employees so that they can recognize the importance of information security, comply with related regulations, and proactively manage risks.

Information Security Declaration

- No.1 We must comply with the company's information security policies and guidelines.
- No.2 We are responsible for protecting the information that we handle.
- No.3 We must comply with the information security requirements of relevant laws and contracts, and observe information security requirements to prevent information leakage.
- No.4 We make continuous efforts to ensure information security centered on the Chief Information Security Officer (CISO) by conducting regular inspections on the status of information security management and control.

Information security governance

Hanwha Corporation operates a dedicated organization for integrated company-wide information security to conduct information security tasks more efficiently and minimize legal risks based on systematic information security policies and regulations. We have appointed an executive staff member as the Chief Information Security Officer (CISO) under the Strategic Division to strengthen information security expertise and responsibilities while leading the spread of an integrated company-wide information security culture. We also operate the DT Security Team, a dedicated information security organization, to plan and manage company-wide and divisional information security tasks, and proactively respond to cybersecurity threats through activities involving external organizations such as the Korea Internet & Security Agency (KISA) and the Personal Information Protection Commission.

Dedicated information security organizations

CEO ··· Strategic Division ··· Chief Information Security Officer (CISO) ··· DT Security Team

Key roles of the DT Security Team

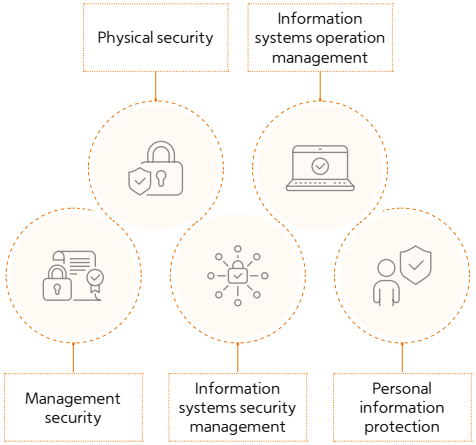
1. Review and update company-wide information security systems, policies, and guidelines (once a year, including personal information protection)
2. Analyze, assess, and remediate vulnerabilities for information security risk management (including personal information protection)
3. Self-inspect outcomes of information security activities (once a year, including personal information protection)
4. Inspect information security in newly-established systems in advance
5. Information security disclosures (once a year)

Information Security Risk Management

Evaluating the standard of information security

Hanwha Corporation introduced an information security standard assessment system in 2021 to identify items that require focused improvements in the field of security management. The assessment system is subdivided into five management areas and 24 control areas, the latter of which include mandatory control items that are directly related to information security laws and regulations items in order to more strictly measure the maturity of the information security posture. In the future, Hanwha Corporation will continue to improve its information security standard by continuously maintaining the assessment system and conducting regular assessments.

Five areas of information security assessment



Strengthening industrial security management

Hanwha Corporation strives to share cybersecurity threats and countermeasures with various stakeholders in the industry and eliminate information security blind spots. We participate in the Cyber Threat Analysis & Sharing System (C-TAS) operated by the Korea Internet & Security Agency (KISA) while providing and sharing real-time cyber threat information through the National Cyber Security Center's Korea Cyber Threat Intelligence System (KCTI). Through these efforts, we are strengthening the network of public-private cooperation and raising the level of security incident response while also preventing technology leaks at the same time.

We also participate in the Industrial Security Conference organized by the National Core Technology Security Academy of Korea every year to discuss industrial security trends and countermeasures and to create an industrial security management ecosystem that promotes mutual benefits among companies. At the conference, we actively share advanced industrial security technologies and know-how with various stakeholders to prepare for industrial security threats and improve the level of industrial security at the national level, such as discussing the need for a dedicated security organization and the prevention and protection of cross-border technology leaks.

Managing personal information protection

Hanwha Corporation complies with personal information-related laws and regulations and continuously revises its personal information protection policy to safeguard the valuable personal information of employees and customers. In order to prevent personal information leakage in advance, we comply with the mandatory retention period for all information and take measures to destroy information immediately after the original purpose of collection and use is fulfilled.

In addition, we disclose the personal information protection policy related to the handling of employees' and customers' personal information on the company's website, including personal information collection items, purposes, periods of use, consignment companies, and disposal procedures and methods, as well as specifying the personal information protection officer and department in charge to promptly handle related grievances and complaints. Furthermore, we operate a company-wide Chief Privacy Officer (CPO) and a department in charge of personal information protection to prepare for legal risks related to personal information leakage, in addition to purchasing personal information leakage compensation insurance to prepare for damages caused by personal information leakages as a remedy for user grievan

Hanwha Corporation's privacy policy Shortcut

Managing cybersecurity risks

Hanwha Corporation is making multifaceted efforts to identify the latest cybersecurity trends and strengthen its cyber and IT security capabilities. In 2022, we conducted activities to strengthen our cybersecurity capabilities in light of the spread of international cyber threats and cases of information leakage among domestic companies. We conducted mock drills to respond to cyber infiltration such as malware and email hacking, and prohibited the operation of file servers as a rule while only operating file servers approved by the Chief Privacy Officer as needed to minimize the damage of security incidents.

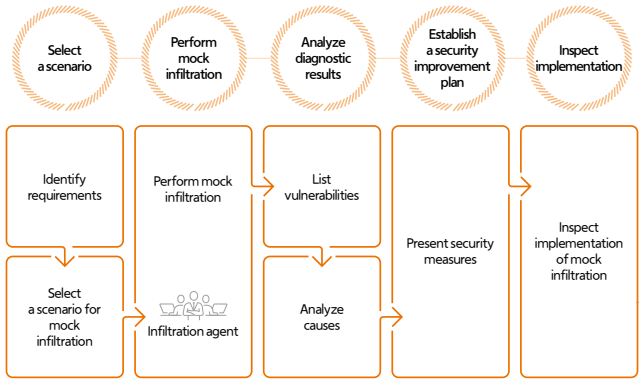
In addition, we have taken measures to control remote access to respond to security threats that have increased due to changes in the work environment such as non-face-to-face remote work in the aftermath of COVID-19. We prohibited access to unauthorized devices and introduced additional authentication procedures to reinforce our internal cybersecurity risk management system. Hanwha Corporation will continue to respond flexibly and quickly to changes in the internal and external environment and various security issues to improve its standard of information security.

Dissemination of information security culture

Security incident prevention and response activities

Hanwha Corporation regularly conducts IT diagnostics on the web, infrastructure, and secure coding elements to complement vulnerabilities, and operates information protection services that are safe from external threats such as hacking and ransomware. In particular, we conduct simulated infiltration drills for major business systems and strengthen our security capabilities to ensure more effective and quicker responses to cyber threats by eliminating and improving identified vulnerabilities. In addition, the Integrated Security Control Center (Jukjeon IDC) conducts real-time monitoring to prevent cyber breaches on a year-round basis. This allows the swift detection of external attacks and risks so that we can safely manage corporate information assets and customer information while ensuring a rapid response.

Mock infiltration drill procedure

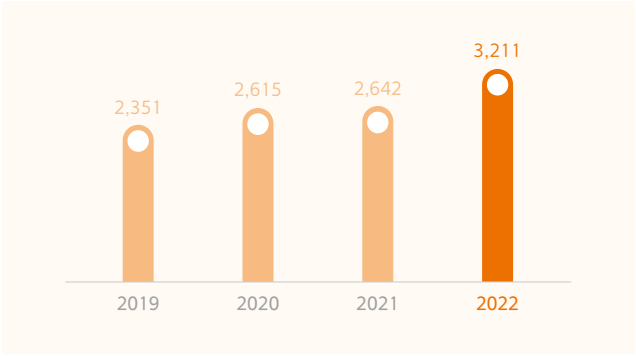


Raising information security awareness

Hanwha Corporation provides regular information protection-related training to its employees and regularly informs them of the latest domestic and international cyber threat trends, cyber threat response plans, and information protection practices through various channels such as internal bulletin boards and emails with the aim to raise their security awareness. In addition, the company encourages active information protection activities and improves response capabilities through internal information security inspections such as infiltration response drills, strict information leakage management, and a reward system for reporting suspected hacking emails.

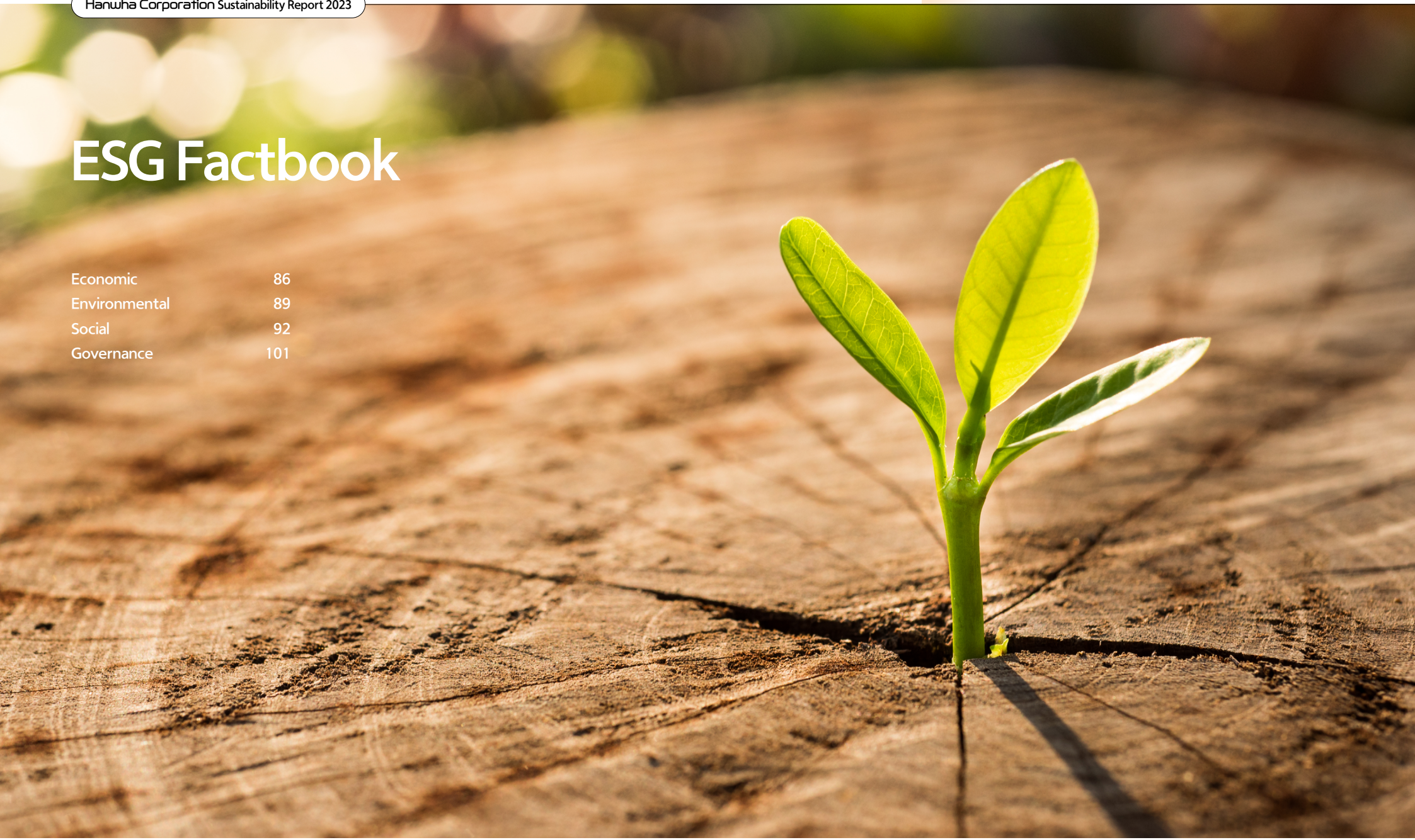
Personal information protection training

(Unit: Number of persons)



ESG Factbook

Economic 86
Environmental 89
Social 92
Governance 101



Economic

Hanwha Corporation has been reporting data on Global, Momentum and E&C Division from this year due to the split-off of Defense Division and the merger of E&C Division. Financial data in Economic datapack is based on the business report for data consistency.

Consolidated Statements of Financial Position

(Unit: KRW 1 million)

Classification	2019	2020	2021	2022
Assets				
Current assets	15,242,686	14,953,767	17,634,712	**22,353,201**
Cash and cash equivalents	3,512,676	4,279,157	5,496,492	**6,673,028**
Financial assets at fair value through profit or loss(current)	11,171	2,923	0	**5,946**
Financial assets at fair value through other comprehensive income(current)	50	246	44	**500**
Financial assets at amortized cost	9,998	0	0	**68**
Other financial assets	772,973	492,571	588,450	**861,747**
Trade and other receivables	4,164,467	3,450,397	3,748,904	**4,962,880**
Other current assets	2,313,811	2,281,057	2,465,101	**3,133,548**
Inventories	3,915,788	4,114,372	5,166,955	**6,557,534**
Current tax assets	24,694	12,111	32,496	**33,803**
Assets held for sale	517,058	320,933	136,270	**124,147**
Non-current assets	18,698,208	19,404,378	22,554,488	**29,535,220**
Financial assets at fair value through profit or loss(non-current)	150,982	147,424	368,075	**700,441**
Financial assets at fair value through other comprehensive income(non-current)	17,107	15,622	77,129	**472,345**
Other financial assets	270,826	180,660	329,529	**442,756**
Trade other receivables	182,632	581,272	487,135	**396,086**
Investments in associates and joint venture	2,248,532	2,607,536	3,766,911	**3,967,508**
Investment property	708,271	903,727	1,041,181	**1,970,935**
Property, plant, and equipment	11,506,492	11,304,941	11,324,966	**15,852,298**
Right-of-use assets	492,256	434,713	617,239	**610,870**
Intangible assets	2,521,752	2,477,318	3,706,148	**4,101,230**
Other non-current assets	188,110	181,764	226,133	**481,734**
Deferred tax assets	411,248	569,401	610,042	**539,017**

Classification	2019	2020	2021	2022
Assets for financial business	148,345,284	157,771,733	163,274,499	**159,286,903**
Cash and cash equivalents	1,062,273	1,253,955	1,399,454	**2,542,671**
Financial assets at fair value through porfit or loss	25,420,904	26,222,269	28,796,126	**31,181,201**
Financial assets at fair value through other comprehensive income	26,316,338	34,593,236	40,492,941	**31,525,161**
Financial assets at amortized cost	62,284,778	57,362,991	54,299,325	**55,224,262**
Investments in associates and joint venture	253,667	270,767	352,768	**534,736**
Investment property	925,753	1,598,156	1,870,896	**1,740,618**
Property, plant, and equipment	3,257,278	3,083,402	2,814,775	**3,324,717**
Right-of-use assets	82,726	90,102	105,067	**242,672**
Intangible assets	360,819	374,016	420,967	**423,543**
Derivative financial assets	459,013	1,496,713	183,949	**965,980**
Current tax assets	148,679	147,749	16,838	**194,582**
Deferred tax assets	22,191	28,507	438,589	**2,857,955**
Other financial assets	2,283,505	2,746,507	2,572,157	**2,399,130**
Other assets	3,339,279	3,181,222	3,329,165	**3,733,845**
Separate account assets	22,128,081	25,322,141	26,181,482	**22,395,830**
Total assets	182,286,178	192,129,878	203,463,699	**211,175,324**

Economic

Consolidated Statements of Financial Position

(Unit: KRW 1 million)

Classification	2019	2020	2021	2022
Liabilities				
Current liabilities	16,002,711	15,652,116	16,468,961	**21,094,631**
Trade and other payables	3,010,231	3,108,185	4,224,696	**4,149,014**
Borrowings and debentures	7,240,643	7,064,927	6,323,696	**8,305,474**
Other financial liabilities	900,098	938,250	1,072,249	**1,512,974**
Provisions	450,710	380,752	296,028	**282,237**
Other current liabilities	4,163,119	3,920,742	4,320,521	**6,209,449**
Current tax liabilities	132,132	239,260	231,771	**635,483**
Liabilities in disposal groups held for sale	105,778	0	0	**0**
Non-current liabilities	12,403,942	12,532,380	14,368,998	**14,731,088**
Trade and other payables	266,051	226,063	410,602	**415,370**
Other non-current liabilities	6,886,500	6,929,913	8,257,694	**8,067,264**
Other financial liabilities	863,787	956,688	1,228,168	**1,640,192**
Net defined benefit liabilities	1,663,876	1,699,480	1,690,833	**1,546,484**
Provisions	332,284	338,956	345,807	**336,097**
Other non-current liabilities	1,215,863	1,101,729	1,142,964	**1,198,512**
Deferred tax liabilities	1,175,581	1,279,551	1,292,930	**1,527,169**
Liabilities for financial business	136,372,078	145,414,292	150,645,090	**154,470,778**
Withheld liabilities	1,233,940	2,111,984	2,265,319	**1,986,810**
Insurance contract liabilities	100,290,478	104,937,315	108,392,795	**111,098,238**
Policyholder's equity adjustments	429,442	406,028	18,217	**58,357**
Current tax liabilities	6,051	19,282	66,414	**129,464**
Deferred tax liabilities	50,064	102,812	546,133	**492,375**
derivative financial assets	737,831	453,142	989,411	**2,295,237**
Net defined benefit liabilities	200,035	192,937	249,896	**212,841**
Provisions	72,809	132,543	137,147	**170,226**
Other financial liabilities	10,502,301	11,432,357	11,210,739	**14,860,037**
Other liabilities	208,597	261,343	262,157	**218,667**
Separate account liabilities	22,640,530	25,364,549	26,506,862	**22,948,526**
Total liabilities	164,778,731	173,598,788	181,483,049	**190,296,497**

Classification	2019	2020	2021	2022
Equity				
Equity attributable to owners of the Parent Company	4,031,924	4,708,162	5,495,034	**5,228,517**
Share capital	489,550	489,550	489,550	**489,550**
Capital surplus	485,853	522,939	468,126	**978,371**
Capital adjustments	20,268	16,953	11,503	**44,292**
Accumulated other comprehensive loss	(171,060)	(272,399)	(806,368)	**(2,957,045)**
Retained earnings(loss)	3,207,313	3,951,119	5,332,223	**6,673,349**
Non-controlling interest	13,475,523	13,822,928	16,485,616	**15,650,310**
Total equity	17,507,447	18,531,090	21,980,650	**20,878,827**
Total liabilities and equity	182,286,178	192,129,878	203,463,699	**211,175,324**

Economic

Economic and Management Performance

Credit Rating

Classification	Unit	2019	2020	2021	2022
Korea Ratings	Rating	A+	A+	A+	A+
NICE Credit Rating		A+	A+	A+	A+

Distribution of Economic Values for Stakeholders

Classification		Unit	2019	2020	2021	2022
Customers	Sales	KRW 1 million	4,433,163	4,000,775	3,935,569	**3,879,925**
Executives	Wages		422,229	438,405	438,726	**434,335**
Partners	Purchase from partners		1,416,118	1,542,661	1,531,355	**1,370,131**
Shareholders	Dividend		65,569	65,443	69,877	**73,731**
Investors	Interest expenses		70,316	59,545	52,742	**94,953**
Government	Corporate tax + tax and public imposts		25,957	38,567	47,452	**48,015**
Local communities	Expenses for donations and social contributions		4,435	2,124	1,605	**3,236**

R&D Investment

Classification		Unit	2019	2020	2021	2022
R&D investment expenses	Total expenses	KRW 1 million	57,798	77,896	58,507	**71,529**
	Selling and administrative expenses, cost of sales		57,798	77,833	57,888	**68,612**
	Intangible assets		–	63	619	**2,917**
R&D investment–to–sales ratio		%	0.33	0.40	0.93	**2.17**
R&D personnel		Persons	80	146	158	**152**
Number of patents and trademarks applied (cumulative)[1]	Domestic	Cases	378	458	616	**637**
	Overseas		65	71	108	**141**
Number of patents and trademarks registered (cumulative)[1]	Domestic		393	418	459	**522**
	Overseas		26	28	33	**52**

1) The number of patents and trademarks applied and registered are based on the figures in the company's internal management system, due to the difference between the figures in the business report and those in the internal management system.

Environmental

Hanwha Corporation has been reporting data on Global, Momentum and E&C Division from this year due to the split-off of Defense Division and the merger of E&C Division. For some indicators in Environmental datapack, Hanwha Corporation managed and disclosed the company's integrated data, including E&C Division, which was newly merged in 2022, to improve the accuracy and completeness of the data.

Environmental Management

Greenhouse Gas(GHG)

Classification		Unit	2019	2020	2021	2022
GHG Emissions(Scope 1+Scope 2)						
Total GHG emissions(Scope1+Scope 2)		tCO_2-eq	146,881	60,851	64,822	**64,263**
Direct emissions (Scope 1)			106,768	15,749	24,553	**20,368**
Indirect emissions (Scope 2)			40,113	45,102	40,269	**43,895**
GHG emission intensity (based on nonconsolidated sales[1])		tCO_2-eq/ KRW 100 million	2.15	1.14	1.24	**1.06**
GHG Emissions(Scope 3)						
Other indirect emissions (Scope 3)[2]		tCO_2-eq	N/A	N/A	3,912,742	**4,236,881**
1. Purchased goods and services			N/A	N/A	1,636,330	**1,743,325**
2. Capital goods			N/A	N/A	318	**349**
3. Fuel- and energy-related activities which are not included in Scope 1, 2			N/A	N/A	2,354	**3,705**
4. Upstream transportation and distribution			N/A	N/A	6,112	**8,568**
5. Waste generated in operations			N/A	N/A	5,630	**8,196**
6. Business travel			N/A	N/A	2,383	**5,829**
7. Employee commuting			N/A	N/A	2,135	**2,341**
9. Downstream transportation and distribution			N/A	N/A	2,509	**2,760**
11. Use of sold products			N/A	N/A	1,567,664	**1,701,867**
12. End of life treatment of sold products			N/A	N/A	2,399	**5,967**
13. Downstream leased assets			N/A	N/A	18,310	**18,063**
15. Investments			N/A	N/A	666,598	**735,911**
Reduction of GHG Emissions						
Reduction of GHG emissions[3]	Clean Development Mechanism (CDM)-related emission reduction	tCO_2-eq	333,608	438,759	354,382	**293,153**
	External emission reduction		323,873	427,856	344,250	**287,290**

1) GHG emission intensity is calculated based on nonconsolidated sales, which is based on the three business divisions(Global • Momentum • E&C) in 2022.
2) Scope 3 emissions data in 2019 was not calculated and the data in 2020 was marked as not applicable due to the unavailibility of excluding Defense division data before the business reorganization.
3) CDM related emission reduction and external emission reduction are based on the year when Hanwha Corporation obtained a KOC(Korea Offset Credits) certificate.

Energy

Classification		Unit	2019	2020	2021	2022
Total energy consumption[1]		TJ	988	974	800	**912**
Non-renewable energy consumption	Total consumption		1,164	1,141	967	**1,124**
Direct energy consumption	Subtotal		339	214	201	**212**
	Gasoline		15	12	7	**16**
	Diesel		40	14	13	**21**
	Kerosene		10	2	0	**12**
	LPG		3	3	2	**1**
	LNG		73	56	39	**29**
	Others		198	128	140	**134**
Indirect energy consumption	Subtotal		825	927	766	**912**
	Electricity		819	923	762	**909**
	Steam		6	4	5	**3**
Renewable energy consumption[2]	Total consumption	MWh	18.25	18.25	18.25	**18.25**
Consumption intensity (based on nonconsolidated sales)[3]		TJ/ KRW 100 million	0.01446	0.01830	0.01536	**0.01507**
Share of renewable energies in electricity consumption		%	0.01	0.01	0.01	**0.01**
Cost for total energy consumption		KRW 100 million	138	137	119	**174**
Total energy consumption in worksites[4]		MWh	85,295	96,128	79,458	**94,892**
Share of grid electricity in energy consumption		%	31	36	36	**37**

1) Total energy consumption = non-renewable direct energy consumption + non-renewable indirect energy consumption + renewable energy consumption - energy sold
2) Self-generation through PV generation.
3) Consumption intensity is calculated based on nonconsolidated sales, which is based on the business divisions(Global • Momentum • E&C) in 2022.
4) Total energy consumption in worksites is based on NGMS reporting data.

Air Pollutants[1]

Classification	Unit	2019	2020	2021	2022
Nitrogen oxide (NOx) emissions	Ton	12.72	5.03	5.04	**8.44**
Sulfur oxide (SOx) emissions		0.12	0.03	0.01	**0.00**
Dust		1.78	4.08	1.62	**1.26**

1) Air pollutants only applies to Global division.

Environmental

Air Pollutant Emission Concentration[1)]

Classification	Unit	2019	2020	2021	2022
Nitrogen oxide (NOx) emissions	ppm	20.24	26.25	22.70	**35.51**
Sulfur oxide (SOx) emissions	ppm	0.22	1.91	4.98	**1.47**
Dust	mg/Sm^3	4.02	4.05	2.86	**5.63**

1) Air pollutants only applies to Global Division.

Water Pollutants[1)]

Classification	Unit	2019	2020	2021	2022
Total Organic Carbon (TOC)	Ton	0.43	0.47	0.46	**0.10**
Biological Oxygen Demand (BOD)	Ton	0.44	0.45	0.44	**0.50**
Suspended Solids (SS)	Ton	0.29	0.37	0.77	**1.19**

1) Water pollutants only applies to Global Division.

Water Pollutant Emission Concentration[1)]

Classification	Unit	2019	2020	2021	2022
Total Organic Carbon (TOC)	ppm	8.33	7.85	5.47	**5.95**
Biological Oxygen Demand (BOD)	ppm	8.18	7.52	5.68	**6.15**
Suspended Solids (SS)	ppm	5.70	7.08	9.59	**14.85**

1) Air pollutants only applies to Global Division.

Water and Wastewater

Classification		Unit	2019	2020	2021	2022
Water consumption[1)]	Total water consumption	Ton	669,545	687,293	756,399	**1,053,328**
	Groundwater	Ton	171,514	208,989	193,664	**210,609**
	Third-party water[2)]	Ton	498,031	477,317	562,735	**842,719**
Water intensity (based on nonconsolidated sales)[3)]		Ton/ KRW 1 million	9.79	12.91	14.53	**17.41**
Amount of wastewater released		Ton	34,915	36,318	50,270	**50,447**
Amount of wastewater consigned		Ton	3,061	3,203	2,725	**2,920**

1) Freshwater is the only type of water used.
Water consumption in 2019-2021 is the combined amount of two divisions(Global·Momentum) and water consumption in 2022 is the combined amount of three divisions(Global·Momentum·E&C).
2) Third party water : Water from municipal water suppliers and wastewater treatment plants, public or private utilities and other organizations involved in the provision, transportation, treatment or use of water and wastewater (ex: public water supply).
3) Water intensity is calculated based on nonconsolidated sales, which is based on current business divisions(Global • Momentum • E&C).

Waste

Classification		Unit	2019	2020	2021	2022
Total waste generation		Ton	242,522.4	261,344.3	288,913.5	**424,690.6**
General waste	Subtotal	Ton	2,637.8	1,357.7	1,192.4	**964.2**
	Recycled waste	Ton	2,341.6	1,219.9	1,054.2	**850.2**
	Pretreatment process for recycling	Ton	2,120.0	933.9	739.5	**528.0**
	Recycled waste	Ton	221.6	286.0	314.7	**322.2**
	Landfill	Ton	110.4	29.1	38.5	**50.9**
	Incineration	Ton	177.7	103.9	98.0	**60.8**
	Recovered energy	Ton	–	–	–	**–**
	Non-recovered energy	Ton	177.7	103.9	97.3	**60.8**
	Others	Ton	8.1	4.8	1.7	**2.4**
Specified waste	Subtotal	Ton	106.6	55.2	73.0	**123.1**
	Recycled waste	Ton	67.5	14.1	40.6	**25.4**
	Pretreatment process for recycling	Ton	4.8	0.7	28.3	**–**
	Recycled waste	Ton	62.7	13.4	12.3	**25.4**
	Landfill	Ton	–	–	–	**3.5**
	Incineration	Ton	39.1	41.1	30.6	**94.2**
	Recovered energy	Ton	0.5	0.8	1.4	**0.6**
	Non-recovered energy	Ton	38.6	40.3	29.2	**93.6**
	Others	Ton	–	–	1.8	**–**
Construction waste	Subtotal	Ton	239,778.1	259,931.4	287,648.1	**423,603.3**
	Recycled waste	Ton	21,766.1	12,029.8	8,204.7	**12,385.4**
	Pretreatment process for recycling	Ton	–	–	–	**–**
	Recycled waste	Ton	21,766 .1	12,029.8	8,204.7	**12,385.4**
	Landfill	Ton	107.2	–	–	**–**
	Incineration	Ton	646.6	431.1	117.9	**35.2**
	Recovered energy	Ton	16.5	–	–	**–**
	Non-recovered energy	Ton	630.1	431.1	117.9	**35 .2**
	Others	Ton	217,258.2	247,470.5	279,325.4	**411,182.7**
Amount of recycled waste		Ton	24,175.1	13,263.8	9,299.6	**13,261.0**
Cost for waste disposal[1)]		Ton/ KRW 1 million	3.55	4.91	5.55	**7.02**

1) Cost for waste disposal is calculated based on nonconsolidated sales, which is based on the business divisions(Global • Momentum • E&C) in 2022.

Environmental

Hazardous Chemical Substances[1)]

Classification	Unit	2019	2020	2021	2022
Amount of hazardous chemical substances used	Ton	370,168	245,929	149,638	**202,228**
Number of hazardous chemical spills	Cases	0	0	0	**0**
Amount of released chemical	Ton	3.6	1.4	1.5	**1.2**
Amount of transferred chemical		34.4	36.6	38.7	**39.0**

1) Hazardous chemical substances only applies to Global division.

Environmental Training and Education

Classification	Unit	2019	2020	2021	2022
Total hours of environmental training and education	Hours	1,290	5,542	1,450	**4,810**
Number of attendees	Persons	1,025	561	461	**697**

Environmental Management System

Classification		Unit	2019	2020	2021	2022
ISO 14001 Certification	Rate of worksites that have obtained the ISO 14001	%	80	80	80	**80**
	Number of certified worksites	Number	4	4	4	**4**
	Number of worksites required to be certified		5	5	5	**5**
Green company certification[1)]	Number of certified worksites		1	1	1	**1**

1) Boeun Plant in Global division.

Environmental Regulations[1)]

* Based on business report

Classification	Unit	2019	2020	2021	2022
Number of violations of environmental regulations[2)]	Cases	0	0	0	**1**
Penalty and fine for noncompliance with environmental regulations	KRW	0	0	0	**3,000,000**

1) The number of violations of environmental regulations and fines in 2023 are based on the business reports, which includes the Defense division, and the combined amount of fines excluding penalties is different from last year's official data.
2) Imposition of fine in Defense division due to a violation of Chemical Substances Control Act.

Environmental Investments and Expenditures[1)]

Classification	Unit	2019	2020	2021	2022
Environmental investments	KRW 100 million	N/A	8	10	**13**
Environmental expenditures		N/A	140	135	**191**

1) Environmental investments and expenditures in 2022 include E&C division and exclude Defense division due to the business reorganization.

Sales and Purchase of Green Products and Services

Classification	Unit	2019	2020	2021	2022
Revenue from renewable energy and energy efficiency products	KRW 1 million	156,385	98,614	111,800	**84,949**
Purchased green products and services		–	12,082	10,516	**23,529**
Share of purchased green products and services	%	–	3.1	2.0	**2.9**
Number of purchased green products and services	Cases	–	21	52	**38**

Biodiversity[1)]

Classification		Unit	2019	2020	2021	2022
Areas of worksites which are located in habitats for protected or endangered species		km^2	N/A	N/A	N/A	**1,171**
IUCN[2)]–designated endangered species and national–designated endangered species that live within the business–impacted areas	Critically endangered (CR)	Species	N/A	N/A	N/A	**0**
	Endangered (EN)		N/A	N/A	N/A	**77**
	Vulnerable (VU)		N/A	N/A	N/A	**29**
	Near threatened (NT)		N/A	N/A	N/A	**3**
	Least concern (LC)		N/A	N/A	N/A	**23**

1) Data related to biodiversity has been managed since 2022.
2) International Union for Conservation of Nature

Social

Hanwha Corporation has been reporting data on Global, Momentum and E&C Division from this year due to the split-off of Defense Division and the merger of E&C Division. For some indicators in Social datapack, we managed and disclosed Hanwha Corporation's integrated data, including E&C Division, which was newly merged in 2022 to improve the accuracy and completeness of the data.

Safety and Health Management

Safety and Health Management System

Classification		Unit	2019	2020	2021	2022
ISO 45001 Certification[1]	Share of certified worksites	%	40	60	60	60
	Number of certified worksites	Number	2	3	3	3
	Number of worksites required to be certified		5	5	5	5
KOSHA-MS Certification[2]	Number of certified worksites		3	2	2	2

1) In 2020, Momentum division has shifted from OHSAS 18001 to ISO 45001.
2) In 2021, Global and E&C division have shifted from KOSHA 18001 to KOSHA-MS.

Occupational Accidents

Classification		Unit	2019	2020	2021	2022
Number of victims (Fatalities excluded)	Direct employees	Persons	0	1	0	1
	Contractors		111	136	163	266
Occupational accident rate[1]	Direct employees	%	0	0.02	0	0.02
	Contractors		0.56	0.86	1.43	1.49
Number of serious accidents[2] (Fatalities excluded)	Direct employees	Cases	N/A	N/A	N/A	0
	Contractors		N/A	N/A	N/A	0
Number of fatalities caused by work related diseases	Direct employees	Persons	0	0	0	0
	Contractors		1	1	0	0
Number of fatalities caused by accidents	Direct employees	Persons	0	0	0	0
	Contractors		1	0	2	1
Mortality rate	Direct employees	%	0.00	0.00	0.00	0.00
	Contractors		0.00	0.00	0.00	0.00
Lost Time Injury Rate(LTIR)[3]	Direct employees					
	Per 1,000,000 hours	-	0.00	0.11	0.00	0.09
	Per 200,000 hours		0.00	0.02	0.00	0.02
	Contractors					
	Per 1,000,000 hours	-	2.26	3.46	4.54	6.02
	Per 200,000 hours		0.45	0.69	0.91	1.20
Occupational Illness Frequency Rate(OIFR)[4]	Direct employees					
	Per 1,000,000 hours	-	0.00	0.00	0.00	0.00
	Per 200,000 hours		0.00	0.00	0.00	0.00
Occupational Illness Frequency Rate(OIFR)[4]	Contractors					
	Per 1,000,000 hours	-	0.34	0.74	1.09	0.41
	Per 200,000 hours		0.07	0.15	0.22	0.08
Total Recordable Incident Rate(TRIR)[5]	Direct employees					
	Per 1,000,000 hours	-	0.00	0.11	0.00	0.00
	Per 200,000 hours		0.00	0.02	0.00	0.02
	Contractors					
	Per 1,000,000 hours	-	2.61	4.20	5.63	0.00
	Per 200,000 hours		0.52	0.84	1.13	1.29

1) Occupational accident rate = (number of victims from occupational accidents / number of workers) * 100
2) Serious accidents which are subject to Serious Accident Punishment Act
3) LTIR = (Number of lost time injuries / total hours worked) * benchmark hours
4) OIFR =(Number of occupational diseases / total hours worked) * benchmark hours
5) TRIR = (Number of work-related incidents / total hours worked) * benchmark hours
* Benchmark hours: 1,000,000 hours or 200,000 hours

Employee Health Management

Classification		Unit	2019	2020	2021	2022
Medical checkups	Subtotal	Persons	4,282	4,426	4,176	4,985
	Employees		3,683	3,367	3,050	3,165
	Employees' spouses		599	1,059	1,126	1,578
	Contractors[1]		N/A	N/A	N/A	242

1) Contractors' medical chekup data has been managed since 2022 due to the business reorganization.

Social

Industrial Safety Education[1)]

Classification		Unit	2019	2020	2021	2022
Industrial Safety Education	Total hours of training	Hours	N/A	N/A	N/A	531,607
	Direct employees		N/A	N/A	N/A	76,038
	Contractors		N/A	N/A	N/A	455,569
	Total number of attendees	Persons	N/A	N/A	N/A	88,805
	Direct employees		N/A	N/A	N/A	6,972
	Contractors		N/A	N/A	N/A	81,833
	Average training hours per person	Hours	N/A	N/A	N/A	6.0
	Direct employees		N/A	N/A	N/A	10.9
	Contractors		N/A	N/A	N/A	5.6

1) Industrial safety education data has been managed since 2022 due to the business reorganization.

Suppliers' Safety and Health Grievances Handling[1)]

Classification		Unit	2019	2020	2021	2022
Suppliers' safety and health grievances reporting channel	Cases submitted	Cases	N/A	N/A	N/A	2,889
	Cases handled		N/A	N/A	N/A	2,889
	Case handling rate	%	N/A	N/A	N/A	100

1) Suppliers' safety and health grievances handling has been managed since 2022 due to the business reorganization.

Talent Management

Employment Status

Classification		Unit	2019	2020	2021	2022
Total employment						
Total number of employees(domestic)		Persons	3,709	4,214	4,212	4,927
By employment type (direct recruitment)	Permanent employees		2,646	3,265	3,275	3,768
	Male		2,413	2,986	3,027	3,431
	Female		233	279	248	337
	Ratio of permanent employees	%	71.3	77.5	77.8	76.5
	Contract employees	Persons	1,063	949	937	1,159
	Male		888	778	761	957
	Female		175	171	176	202
	Ratio of contract employees	%	28.7	22.5	22.2	23.5
By employment type (indirect recruitment)[1)]	Day laborer	Persons	N/A	N/A	N/A	5,116
	Male		N/A	N/A	N/A	4,972
	Female		N/A	N/A	N/A	144
	Temporary employees		N/A	N/A	N/A	41
	Male		N/A	N/A	N/A	3
	Female		N/A	N/A	N/A	38
	Contract employees		N/A	N/A	N/A	9,977
	Male		N/A	N/A	N/A	9,486
	Female		N/A	N/A	N/A	491
By gender	Subtotal		3,709	4,214	4,212	4,927
	Male		3,301	3,764	3,788	4,388
	Female		408	450	424	539
	Share of female employees	%	11.0	10.7	10.1	10.8
By age	Subtotal	Persons	3,709	4,214	4,212	4,927
	Ages under 30		454	370	478	600
	Ages 30 to 39		1,538	1,693	1,513	1,751
	Ages 40 to 49		1,155	1,396	1,487	1,707
	Ages 50 to 59		465	618	603	698
	Ages 60 or above		97	137	131	171

Social

Classification		Unit	2019	2020	2021	2022
By nationality	Subtotal	Persons	3,709	4,214	4,212	**4,927**
	Korean nationals		3,705	4,206	4,205	**4,915**
	Foreign nationals		4	8	7	**12**
	Taiwanese		N/A	N/A	N/A	**1**
	Malaysian		N/A	N/A	N/A	**1**
	American		N/A	N/A	N/A	**4**
	British		N/A	N/A	N/A	**1**
	Iraqi		N/A	N/A	N/A	**1**
	Indonesian		N/A	N/A	N/A	**1**
	Chinese		N/A	N/A	N/A	**2**
	Austrailian		N/A	N/A	N/A	**1**
By region	Subtotal		3,910	4,761	4,731	**5,625**
	Domestic		3,709	4,214	4,212	**4,927**
	Head office		1,612	1,511	1,451	**1,827**
	Other domestic worksites		2,097	2,703	2,761	**3,100**
	Overseas		201	547	519	**698**
By rank[2]	Subtotal		3,709	4,214	4,212	**4,927**
	Executives		53	72	81	**148**
	Male		53	72	81	**145**
	Female		–	–	–	**3**
	Senior managers[3]		1,659	1,804	1,904	**2,178**
	Male		1,619	1,753	1,845	**2,084**
	Female		40	51	59	**94**
	Middle managers		743	698	646	**780**
	Male		685	637	602	**723**
	Female		58	61	44	**57**
	Staff		1,254	1,640	1,581	**1,821**
	Male		944	1,302	1,260	**1,436**
	Female		310	338	321	**385**
By occupation	Subtotal		3,709	4,214	4,212	**4,927**
	Management		56	75	86	**155**
	Male		56	75	86	**152**
	Female		–	–	–	**3**

Classification		Unit	2019	2020	2021	2022
By occupation	General personnel	Persons	2,423	2,629	2,629	**2,963**
	Male		2,315	2,508	2,517	**2,751**
	Female		108	121	112	**212**
	Research personnel		6	34	43	**165**
	Male		5	29	37	**149**
	Female		1	5	6	**16**
	Office personnel		120	115	98	**75**
	Male		–	–	–	**–**
	Female		120	115	98	**75**
	Professionals		50	412	419	**410**
	Male		46	374	387	**379**
	Female		4	38	32	**31**
	Temporary employees		1,054	949	937	**1,159**
	Male		879	778	761	**957**
	Female		175	171	176	**202**
Length of continuous service						
Average length of continuous service		Years	10.0	10.7	10.7	**8.1**
Diversity of employment						
Female talent	Number of female managers	Persons	40	51	58	**94**
	Ratio of female managers	%	5.8	8.0	9.7	**13.0**
	Number of female executives	Persons	0	0	0	**3**
	Ratio of female executives	%	0	0	0	**2.0**
	Number of female employees in STEM	Persons	51	44	51	**64**
	Ratio of female employees in STEM	%	2.8	2.6	2.9	**3.2**
	Number of female employees in profit-making occupation	Persons	11	9	9	**16**
	Ratio of female employees in profit-making occupation	%	4.9	4.2	4.3	**5.2**
Employment of socially vulnerable persons (permanent+temporary)[3]	Persons with disability	Persons	84	95	72	**80**
	Compliance with employement quota requirements for persons with disabilities	%	70.6	68.3	54.5	**54.8**
	National veterans	Persons	44	44	37	**51**
	Ratio of socially vulnerable employees	%	3.5	3.3	2.6	**2.6**

Social

Classification		Unit	2019	2020	2021	2022
New recruitments and internal recruitment						
Total number of newly recruited employees (domestic)		Persons	234	196	524	**847**
By employment type	Permanent(as new employees)		54	25	19	**103**
	Permanent(as experienced employees)		72	68	337	**496**
	Temporary positions		108	103	168	**248**
By gender	Male		210	183	490	**765**
	Female		24	13	34	**85**
By age	Ages under 30		74	42	100	**202**
	Ages 30 to 39		92	73	280	**433**
	Ages 40 to 49		50	46	108	**168**
	Ages 50 to 59		13	21	17	**33**
	Ages 60 or above		5	14	19	**14**
By region	Head office		50	54	74	**346**
	Other domestic worksites		111	62	248	**504**
Employees recruited from internal candidates[4]			N/A	N/A	N/A	**23**
Average recruitment cost		KRW 1,000	N/A	N/A	N/A	**8,609**
Turnover and Retirement						
Total number of retirements and turnovers		Persons	186	212	334	**309**
By reasons for turnover or retirement	Voluntary turnover and retirement		186	202	323	**291**
	Voluntary redundancy		35	123	66	**22**
	Voluntary retirement		151	79	257	**269**
	Involuntary turnover and retirement		0	10	11	**18**
	Regular retirement		0	6	7	**17**
	Dismissal and discipline		0	0	0	**0**
	Resignation under instruction		0	4	4	**1**
By gender	Male		171	170	294	**285**
	Female		15	42	40	**23**
By age	Ages under 30		37	25	37	27
	Ages 30 to 39		84	73	142	147
	Ages 40 to 49		42	66	79	84
	Ages 50 to 59		21	42	74	32
	Ages 60 or above		2	6	2	18
By region	Head office		44	44	90	141
	Other domestic worksites		45	41	79	167
Turnover rate	Subtotal	%	7.03	6.49	10.20	8.09
	Rate of involuntary turnover		0.00	0.31	0.34	0.48
	Rate of voluntary turnover (retirement rate)		7.03	6.19	9.86	7.72

1) Indirect recruitment data has been managed since 2022 due to the business reorganization.
2) Middle manager positions are at the assistant manager level or higher.
Senior manager positions are at the manager level or higher, excluding executives.
3) Employment of socially vulnerable persons is the combined data of permanent employees and contract employees.
4) Internal recruitment and average recruitment cost have been managed since 2022 due to the business reorganization.

Social

Maternity and Parental Leave

Classification		Unit	2019	2020	2021	2022
Number of employees on maternity leave	Subtotal	Persons	10	9	16	**63**
	Male		–	–	–	**46**
	Female		5	9	16	**17**
Number of employees returning to work after maternity leave	Subtotal		8	7	14	**56**
	Male		–	–	–	**46**
	Female		8	7	14	**10**
Ratio of return from maternity leave	Subtotal	%	80.00	77.78	87.50	**88.89**
	Male		–	–	–	**100**
	Female		80.00	77.78	87.50	**58.82**
Number of employees on parental leave	Subtotal	Persons	21	24	38	**45**
	Male		6	11	20	**19**
	Female		15	13	18	**26**
Number of employees expected to return to work after parental leave	Subtotal		28	18	32	**24**
	Male		9	8	17	**14**
	Female		19	10	15	**10**
Number of employees returning to work after parental leave	Subtotal		23	12	28	**20**
	Male		5	5	15	**11**
	Female		18	7	13	**9**
Ratio of return from parental leave	Subtotal	%	82.14	66.67	87.50	**83.33**
	Male		55.56	62.50	88.24	**78.57**
	Female		94.74	70.00	86.67	**90.00**
Number of employees who have been working longer than 12 months after returning to work[1]	Subtotal	Persons	N/A	N/A	N/A	**20**
	Male		N/A	N/A	N/A	**8**
	Female		N/A	N/A	N/A	**12**
Rate of retention longer than 12 months after returning to work[1]	Subtotal	%	N/A	N/A	N/A	**71.43**
	Male		N/A	N/A	N/A	**53.33**
	Female		N/A	N/A	N/A	**92.31**
Duration of parental leave[1]	Subtotal	Weeks	N/A	N/A	N/A	**42**
	Male		N/A	N/A	N/A	**36**
	Female		N/A	N/A	N/A	**47**

1) Data related to number and rate of employees who have been working longer than 12 months after returning to work and duration of parental leave have been managed since 2022 due to the business reorganization.

Employee Training and Education

Classification		Unit	2019	2020	2021	2022
Total number of participating employees	Subtotal	Persons	2,409	3,157	3,400	**3,102**
	Male		2,231	2,922	3,154	**2,991**
	Female		178	235	246	**111**
Total expenses for training	Subtotal	KRW 1 million	882	223	577	**2,028**
	Male		736	201	511	**1,990**
	Female		146	22	66	**38**
Total hours of training	Subtotal	Hours	112,742	94,811	91,341	**108,325**
	Male		100,340	84,686	82,146	**96,475**
	Female		12,402	10,125	9,195	**11,850**
Training expense per person (by gender)	Male	KRW 1,000	223	53	135	**454**
	Female		358	49	156	**71**
Training expense per person (by rank)[1]	Executives		N/A	N/A	N/A	**16**
	Senior managers		N/A	N/A	N/A	**334**
	Middle managers		N/A	N/A	N/A	**158**
	Staff		N/A	N/A	N/A	**96**
Training hours per person (by gender)	Male	Hours	30	22	22	**22**
	Female		30	22	22	**22**
Training hours per person (by rank)[2]	Executives		N/A	N/A	N/A	**23**
	Senior managers		N/A	N/A	N/A	**38**
	Middle managers		N/A	N/A	N/A	**43**
	Staff		N/A	N/A	N/A	**59**

1) Data related to training expense per person by rank has been managed since 2022 due to the business reorganization.
2) Data related to training hours per person by rank has been managed since 2022 due to the business reorganization and is calculated as the average between Momentum and E&C division.

Social

Employee Welfare Benefits

Classification		Unit	2019	2020	2021	2022
Total welfare benefit expenses[1]	Total expenses	KRW 1 million	63,147	65,742	61,422	**63,508**
	Welfare benefit expense per person	KRW/ person	11,326,781	13,222,461	12,928,140	**12,889,775**
Expenses for supporting retirees[2]	Total expenses	KRW	N/A	N/A	4,171,122	**1,500,000**
	Number of employees subject to the support program	Persons	N/A	N/A	13	**3**
	Support expense per person	KRW/ person	N/A	N/A	320,856	**500,000**
Human capital return on investment	Total revenue (a)	KRW 1 million	290,566	193,275	118,388	**1,637,369**
	Total operating expenses (b)		1,484	1,750	2,502	**1,438,581**
	Total employee-related expenses (c)		94,780	103,205	123,952	**241,351**
	HC ROI (a-(b-c))/c	-	4	3	2	**2**
Retirement pension operating amount	Number of employees funding Defined-Benefit plan	Persons	146	123	467	**519**
	Operating amount of Defined-Benefit plan	KRW 1 million	3,016	3,527	6,048	**32,307**
	Number of employees subscribed to Defined-Contribution plan[3]	Persons	27	18	29	**39**
	Operating amount of Defined-Contribution plan[4]	KRW 1 million	107	335	1,087	**771**

1) Welfare benefit expenses are based on the "classification of expenses by nature of expense: welfare benefit expenses" on the nonconsolidated financial statement in the business report."
2) Expenses for supporting retirees includes support for reemployment and education.
3) Number of employees funding Defined-Benefit plan is the combined amount of Global, Momentum and E&C Divisions, reflecting the business reorganization(E&C Divisions does not have a Defined-Contribution plan).
4) Operating amount of Defined-Contribution plan is calculated based on Hanhwa Corporation's data, which is identical to that of nonconsolidated sales. Hanwha Corporation's data does not reflect the business reorganization.

Organizational Culture[1]

Classification		Unit	2019	2020	2021	2022
Result of organizational culture assessment	Ratio of average positive response	%	N/A	N/A	N/A	**63.1**
Result of employee satisfaction survey	Ratio of average positive response		N/A	N/A	N/A	**61.7**
	Number of employees participated in the survey	Persons	N/A	N/A	N/A	**2,743**
	Response rate	%	N/A	N/A	N/A	**55.1**
	Rate of employees who showed high engagement		N/A	N/A	N/A	**18.8**

1) Organizational culture assessment and employment satisfaction survey data have been managed since 2022 due to the business reorganization.

Performance Evaluation[1]

Classification		Unit	2019	2020	2021	2022
Employees subject to performance evaluations		Persons	N/A	N/A	N/A	**3,800**
Employees who received regular performance evaluations				N/A	N/A	**3,800**
Percentage of employees who received regular performance evaluations (by gender)	Subtotal		N/A	N/A	N/A	**3,800**
	Male		N/A	N/A	N/A	**3,489**
	Female		N/A	N/A	N/A	**311**
Percentage of employees who received regular performance evaluations (by rank)	Subtotal		N/A	N/A	N/A	**3,800**
	Executives		N/A	N/A	N/A	**123**
	Senior managers		N/A	N/A	N/A	**1,971**
	Middle managers		N/A	N/A	N/A	**681**
	Staff		N/A	N/A	N/A	**1,025**
Percentage of employees who received regular performance evaluations (by occupation)	Subtotal		N/A	N/A	N/A	**3,800**
	Management		N/A	N/A	N/A	**123**
	General personnel		N/A	N/A	N/A	**2,797**
	Research personnel		N/A	N/A	N/A	**122**
	Office personnel		N/A	N/A	N/A	**75**
	Professionals		N/A	N/A	N/A	**401**
	Temporary employees		N/A	N/A	N/A	**282**
Percentage of employees who received regular performance evaluations	Subtotal	%	N/A	N/A	N/A	**100**
	Male		N/A	N/A	N/A	**100**
	Female		N/A	N/A	N/A	**100**

1) Performance Evaluation data has been managed since 2022 due to the business reorganization.

Social

Employee Wages

Classification		Unit	2019	2020	2021	2022
Average basic compensation by gender						
Male		KRW 1 million	80	76	79	**90**
Female			40	43	43	**50**
Ratio of average basic compensation by gender[1]		%	49.2	56.5	55.0	**55.4**
Average basic compensation by rank						
Executives	Male	KRW 1,000	N/A	N/A	N/A	**295,363**
	Female		N/A	N/A	N/A	**229,133**
Management	Male		N/A	N/A	N/A	**87,465**
	Female		N/A	N/A	N/A	**62,312**
Employees excluding executives and management	Male		N/A	N/A	N/A	**57,458**
	Female		N/A	N/A	N/A	**46,341**
Average basic compensation by rank + bonus pay						
Executives	Male	KRW 1,000	N/A	N/A	N/A	**380,508**
	Female		N/A	N/A	N/A	**268,796**
Management	Male		N/A	N/A	N/A	**116,931**
	Female		N/A	N/A	N/A	**79,016**
Employees excluding executives and management	Male		N/A	N/A	N/A	**73,612**
	Female		N/A	N/A	N/A	**63,785**
Entry level wage by gender compared to local minimum wage						
Male		KRW 1,000	N/A	N/A	N/A	**52,576**
Female			N/A	N/A	N/A	**52,576**
Ratio of entry level wage by gender compared to local minimum wage		%	N/A	N/A	N/A	**261.0**
Median basic compensation by gender						
Male		KRW 1 million	N/A	N/A	N/A	**66**
Female			N/A	N/A	N/A	**56**
Ratio of median basic compensation by gender		%	N/A	N/A	N/A	**84.5**
Median bonus pay by gender						
Male		KRW 1 million	N/A	N/A	N/A	**13**
Female			N/A	N/A	N/A	**10**
Ratio of median bonus pay by gender		%	N/A	N/A	N/A	**75.8**

1) Ratio of average basic compensation by gender = basic compensation for female employees / basic compensation for male employees

Labor Union Membership[1)]

Classification		Unit	2019	2020	2021	2022
Labor union	Number of employees eligible for labor union membership	Persons	22	366	375	**384**
	Number of employees joining the labor union		22	366	375	**363**
	Rate of employees joining the labor union	%	100	100	100	**95**
Collective bargaining	Number of employees eligible for collective bargaining	Persons	22	366	375	**363**
	Rate of employees eligible for collective bargaining	%	100	100	100	**95**
Labor–management council	Number of the meetings held	Sessions	4	8	8	**8**
	Number of agendas for resolution at the meetings	Cases	0	15	15	**13**
Total amount of fine imposed due to breaches of labor regulations		KRW	0	0	0	**0**

1) Global Division was established in 2020 and its labor union membership has been managed since 2020. E&C Division does not have a labor union.

Social

Win–Win Cooperation

Partners

Classification		Unit	2019	2020	2021	2022
Total number of partners	Subtotal	Number	3,990	3,867	4,073	**4,225**
	Tier 1 partners		2,563	2,537	2,693	**2,786**
	Core partners		41	37	43	**126**
	Non–Tier 1 partners		1,427	1,330	1,380	**1,439**
	Core partners		72	73	75	**236**
Newly–registered partners			58	125	386	**291**
Total purchases from partners		KRW 1 million	2,377,176	2,455,731	3,541,791	**4,104,813**
Total purchases from small and medium enterprises (SMEs)			1,161,998	1,199,621	2,442,976	**1,954,912**
Total purchases from major partners			819,624	853,103	1,989,553	**1,542,690**
Win–win growth index		Grade	Outstanding	Outstanding	Outstanding	**Outstanding**

Fair Trade

Classification	Unit	2019	2020	2021	2022
Number of partners who signed Fair Trade Agreement	Number	210	210	296	**307**
Fair Trade Agreement implementation evaluation	Grade	Best	Good	Outstanding	**Best**

Support for Partners

Classification		Unit	2019	2020	2021	2022
Financial support (mutual growth fund)	Total amount raised	KRW 1 million	25,000	25,000	25,000	**58,000**
	Total amount executed		8,607	16,651	13,590	**–**
Management consultations	Management (finance)	Sessions	2	2	1	**1**
	ESG competency enhancement		–	–	–	**1**
	Others (safety, health, corporate social responsibility, etc.)		3	4	9	**12**
Technical support	Number of technical support sessions	Sessions	–	–	–	**162**
	Number of technical data escrow	Cases	–	–	–	**17**
Education support	Number of education and training programs	Number	–	2	2	**5**
	Number of education and training sessions	Sessions	–	1	1	**4**
	Number of participants	Persons	–	912	599	**1,418**
	Total training hours	Hours	–	2,736	1,797	**4,254**
	Training hours per partner company employee	Hours/person	–	3	3	**3**

Communication with Patners

Classification	Unit	2019	2020	2021	2022
Win–win discussion meetings held[1)]	Sessions	5	–	–	**5**

1) Win–win discussion meetings were not held from 2020 through 2021 due to COVID–19.

Comprehensive Evaluation for Partners

Classification	Unit	2019	2020	2021	2022
Number of partners who received evaluation	Number	1,505	1,407	1,459	**1,933**
Number of partners who received “excellent” grade		N/A	N/A	N/A	**63**
Number of partners suspended from trading		N/A	N/A	N/A	**125**

Sustainability Assessment for Partners

Classification	Unit	2019	2020	2021	2022
Number of partners who have completed ESG evaluation[1)]	Number	N/A	N/A	24	**35**
Number of partners with ISO 14001 certification		–	–	18	**28**
Number of partners with OSHAS 18001 / ISO 45001 certifications		–	–	10	**14**

1) ESG evaluation for partners was conducted as part of the 2019–2020 comprehensive evaluation, while a separate ESG evaluation scheme was adopted in 2021.

Social

Innovative Growth

Product Safety

Classification	Unit	2019	2020	2021	2022
Number of recalls issued	Cases	0	0	0	0
Total units recalled	Number	0	0	0	0
Number of counterfeit parts detected		0	0	0	0

Voice of the Customer (VOC) Management

Classification		Unit	2019	2020	2021	2022
Customer complaints submitted	Number of customer complaints submitted	Cases	4	11	15	18
	Number of customer complaints handled		4	11	15	18
	Customer complaint handling rate	%	100	100	100	100
Customer satisfaction survey	Domestic	Score	90.6	91.7	94.4	86.2
	Overseas		90.3	93.6	91.6	89.5
	Rate of customers responded 'Satisfied'	%	75.00	80.00	75.00	45.83
	Response rate		81.3	41.7	54.5	82.8

Social Contribution

Corporate Social Responsibility (CSR) Activities

Classification		Unit	2019	2020	2021	2022
Donations	Total amount of donations	KRW 1 million	4,435	2,124	1,605	3,236
	Company donations		3,278	1,492	1,108	3,041
	Employee donations		1,157	632	497	195
Employee volunteering[1]	Total volunteering hours[2]	Hours	22,285	1,711	1,231	1,525
	Number of employees volunteered[2]	Persons	2,926	567	500	610
	Volunteering hours per employee[3]	Hours	7.6	3.0	2.5	2.5
	Participation rate	%	78.9	13.5	11.9	13.8

1) Since Hanwha Corporation manages integrated employee volunteering data, 2019–2021 data includes Defense Division and 2022 data includes E&C Division and excludes Defense Division after the business reorganization.
2) Volunteering programs for employees downsized during 2020-2021 due to COVID-19.
3) Volunteering hours per employee = total volunteering hours / number of participants

Governance

Hanwha Corporation has been reporting data on Global, Momentum and E&C Division from this year due to the split-off of Defense Division and the merger of E&C Division. Governance data is based on business report, corporate governance report and disclosure of the status of large business groups for data consistency with disclosed reports.

Corporate Governance

Operation of the Board of Directors (BOD)

* Based on corporate governance report

Classification		Unit	2019	2020	2021	2022
Composition of the BOD	Inside directors	Persons	3	3	4	5
	Outside directors		5	5	5	6
	Female directors		–	1	1	1
	Ratio of outside directors	%	62.5	62.5	55.6	54.5
	Ratio of female outside directors		–	12.5	11.1	9.1
Number of BOD meetings held	Number of meetings held	Sessions	8	11	12	18
Board attendance rate	Average attendance rate	%	95.7	95.8	99.1	97.6
	Inside directors		97.5	94.6	100	96.7
	Outside directors		92.7	97.7	97.9	98.9
Average tenure of directors	Inside directors	Years	1.8	1.8	2.0	1.0
	Outside directors		1.6	1.4	2.0	1.0
Outside director activities	Resolutions	Cases	48	50	59	71
	Reports		19	18	23	28
	Number of agenda items that received objections from outside directors		1	–	–	–

Operation of Committees

* Based on corporate governance report

Classification		Unit	2019	2020	2021	2022
Audit Committee	Ratio of outside directors	%	100	100	100	100
	Number of accounting and finance professionals	Persons	1	2	2	2
	Number of meetings held	Sessions	9	6	9	8
	Attendance rate	%	100	94	100	100
Internal Transaction Committee	Ratio of outside directors		100	100	100	100
	Number of meetings held	Sessions	3	1	1	7
	Attendance rate	%	100	100	100	100
Outside Director Nomination Committee	Ratio of outside directors		67	67	100	100
	Number of meetings held	Sessions	2	2	2	3
	Attendance rate	%	100	100	100	100
ESG Committee	Ratio of outside directors		Newly established in 2021 (May 2021)		67	75
	Number of meetings held	Sessions			5	8
	Attendance rate	%			100	100

Board of Directors' Remuneration[1)]

*Based on business report

Classification		Unit	2019	2020	2021	2022
Registered directors	Number of directors	Persons	4	4	4	5
	Total remuneration	KRW 1 million	3,119	2,663	2,907	9,012
	Average remuneration per director		870	726	775	2,002
Outside directors	Number of directors	Persons	2	2	2	3
	Total remuneration	KRW 1 million	128	132	160	224
	Average remuneration per director		64	66	80	83
Audit committee members	Number of directors	Persons	3	3	3	3
	Total remuneration	KRW 1 million	196	197	240	252
	Average remuneration per director		65	66	80	84

1) The number of registered directors excludes outside directors and audit committee members, while the number of outside directors excludes audit committee members.

External Audit

* Based on business report and corporate governance report

Classification	Unit	2019	2020	2021	2022
Total audit fees	KRW 1 million	1,900	1,900	1,900	2,260
Total non-audit fees		143	23	52	142
Audit fees compared to non-audit fees	%	7.53	1.21	2.74	6.28

Ratio of Maximum Remuneration to Average Wage of Employees

* Based on business report

Classification	Unit	2019	2020	2021	2022
Amount of the maximum renumeration	KRW 1 million	1,647	1,456	2,700	2,293
Average compensation of employees		68	70	76	85
Ratio of maximum remuneration to the average wage of employees	Multiples	24.2	20.8	35.5	27.0
Annual gross compensation growth rate	%	3.0	2.9	8.6	11.8

Governance

Share Ownership

* Based on business report

Classification	Unit	2019	2020	2021	2022
Share ownership by the CEO	%	0.06	0.05	0.07	4.5
Share ownership by government agencies		9.58	9.04	7.5	6.6

Information about Major Shareholders (Ownership of 5% or More)

* Based on business report

Classification		Unit	2019	2020	2021	2022
Seung Youn Kim	Number of shares held	Share	16,977,949	16,977,949	16,977,949	16,977,949
	Percentage of ownership	%	22.65	22.65	22.65	22.65
Hanwha Energy Corporation, Ltd.	Number of shares held	Share	N/A	N/A	7,272,546	7,272,546
	Percentage of ownership	%	N/A	N/A	9.70	9.70
National Pension Service (NPS)	Number of shares held	Share	7,183,308	6,779,067	5,619,334	4,948,115
	Percentage of ownership	%	9.58	9.04	7.50	6.60
Korea Zinc Company, Ltd	Number of shares held	Share	N/A	N/A	N/A	5,436,380
	Percentage of ownership	%	N/A	N/A	N/A	7.25

Shareholder-Friendly Management

* Based on business report

Classification		Unit	2019	2020	2021	2022
Total dividends		KRW 1 million	65,569	65,443	69,877	73,731
Cash dividend payout ratio (based on nonconsolidated sales)		%	65.4	48.5	53.1	25.7
Dividend per share (ordinary shares)		KRW	700	700	750	750
Voting systems adopted for the general shareholders' meeting	Written voting	–	O	O	O	O
	Electronic voting		O	O	O	O

Internal Transaction Sales

* Based on the disclosure of the status of large business groups

Classification	Unit	2019	2020	2021	2022
Internal transaction sales[1]	KRW 1 million	559,170	360,076	340,708	691,003

1) According to the status of product and service transactions between affiliates, internal transaction sales = domestic affiliates sales + overseas affiliates sales

Compliance Management

Internal Compliance Review

* Based on the internal management system

Classification		Unit	2019	2020	2021	2022
Internal ethics and compliance	Internal ethics and compliance reviews	Cases	5	4	2	2
	Internal ethics and compliance violations		–	–	–	–
Worksites who received ethics-compliance assessment[1]	Number of worksites who received ethics-compliance assessment	Number	–	–	–	1
	Rate of worksites who received ethics-compliance assessment	%	–	–	–	100
Compliance-related cases reported	Subtotal	Cases	4	9	4	5
	Sexual harassment		–	–	–	4
	Anti-corruption		–	–	–	–
	Unfair trade practices		1	–	–	–
	Discrimination and harassment		–	–	–	1
	Conflict of interest		–	–	–	–
	Money laundering and internal transactions		–	–	–	–
	Failure to comply with other ethical standards		3	9	4	–
Remedial action for violations	Subtotal		4	9	4	5
	Disciplinary action		–	–	–	4
	Corrective action		–	1	–	–
	Transferred[2]		2	8	3	1
	Answered[3]		2	–	1	–

1) Third-party verification of whether the company's compliance system is suitable and valid for the compliance assistant system under the commercial law was completed in 2022.
2) Number of transferred reports, which were transferred from other affiliates to the relevant affiliates after having confirmed misplacement.
3) Number of cases handled by answering the inquiries.

Governance

Ethics and Compliance Education

Classification		Unit	2019	2020	2021	2022
Ethics and compliance education[1] (Training in progress)	Total hours of training and education	Hours	198	–	365	**65**
	Number of participating employees	Persons	132	–	730	**186**
Anti-corruption education[1]	Total hours of training and education	Hours	1,162	–	365	**243**
	Number of participating employees	Persons	1,162	–	730	**243**
Fair trade education	Total hours of training and education	Hours	601	4,604	1,237	**1,541**
	Number of participating employees	Persons	401	2,302	1,237	**1,343**
Human rights education	Subtotal	Hours	8,904	9,474	12,809	**13,677**
	Education for preventing sexual harassment		2,702	2,721	3,620	**3,852**
	Education for raising awareness toward the persons with disabilities		2,702	2,720	3,620	**3,847**
	Education for preventing workplace harassment		1,750	2,093	3,620	**3,840**
	Other training and education		1,750	1,940	1,949	**2,138**
	Number of participating employees	Persons	2,702	2,720	3,620	**3,852**

1) In 2020, training and education was replaced by online learning materials due to COVID-19.

Legal Measures Taken for Compliance-Related Issues

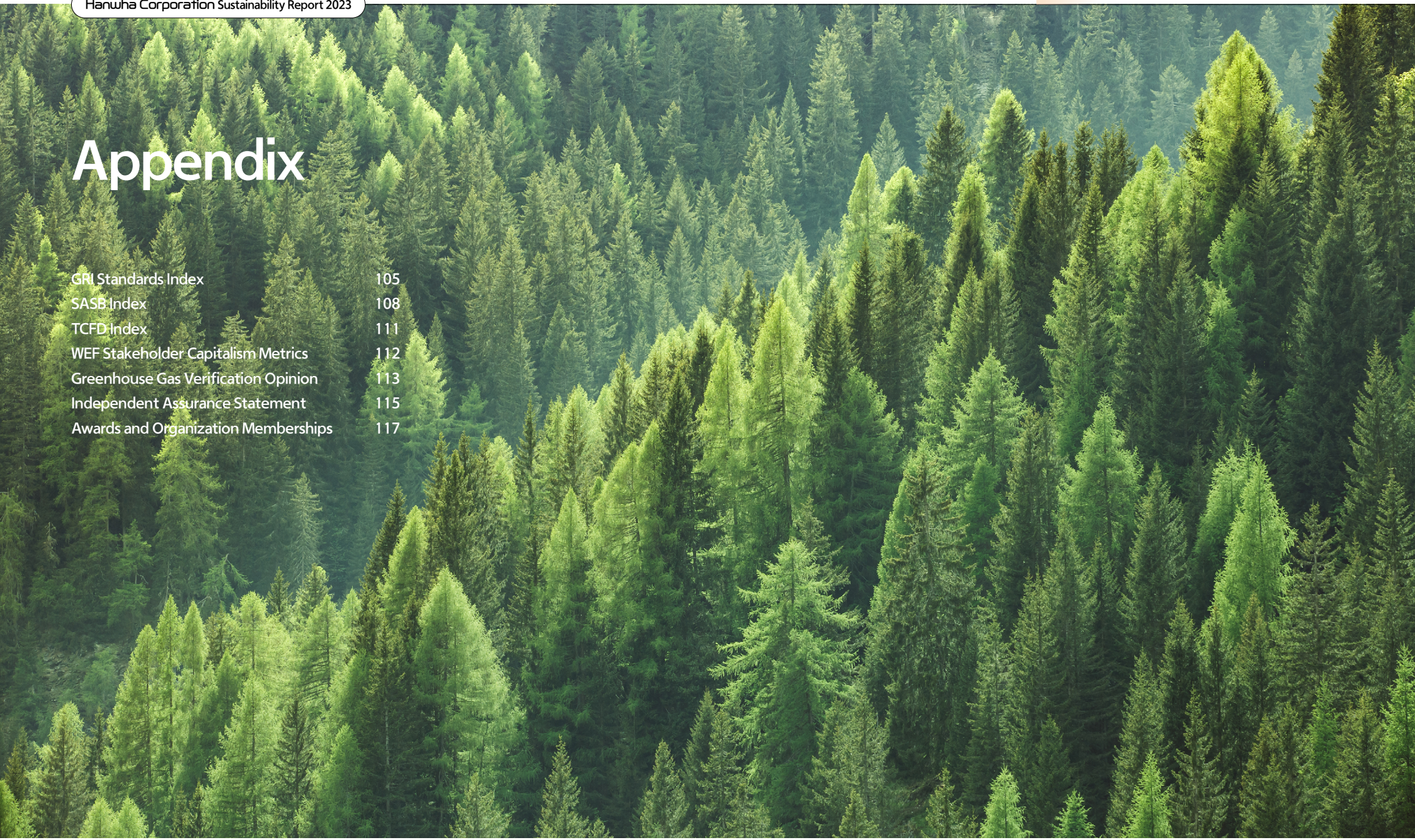
Classification		Unit	2019	2020	2021	2022
Compliance violations	Subtotal	Cases	10	1	2	**1**
	Anti-corruption		0	0	0	**0**
	Fair trade		0	0	0	**0**
	Others		10	1	2	**1**
Fines imposed		KRW 1 million	122	31	8	**3**
Number of lawsuits filed		Cases	10	1	2	**2**
Number of non-financial penalties imposed			0	0	0	**0**

Information Security

Information Security Violations

Classification		Unit	2019	2020	2021	2022
Number of violations or cybersecurity accidents		Cases	0	0	0	**0**
Number of internal information protection level inspection			132	102	98	**95**
Improvements made following internal inspections on information protection practices			92	42	59	**77**
Number of personal data leaks			0	0	0	**0**
Total amount of monetary losses incurred owing to violations of information protection regulations or cybersecurity accidents		KRW 1 million	0	0	0	**0**
Information protection education[1]	Total hours of training and education	Hours	N/A	114	388	**769**
	Number of participating employees	Persons	N/A	114	388	**769**
Personal data protection	Total hours of training and education	Hours	2,989	3,255	2,642	**3,269**
	Number of participating employees	Persons	2,351	2,615	2,642	**3,211**

1) Information protection education data in Global and Momentum Division are calculated considering the number of views of information protection related announcement, etc. Information protection education data in E&C Division is calculated based on information protection education for new employees.



Appendix

GRI Standards Index 105
SASB Index 108
TCFD Index 111
WEF Stakeholder Capitalism Metrics 112
Greenhouse Gas Verification Opinion 113
Independent Assurance Statement 115
Awards and Organization Memberships 117

GRI Standards Index

Section	Disclosure No.	Disclosure Name	Reporting Pages
Universal Standards			
GRI 2 General Disclosures 2021			
The organization and its reporting practices	2-1	Organizational details	6-8
	2-2	Entities included in the organization's sustainability reporting	2, 6, 9
	2-3	Reporting period, frequency and contact point	2
	2-4	Restatements of information	2, 86, 89, 92, 101
	2-5	External assurance	113-116
Activities and workers	2-6	Activities, value chain and other business relationships	6, 8-9
	2-7	Employees	6, 93-94
	2-8	Workers who are not employees	6, 93-94
Governance	2-9	Governance structure and composition	70-74
	2-10	Nomination and selection of the highest governance body	71
	2-11	Chair of the highest governance body	71
	2-12	Role of the highest governance body in overseeing the management of impacts	71-72
	2-13	Delegation of responsibility for managing impacts	71, 79
	2-14	Role of the highest governance body in sustainability reporting	13-14, 72
	2-15	Conflicts of interest	71
	2-16	Communication of critical concerns	13-14, 79-80
	2-17	Collective knowledge od the highest governance body	71-72
	2-18	Evaluation of the performance of the highest governance body	72 (Corporate governance report 52-53)
	2-19	Remuneration policies	72 (Corporate governance report 52-53)
	2-20	Process to determine remuneration	72 (Corporate governance report 52-53)
	2-21	Annual total compensation ratio	101
Strategy, policies and practices	2-22	Statement on sustainable development strategy	12
	2-23	Policy commitments	50, 75
	2-24	Embedding policy commitments	13-14, 75
	2-25	Processes to remediate negative impacts	41, 46, 51, 59, 78-81
	2-26	Mechanisms for seeking advice and raising concerns	13-14, 51, 59, 77
	2-27	Compliance with laws and regulations	75-78, 102-103
	2-28	Membership associations	117
Stakeholder engagement	2-29	Approach to stakeholder engagement	22
	2-30	Collective bargaining agreements	54, 98
GRI 3 Material Topics 2021			
Disclosures on material topics	3-1	Process to determine material topics	19
	3-2	List of material topics	19-20
	3-3	Management of material topics	21
Topic Standards			
GRI 200 Economic Performance			
Economic performance	201-1	Direct economic value generated and distributed	7, 86-88
	201-2	Financial implications and other risks and opportunities due to climate change	28-30
	201-3	Defined benefit plan obligations and other retirement plans	97 (Operates defined benefit (DB) and defined contribution (DC) pension systems)
	201-4	Financial assistance received from government	[Confidentiality constraints] Details on financial assistance received from the government cannot be disclosed
Market presence	202-1	Ratios of standard entry level wage by gender compared to local minimum wage	98
	202-2	Proportion of senior management hired from the local community	94-95
Indirect economic impacts	203-1	Infrastructure investments and services supported	40-41, 65-68, 100
	203-2	Significant indirect economic impacts	23-24, 65-68, 88, 100
Procurement practices	204-1	Proportion of spending on local suppliers	9, 88, 99
Anti-corruption	205-1	Operatoins assessed for risks related to corruption	75-78
	205-2	Communication and training about anti-corruption policies and procedures	75-78
	205-3	Confirmed incidencts of corruption and actions taken	102-103
Anti-competitive behavior	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	102-103
Tax	207-1	Approach to tax	81
	207-2	Tax governance, control, and risk management	79, 81
		Stakeholder engagement and management of concerns related to tax	79, 81, 88
	207-4	Country-by-country reporting	88
GRI 300 Environmental Performance			
Materials	301-1	Materials used by weight or volume	12, 91
	301-2	Recycled input materials used	[Information unavailable] The ratio of recycled raw materials used is not managed
	301-3	Reclaimed products and their packaging materials	39, 90

GRI Standards Index

Section	Disclosure No.	Disclosure Name	Reporting Pages
Energy	302–1	Energy consumption within the organization	31, 89
	302–2	Energy consumption outside of the organization	31, 89
	302–3	Energy intensity	31, 89
	302–4	Reduction of energy consumption	30, 89
	302–5	Reductions in energy requirements of products and services	35–36
Water and effluents	303–1	Interactions with water as a shared resources	38
	303–2	Management of water discharge–related impacts	38, 90
	303–3	Water withdrawal	90
	303–4	Water discharge	90
	303–5	Water consumption	90
Biodiversity	304–1	Operational sites owned, leased, managed in, or adjacent to, protected areas and area of high biodiversity value outside protected areas	41, 91
	304–2	Significant impacts of activities, products and services on biodiversity	19–20, 41, 91
	304–3	Habitats protected or restored	40–41
	304–4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	91
Emissions	305–1	Direct (Scope 1) GHG emissions	31, 89
	305–2	Energy indirect (Scope 2) GHG emissions	31, 89
	305–3	Other indirect (Scope 3) GHG emissions	32, 89
	305–4	GHG emissions intensity	31, 89
	305–5	Reduction of GHG emissions	31, 89
	305–6	Emissions of ozone–depleting substances (ODS)	37, 89–90
	305–7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	89–90
Waste	306–1	Waste generation and significant waste–related impacts	90–91
	306–2	Management of significant waste–related impacts	39
	306–3	Waste generated	39, 90
	306–4	Waste diverted from disposal	39, 90
	306–5	Waste directed to disposal	39, 90
Supplier environmental assessment	308–1	New suppliers that were screened using environmental criteria	56–57, 99
	308–2	Negative environmental impacts in the supply chain and actions taken	46, 57

Section	Disclosure No.	Disclosure Name	Reporting Pages
GRI 400 Social Performance			
Employment	401–1	New employee hires and employee turnover	48–49, 54, 95
	401–2	Benefits provided to full–time employees that are not provided to temporary or part–time employees	53–54
	401–3	Parental leave	54, 96
Labor/ management relations	402–1	Minimum notice periods regarding operational changes	[Not applicable] The compnay does not have rules related to labor and managemenr relations
Occupational health and safety	403–1	Occupational health and safety management system	43–47, 79–80
	403–2	Hazard identification, risk assessment, and incident investigation	44–47, 80
	403–3	Occupational health services	47
	403–4	Worker participation, consultation, and communication on occupational health and safety	46–47
	403–5	Worker training on occupational health and safety	45, 93
	403–6	Promotion of worker health	47, 92
	403–7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	47
	403–8	Workers covered by an occupational health and safety management system	33, 47, 92
	403–9	Work–related injuries	43, 47, 92
	403–10	Work–related ill health	43, 47, 92
Training and education	404–1	Average hours of training per year per employee	96
	404–2	Programs for upgrading employee skills and transition assisstance programs	49–50, 54
	404–3	Percentage of eployees receiving regular performance and career development reviews	52, 97
Diversity and equal opportunity	405–1	Diversity of governanve bodies and employees	50–51, 70–71, 93–94, 101
	405–2	Ratio of basic salary and remuneration of women to men	98
Non–discrimination	406–1	Incidents of discrimination and corrective actions taken	50–51, 102–103
Freedom of asscociation and collective bargaining	407–1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	54, 98
Child Labor	408–1	Operations and suppliers at significant risk for incidents for child labor	50, 55
Forced or compulsory labor	409–1	Operations and suppliers at significant risk for incidents for forced or compulsory labor	50, 55
Security practices	410–1	Security personnel trained in human rights policies or procedures	[Information unavailable] Lack of information on human rights training for security personnel
Rights of indigenous peoples	411–1	Incidents of violations involving rights of indigenous peoples	50–51

GRI Standards Index

Section	Disclosure No.	Disclosure Name	Reporting Pages
Local communities	413–1	Operations with local community engagement, impact assessments, and development programs	65–68, 88, 100
	413–2	Operations with significant actual and potential negative impacts on local communities	91 (There was one case of violation of environmental regulations in the 2022 business report but the case belongs to Defense Division, which is now split off.)
Supplier social assessment	414–1	New suppliers that were screened using social criteria	46, 56–57, 99
	414–2	Negative social impacts in the supply chain and actions taken	46, 56–57, 99
Public policy	415–1	Political contributions	[Confidentiality constraints] Details on political contributions cannot be disclosed
Customer health and safety	416–1	Assessment of the health and safety impacts of product and service categories	44–45, 61–62
	416–2	Incidents of non–compliance concerning the health and safety impacts of products and services	[Not applicable] No violations reported
Marketing and labeling	417–1	Requirements for product and service information and labeling	61–62
	417–2	Incidents of non–compliance concerning product and service information and labeling	[Not applicable] No violations reported
	417–3	Incidents of non–compliance concerning marketing communications	[Not applicable] No violations reported
Customer privacy	418–1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	[Not applicable] No violations reported

SASB Index

Sector: Resouce Transformation – Chemicals

Table 1. Sustainability Disclosure Topics & Accounting Metrics			Hanwha Corporation's Response
Topic	Code	Accounting Metric	2022 Data
Greenhouse Gas Emissions	RT-CH-110a.1	Gross global Scope 1 emissions, percentage covered under emissions-limiting regulations	20,368 tCO_2-eq(domesetic worksites)
	RT-CH-110a.2	Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	Page 31
Air Quality	RT-CH-120a.1	Air emissions of the following pollutants:	-
		(1) NOx (excluding N2O)	8.43863 Ton
		(2) SOx	0.00275 Ton
		(3) volatile organic compounds (VOCs)	N/A
		(4) hazardous air pollutants (HAPs)	N/A
Energy Management	RT-CH-130a.1 RT-EE-130a.1	(1) Total energy consumed	912,189.31 GJ
		(2) percentage grid electricity	37.45%
		(3) percentage renewable	0.01%
		(4) total self-generated energy	0.01%
Water Management	RT-CH-140a.1	(1-1) Total water withdrawn and	1,053,328 Ton
		(1-2) percentage of each in regions with High or Extremely High Baseline Water Stress	N/A
		(2-1) total water consumed and	1,053,328 Ton
		(2-2) percentage of each in regions with High or Extremely High Baseline Water Stress	N/A
	RT-CH-140a.2	Number of incidents of non-compliance associated with water quality permits, standards, and regulations	0 case
	RT-CH-140a.3	Description of water management risks and discussion of strategies and practices to mitigate those risks	Page 38
Hazardous Waste Management	RT-CH-150a.1 RT-EE-150a.1	Amount of hazardous waste generated and	123.05 Ton
		percentage recycled	20.61%
Community Relations	RT-CH-210a.1	Discussion of engagement processes to manage risks and opportunities associated with community interests	Page 41, 65-68
Workforce Health & Safety	RT-CH-320a.1 IF-EN-320a.1	(a) direct employees and (b) contract employees	-
		(1) Total recordable incident rate (TRIR)	(Direct employees) 0.02 / (Contractor employees) 1.29
		(2) fatality rate	(Direct employees) 0.00% / (Contract employees) 0.01%
	RT-CH-320a.2	Description of efforts to assess, monitor, and reduce exposure of employees and contract workers to long-term (chronic) health risks	Page 43-47, 92
Product Design for Use-phase Efficiency	RT-CH-410a.1	Revenue from products designed for use-phase resource efficiency	Page 39, 91
Safety & Environmental Stewardship of Chemicals	RT-CH-410b.1	(1) Percentage of products that contain Globally Harmonized System of Classification and Labeling of Chemicals (GHS) Category 1 and 2 Health and Environmental Hazardous Substances	N/A
		(2) percentage of such products that have undergone a hazard assessment	Page 37-38, 60-63
	RT-CH-410b.2	(1) Discussion of strategy to manage chemicals of concern	Page 38
		(2) Discussion of strategy to develop alternatives with reduced human and/or environmental impact	

SASB Index

Table 1. Sustainability Disclosure Topics & Accounting Metrics			Hanwha Corporation's Response
Topic	Code	Accounting Metric	2022 Data
Genetically Modified Organisms	RT-CH-410c.1	Percentage of products by revenue that contain genetically modified organisms(GMOs)	N/A
Management of the Legal & Regulatory Environment	RT-CH-530a.1	Discussion of corporate positions related to government regulations and/or policy proposals that address environmental and social factors affecting the industry	Page 37, 75-78
Operational Safety, Emergency Preparedness & Response	RT-CH-540a.1	Process Safety Incidents Count (PSIC)	1 case
		Process Safety Total Incident Rate (PSTIR)	0.02
		Process Safety Incident Severity Rate (PSISR)	N/A
	RT-CH-540a.2	Number of transport incidents	N/A

Sector: Resouce Transformation – Electrical & Electronic Equipment

Table 1. Sustainability Disclosure Topics & Accounting Metrics			Hanwha Corporation's Response
Topic	Code	Accounting Metric	2022 Data
Hazardous Waste Management	RT-EE-150a.2	Number and aggregate quantity of reportable spills, quantity recovered	0 case / 0 kg
Product Safety	RT-EE-250a.1	Number of recalls issued, total units recalled	0 case
	RT-EE-250a.2	Total amount of monetary losses as a result of legal proceedings associated with product safety	KRW 0
Product Lifecycle Management	RT-EE-410a.1	Percentage of products by revenue that contain IEC 62474 declarable substances	N/A
	RT-EE-410a.2	Percentage of eligible products, by revenue, that meet ENERGY STAR® criteria	N/A
	RT-EE-410.a3	Revenue from renewable energy-related and energy efficiency-related products	KRW 84,949 million
Materials Sourcing	RT-EE-440a.1	Description of the management of risks associated with the use of critical materials	N/A
Business Ethics	RT-EE-510a.1	Description of policies and practices for prevention of:	Page 75-78
		(1) corruption and bribery	
		(2) anti-competitive behavior	
	RT-EE-510a.2	Total amount of monetary losses as a result of legal proceedings associated with bribery or corruption	KRW 0
	RT-EE-510a.3	Total amount of monetary losses as a result of legal proceedings associated with anticompetitive behavior regulations	KRW 0

SASB Index

Sector: Resouce Transformation – Engineering & Construction Services

Table 1. Sustainability Disclosure Topics & Accounting Metrics			Hanwha Corporation's Response
Topic	Code	Accounting Metric	2022 Data
Environmental Impacts of Project Development	IF-EN-160a.1	Number of incidents of non-compliance with environmental permits, standards, and regulations	1 case (Defense Division)
	IF-EN-160a.2	Discussion of processes to assess and manage environmental risks associated with project design, siting, and construction	Page 37, 41
Structural Integrity & Safety	IF-EN-250a.1	Amount of defect- and safety-related rework costs	N/A
	IF-EN-250a.2	Total amount of monetary losses as a result of legal proceedings associated with defect- and safety-related incidents	N/A
Lifecycle Impacts of Buildings & Infrastructure	IF-EN-410a.1	(1) Number of commissioned projects certified to a third-party multi-attribute sustainability standard	N/A
		(2) Number of active projects seeking such certification	N/A
	IF-EN-410a.2	Discussion of process to incorporate operational-phase energy and water efficiency considerations into project planning and design	Page 29, 38
Climate Impacts of Business Mix	IF-EN-410b.1	(1) Amount of backlog for hydrocarbonrelated projects	N/A
		(2) Amount of backlog for renewable energy projects	N/A
	IF-EN-410b.2	Amount of backlog cancellations associated with hydrocarbon-related projects	N/A
	IF-EN-410b.3	Amount of backlog for non-energy projects associated with climate change mitigation	N/A
Business Ethics	IF-EN-510a.1	In countries that have the 20 lowest rankings in Transparency International' s Corruption Perception Index:	–
		(1) Number of active projects	N/A
		(2) backlog	N/A
	IF-EN-510a.2	(1) Total amount of monetary losses as a result of legal proceedings associated with bribery or corruption	KRW 0
		(2) Total amount of monetary losses as a result of legal proceedings associated with anti-competitive practices	
	IF-EN-510a.3	Description of policies and practices for prevention of	–
		(1) bribery and corruption	Page 75-78
		(2) anti-competitive behavior in the project bidding processes	

TCFD Index

Topic	TCFD Recommendations	Reporting Pages
Governance	a) Describe the board's oversight of climate-related risks and opportunities.	27
	b) Describe management's role in assessing and managing climate-related risks and opportunities.	
Strategy	a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	28–30
	b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	
	c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2° C or lower scenario.	
Risk Management	a) Describe the organization's processes for identifying and assessing climate-related risks.	30, 36, 79–80
	b) Describe the organization's processes for managing climate-related risks.	
	c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	
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.	31–32
	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	
	c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	

WEF Stakeholder Capitalism Metrics

Table	Theme	Metrics	Reporting Pages
Principles of Governance	Governing purpose	Setting purpose(The company's stated purpose, as the expression of the means by which a business proposes solutions to economic, environmental and social issues)	5–8, 13–17
		Purpose–led management(The company's stated purpose which is embedded in company strategies, policies and goals)	5–8, 13–17
	Quality of governing body	Governance body composition(Composition of the highest governance body and its committees)	70–72
		Progress against strategic milestones(major achievements from the previous year, expected performance in the following year and the long–term value of these milestones)	70–72 (Corporate governance report 54–60)
		Remuneration(Remuneration policies for the highest governance body and senior executives)	72, 101
	Stakeholder engagement	Material issues impacting stakeholders	19–22
	Ethical behavior	Anti–corruption(Anti–corruption training and initiatives to improve organizational culture)	75–78
		Internal and external mechanisms for protected ethics advice and reporting(Seeking advice about ethical and lawful behaviour and organizational integrity and reporting concerns about violation of those ethics)	75–77
		Alignment of strategy and policies to lobbying	N/A (No lobbying done)
		Monetary losses from unethical behaviour	102–103
	Risk and opportunity oversight	Integrating risk and opportunity into business process	79–81
		Economic, environmental and social topics in capital allocation framework	70–72
Planet	Climate change	Greenhouse gas (GHG) emissions(GHG Protocol Scope 1, 2 and 3 emissions)	31–32, 89
		TCFD implementation	27–32
		GHG emissions targets	31–32, 35
		Impact of GHG emissions(Report wherever material along the value chain the valued impact of greenhouse gas emissions)	28
	Nature loss	Land use and ecological sensitivity(the number and area (in hectares) of sites owned, leased or managed in or adjacent to protected areas and/or key biodiversity areas (KBA))	91
		Land use and ecological sensitivity(Area of land used for the production of basic plant, animal or mineral commodities and year–on–year change in the area)	37, 41, 91
		Impact of land use and conversion	37, 41, 91
	Freshwater availability	Water consumption and withdrawal in water–stressed areas	38, 90
		Impact of freshwater consumption and withdrawal	38, 90
	Air pollution	Air pollution	37, 89–90
		Impact of air pollution	37, 89–90
	Water pollution	"Nutrients(metric tonnes of nitrogen, phosphorous and potassium in fertilizer consumed)"	N/A (No use of fertilizer)
		Impact of water pollution	36, 38, 90

Table	Theme	Metrics	Reporting Pages
Planet	Solid waste	Single–use plastics	39, 90
		Impact of solid waste disposal	39, 90
	Resource availability	Resource circularity	39, 90
People	Dignity and equality	Diversity and inclusion(%, Percentage of employees per employee category)	51, 93–94
		Pay equality(%, Ratio of the basic salary for each employee category)	98
		Wage level(%)	98
		Risk for incidents of child, forced or compulsory labour	50, 55
		Pay gap	98
		Discrimination and harassment incidents (#) and the total amount of monetary lossess ($)	50–51, 102–103
		Freedom of association and collective bargaining at risk (%)	54, 98
		Human rights review, grievance impact & modern slavery (#, %)	50–51, 102–103
		Living wage (%)	98
	Health and wellbeing	Health and safety	43–47
		Monetized impacts of work–related incidents on organization (#, $)	92–93
		Employee well–being (#, %)	47, 53–54
	Skills for the future	Training provided	49–50, 96
		Number of unfilled skilled positions (#, %)	95
		Monetized impacts of training – Increased earning capacity as a result of training intervention (%, $)	97
Prosperity	Employment and wealth generation	Absolute number and rate of employment	95
		Economic contribution	88
		Financial investment contribution	35, 88, 91
		Infrastructure investments and services supported	65–68, 100
		Significant indirect economic impacts	65–68, 100
	Innovation of better products and servicies	Total R&D expenses ($)	7, 88
		Social value generated (%)	88
		Vitality Index(Percentage of gross revenue from product lines that have been launched in the past three or five years)	88
	Community and social vitality	Total tax paid	81, 88
		Total Social Investment ($)	88, 91, 100
		Additional tax remitted	88
		Total tax paid by country for significant locations	88

Greenhouse Gas Scope 1, 2 Emissions Verification Opinion

Introduction

DNV Business Assurance Korea Ltd. ("DNV") was commissioned by Hanwha Corporation("Hanwha") to verify the Hanwha's Greenhouse Gas Inventory Report for the calendar year 2022 ("the report") based upon a reasonable level of assurance. Hanwha is responsible for the preparation of the GHG emissions and Energy consumption data on the basis set out within the guidelines on the operation of GHG emission trading scheme ("ETS) (Notification No. 2022–279, Korean Ministry of Environment)'. Our responsibility in performing this work is to the management of Hanwha only and in accordance with terms of reference agreed with them. DNV expressly disclaims any liability or responsibility for any decisions, whether investment or otherwise, based upon this Verification Opinion.

Scope of Assurance

The GHG emissions data covered by our examination comprise Direct emissions (Scope 1 emissions) and Energy indirect emissions (Scope 2 emissions) from Hanwha boundary of the report;

- Organizational boundary for reporting: Domestic business sites of Hanwha
- Fugitive emissions from refrigerant are excluded

Verification Approach

The verification has been conducted by DNV on January to March 2023 and performed in accordance with the verification principles and tasks outlined in the guidelines on the operation of GHG ETS[1] (Notification No.2022–279, Korean Ministry of Environment), the verification guideline for GHG ETS (Notification No. 2021–112, Korean Ministry of Environment) and ISO 14064–1:2006. We planned and performed our work to obtain all the information and explanations deemed necessary to provide us with sufficient evidence to provide a reasonable verification opinion concerning the completeness of the emission inventory as well as the reported emission figures in ton CO_2 equivalent. As part of the verification process;

- We have reviewed and verified the GHG emissions and energy consumption report for the calendar year 2022
- We have reviewed and verified the process to generate, aggregate and report the emissions and energy data

Conclusions

As a result of the work described above, in our opinion nothing has come to our attention that would cause us to believe that the GHG emissions and energy consumption set out in Hanwha's report are not fairly stated. The GHG emissions and energy consumption of Hanwha for the year 2022 were confirmed as below;

Greenhouse Gas Emissions of Hanwha Domestic business site for Yr 2022

(Unit: ton CO_2eq)

Hanwha	Direct emissions (Scope 1)	Indirect emissions (Scope 2)	Total emissions
Domestic (in Korea)	20,372	43,796	64,198

※ Total emissions might be different from the sum of direct and indirect emissions by applying the rule that emissions should be summed after truncating decimal places at the business site level.

22 June 2023
Seoul, Korea

DNV Business Assurance Korea Ltd
Country Manager Jang–Sup Lee

DNV·GL

1) Documentation on reporting and certification in the South Korean Emissions Trading Scheme, including references such as ISO 14064–1: 2006 and the IPCC Guidelines.

This Verification Opinion is valid as of the date of the issuance 22 June 2023. Please note that this opinion would be revised if any material discrepancy which may impact on the Greenhouse Gas Emissions of Company is subsequently brought to our attention. In the event of ambiguity or contradiction in this Opinion between English version and Korean version, Korean shall be given precedent.

Greenhouse Gas Scope 3 Emissions Verification Opinion

Introduction

DNV Business Assurance Korea Ltd. ("DNV") was commissioned by Hanwha to verify the Hawha' Greenhouse Gas Inventory for the calendar year 2022, based upon a limited level of assurance. Hanwha is responsible for the preparation of the GHG emissions data on the basis set out within the WRI/WBCSD's 'The Corporate Value Chain (Scope 3) Accounting and Reporting Standard' and the principles set out in ISO 14064-1:2018. Our responsibility in performing this work is to the management of Hanwha only and in accordance with terms of reference agreed with them. DNV expressly disclaims any liability or responsibility for any decisions, whether investment or otherwise, based upon this verification opinion.

Scope of Assurance

The emissions data covered by our examination are for the Other indirect emission (Scope 3 emissions);

- Reporting boundary: Other indirect emissions which are not included in the Direct emissions (Scope 1) and Indirect emissions (Scope 2)
- Reporting category: 12 Categories (1, 2, 3, 4, 5, 6, 7, 9, 11, 12, 13, 15)

Verification Approach

The verification has been conducted by DNV in June 2023 and performed in accordance with the verification principles and tasks outlined in ISO 14064-3:2019. We planned and performed our work so as to obtain all the information and explanations deemed necessary to provide us with sufficient evidence to provide a verification opinion with 5% materiality level, concerning the completeness of the emission inventory as well as the reported emission figures in the unit of ton CO_2 equivalent. As part of the verification process:

- We have reviewed and verified the Scope 3 Greenhouse Gas Inventory System (Excel based)
- We have reviewed and verified the process to generate, aggregate and report the emissions data

Conclusions

Based on the above verification of core elements, it is the DNV's opinion that nothing comes to our attention to suggest that GHG Emissions are not properly calculated, and a significant uncertainty and error are not included in the other indirect emission of Hanwha for the year 2022 below.

Other indirect emissions (Scope 3) of Hanwha in Yr. 2022 (Unit: ton CO_2eq)

Hanwha	2022
Scope 3	4,236,881

※ In order to report the GHG emissions as an integer, the rounded number on the statement might be different from the number on the report with ± 1 t CO_2-eq
※ The details refer to annex 1

23rd June 2023
Seoul, Korea

DNV Business Assurance Korea Ltd
Country Manager Jang-Sup Lee

DNV·GL

Appendix #1. Verified Emissions in each categories

Other indirect emissions (Scope 3) of Hanwha

(Unit: ton CO_2eq)

Categories	2022
1. Purchased Goods and Services	1,743,325
2. Capital Goods	349
3. Fuel- and Energy-Related Activities Not Included in Scope 1 or Scope 2	3,705
4. Upstream Transportation and Distribution	8,568
5. Waste Generated in Operation	8,196
6. Business Travel	5,829
7. Employee Commuting	2,341
9. Downstream Transportation and Distribution	2,760
11. Use of Sold Products	1,701,867
12. End-of-Life Treatment of Sold Products	5,967
13. Downstream Leased Assets	18,063
15. Investments	735,911
Total	4,236,881

※ In order to report the GHG emissions as an integer, the rounded number on the statement might be different from the number on the calculation tool with ± 1 t CO_2-eq.

This Verification Opinion is valid as of the date of the issuance. Please note that this would be revised if any material discrepancy which may impact on the Greenhouse Gas Emissions of Company is subsequently brought to our attention. In the event of ambiguity or contradiction in this opinion between English version and Korean version, Korean shall be given precedent.

Independent Assurance Statement

Independent Assurance Report

To the management of Hanwha Corporation

We performed a limited assurance engagement on the following Sustainability Report of Hanwha Corporation (the "Company") for the year ended December 31, 202 3 (the "Report")

Scope and Subject matter information

For the year ended December 31, 2022, we provide a limited assurance on the following:

- The ESG information (the "Subject matter information"), stated on 'Appendix' and 'ESG Fact book of the Report , is prepared in accordance with the Company's 'Reporting Principle' described on the 'ABOUT THIS REPORT'.

We read the other information included in the Report and considered whether it is consistent with the Subject matter information. We considered the implications for our report in the case that we became aware of any apparent misstatements or material inconsistencies with the Subject matter information. Our responsibilities do not extend to any other information.

Criteria

The Company prepared the Subject matter information in accordance with Global Reporting Initiative (GRI) Standards 2021. The Report contains indicators set by the Task Force on Climate related Financial Disclosures (TCFD) and Sustainability Accounting Standards Boa rd (SASB), UN Sustainable Development Goals (UN SDGs), WEF IBC Stakeholder Capitalism Metrics.

Inherent limitations

Non–financial information is subject to more inherent limitations than financial information, given the characteristics of the subject matter and the methods used for determining such information. Qualitative interpretations of relevance, materiality and the accuracy of data are subject to individual assumptions and judgments.
In particular:

- We did not attend any stakeholder engagement activities. Therefore, our conclusion is based on our discussions with management and staff of the Company and our review of selected documents provided to us by the Company.
- The scope of our work was restricted to performance for the year ende d December 31, 2022, only, as set out in the scope and subject matter section above. Information for the year ended December 31, 2021, and earlier periods have not been subject to assurance by us.

Responsibility of the management of the Company

The management of the Company is responsible for selecting and establishing suitable criteria for preparing the Subject matter information and the preparation of the Subject matter information in accordance with the Criteria.

Our responsibility Our

Our responsibility is for the following:

- Determining and performing the procedures to provide a limited assurance whether a material matter has come to our attention to cause us to believe the Subject matter information is materially misstated.
- Independently expressin g a conclusion in accordance with provided evidence by the Company

Because we engaged to form an independent conclusion on the Subject matter information prepared by the Company, our involvement may compromise our independence and is therefore not permitted.

This report, including the conclusion, has been prepared for the Company's management as a body, to assist the management in reporting on the Company's sustainability performance and activities. We do not accept or assume responsibility to any one other than the Company's management as a body and the Company for our work or this report save where terms are expressly agreed and with our prior consent in writing.

Our independence and quality control

We have complied with the independence and other ethical requirements of the code of ethics issued by the Ethics Standards Board of the Korean Institute of Certified Public Accountants. We apply International Standard on Quality Control 1 and accordingly maintain a comprehensive system of quality con trol including documented policies and procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements.

RSM

Independent Assurance Statement

The standard of assurance engagement

We performed a limited assurance engagement in accordance with Assurance Engagement other than Audits and Reviews of Historical Financial Information issued by the Korean Institute of Certified Public Accountants (International Standard on Assurance Engagement 3000 (Revised) as adopted by the Republ ic of Korea).

Summary of the assurance work we performed.

Our work includes the following activities:

1. Interviews with the Company' s personnel responsible for internal reporting and data collection.
2. Review on the samples of the Company' s internal documents related to output from the risk assessment process, sustainability related policies and standards, the sustainability materiality assessment matrix, and other documents from stakeholder engaged activities.
3. Understanding the Company' s design and i mplementation of key processes and controls for managing and reporting the Subject matter information.
4. Limited testing, through inquiry and analytical review procedures, of the preparation and collation of the Company' s Subject matter information.

A limited assurance engagement is less in scope than a reasonable assurance engagement. Consequently, the nature, timing, and extent of procedures for gathering sufficient, appropriate evidence are deliberately limited relative to a reasonable assurance enga gement.

Conclusion

Based on the procedures we performed as described under the "Summary of the assurance work we performed" and the evidence provided by the Company, nothing has come to our attention that causes us to believe that the Company' s Subje ct matter information in the Report for the year ended December 31, 2022, is not prepared, in all material respects, in accordance with the Company' s reporting Criteria

August 22, 2023
Shinhan Accounting Corporation
Seoul, Korea

Representative Partner Lee, Sang Moon

Lee Sang moon

RSM

Awards and Organization Memberships

Major Awards (H1 2022–2023)

Award date	Division	Type	Award title	Awarding organization
November 11, 2022	E&C	Citation	2022 Carbon Neutral Green Management Award (Construction site for KTX line from Suwon)	Minister of Trade, Industry and Energy
November 30, 2022	E&C	Award	18th Best Practice Contest for Construction Environment Management (Assistant Manager Park Sang Hyun)	Minister of Land, Infrastructure, and Transport
December 8, 2022	Momentum	Citation	Commendation for everyday sports program by a volunteer group at the Asan Mayoral Welfare Center for Persons with Disabilities	National Assembly of the Republic of Korea
December 15, 2022	Momentum	Evaluation	Grade A in the 2022 Safety and Health Cooperative Program	Korea Occupational Safety & Health Agency
June 5, 2023	Global	Citation	Meritorious environmental conservationists at the 28th Environment Day (Assistant Manager Lee Do Hyun)	Governor of North Chungcheong Province

Key Associations and Organizations

Korean Society of Transportation	Council of Economic Organizations	Korea Electrical Association	Energy Transition Forum	Korean Construction Engineers Association	Korea Mecenat Association	Korea Railway Electrification Technical Association	Korea Integrated Logistics Association
Korea Association of Procurement and Supply Management	Police Administration Development Association	Korean Society of Civil Engineers	Energy Transition Forum	Korean Recycled Construction Resources Institute	Korea Society of Hazard Mitigation	Korea Electronics Technology Institute	Korea Wind Energy Industry Association
Korea Association of Occupational Health Nurses	Plant Manager Association	The Bell	Korea Electrical Contractors Association	Korea Institute of Construction Safety	Korea Society for Advanced Composite Structures	Korea Council of Chief Information Security Officers	Korea Wind Energy Association
A3 Association	Structural Diagnostic Society	Maekyung Diamond Club	South Jeolla Wind Power Industry Association	Korea Institute of Building Construction	Korea Industrial Technology Association (KOITA)	Korea Information & Communication Contractors Association	Korea Project Management Association
KOSHA18001 Association	Ministry of Transportation Association	Maekyung Safety and Environmental Institute SEL Club	General Construction Industry Electrical Council	Korean Institute of Architectural Sustainable Environment and Building Systems	Korea Association of Robot Industry	Telecommunications Technology Association	Korea Plant Industries Association
Korea Exchange	Naebuk-myeon Association of Organizations and Groups	Defense Council	Residential Facility Council	Korea Enterprises Federation	Korea Listed Companies Association	Korean Institute of Illuminating and Electrical Installation Engineers	Hannam Club
SOC Forum	Naebuk-myeon Community Social Security Council	Korean Bar Association	Korean Geotechnical Society	Korea Economic Research Institute	Korea Equipment Technology Association	Korea Construction Machinery and Equipment Association	Korea-U.S. Economic Council
Korea Construction Technology Exchange Association	Green Company Council	Boeun-gun Integrated Social Organization Council	Jinhae Industrial Complex Management Department Chiefs Council	Fair Competition Federation	Korea Fire Facility Association	Korea Housing Association	Association of Korea-USA Friendship Alliance
Korea Construction Engineers Association	Korean Nurses Association	Boeun-gun Women's Organization Advisory Committee	Guns and Explosives Safety Technology Association	National Academy of Engineering of Korea	Korea Software Technology Association	Korean Geotechnical Society	Korea-Japan Economic Association
Construction Industry Electrical Design Council	Construction Association of Korea	Boeunhoe Association	Chungcheong Regional Chemical Safety Community Council	Korea Customs Logistics Association	Korean Hydrogen & New Energy Society	Korean Geosynthetics Society	Korea-China Cooperation Department Committee
Construction Industry Electrical Practitioners Association	Architectural Institute of Korea	Korea Developer Association	Korea IR Services	Korea Advertisers Association	Korea Water Resources Association	Korea Society of Geotechnical Engineers	International Contractors Association of Korea
Construction Industry Personnel Manager Association	Korea Spatial Information Society	BuildingSmart Korea	Korea IR Council	Korea Military Tax Cooperative	Korea Society for New and Renewable Energy	GM Korea Association	Korea Environmental Preservation Association
Construction Outsourcing Association	Korea Society of Transportation	Korea Chamber of Commerce and Industry	Korean Institute of Bridge and Structural Engineers	Korea Green Building Council	Korean Society of Safety	Korean Society for Geothermal and Hydrothermal Energy	
Construction Equipment Safety Council	Korea Mechanical Construction Contractors Association	Seoul National University Engineering Development Research Center	Korea Institute of Building Information Modeling	Korea Management Association	Korean Society for Rock Mechanics and Rock Engineering	Korea Railway Construction Association	
Construction Environment Association	Korea ESG Club	Firefighting Development Council	Korean Society for Prognostics & Health Management	Korea National Committee on Large Dams	Korea Engineering & Consulting Association	Korea Railway Association	
Korea Structural Engineering Association	Korea Industrial Safety Association	Sinan Offshore Wind Power Company Council	Korean Society of Steel Construction	Korea Road Association	Korea Atomic Industrial Forum	Korea Concrete Institute	
Korea Institute of Building Construction	Korea Chamber of Commerce & Industry	Asia Business Daily First IR Club	Korea Federation of Construction Contractors	Korea Display Industry Association	Korea Electrical Contractors Association	Korean Solar Energy Society	
Gyeongnam Environmental Engineers Association	Society of Air-conditioning and Refrigeration of Korea	Korea Industrial Safety Association	Korea Construction Transport New Technology Association	Korea Institute for Robot Industry Advancement	Korea Association of Electrical Engineers	Korean Tunneling and Underground Space Association	


Hanwha Corporation