

# KSOE

## INTEGRATED REPORT

2021



# KSOE

## INTEGRATED REPORT 2021

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# 2020 HIGHLIGHT

## KSOE

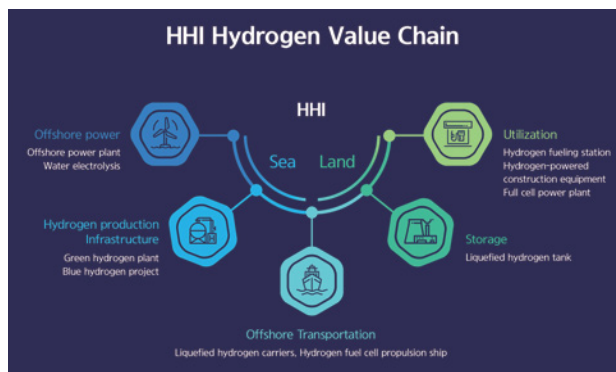
### Leading the Development of Digital Ships

KSOE is leading the global development trend of advanced digital ships. The Integrated Smart-ship Solution (ISS) of KSOE has already received positive feedback from the global market, proving it possesses excellence and a competitive edge. Hyundai Intelligent Navigation Assistant System (HiNAS) is the first-ever commercialized AI-based intelligent navigation assistant system in the world. HiNAS has recently been adopted for bulk carriers, and additional orders from customers are likely to be placed further down the road thanks to its highly reliable performance. We have also developed a digital twin technology that enables the prediction of potential failure through a ship data simulation as well as preventive maintenance. As the trial run of the technology is finalized, KSOE will double its efforts to apply the technology to the ships as early as possible.



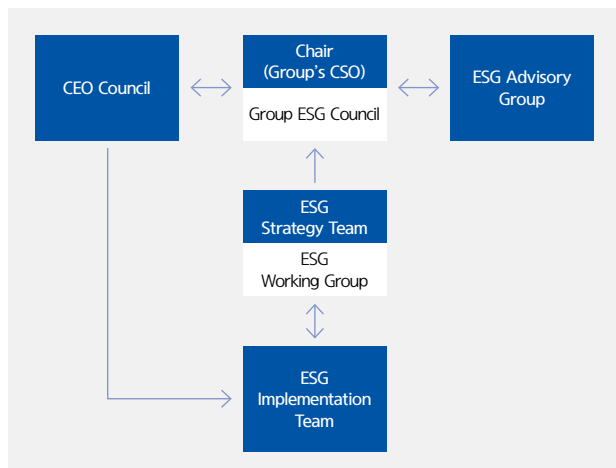
### Finalizing the Future Hydrogen Roadmap

KSOE announced a roadmap for initiating the hydrogen business that spans every sector in the hydrogen value chain in an attempt to secure future growth engines. First, we plan to join the floating offshore wind farm project, and then utilize the generated energy for the production of green hydrogen: to this end, a green-hydrogen water electrolysis technology is under development. In addition, in order to respond to the growing demand for the carriers that can transport the produced hydrogen, we have accelerated the development of the related technologies: for instance, last year KSOE acquired the Approval In Principle (AIP) for the basic design of the domestic commercial liquefied hydrogen carriers for the first time in the world. We will also continue our R&D on hydrogen fuel cell technology for ships in conjunction with the best fuel cell companies in Korea.



### Establishing an ESG Organization

KSOE formed an ESG organization in an effort to strengthen the company-wide ESG management. This is in line with the accelerating global ESG management trend and an investment paradigm shift towards ESG, that KSOE assigned CSO (Chief Sustainability Officer) and established ESG Strategy team and its implementation team. KSOE strives to comply with the ESG obligations for environment, social responsibility, and governance by actively responding to the ESG-related issues raised by the range of stakeholders. To this end, we internally built a company-wide unified ESG process/system. KSOE will further strengthen the group's ESG management through the strategic and integrated disclosure of ESG-related information and internal/external communication/PR activities.



## HHI

### Selected as RINA's Significant Ships for 38th Consecutive Year

Last year marked the 38th consecutive year that Hyundai Heavy Industries' (HHI) highest quality was officially recognized by the Royal Institution of Naval Architects (RINA), a world-renowned international professional institution based in London whose members are involved in the shipbuilding and offshore business. Three of the HHI-built ships- a 153,000 cubic-meter shuttle tanker, an 80,000 cubic-meter LPG carrier, and a 174,000 cubic-meter LNG carrier- were bestowed the Significant Ships 2020 awards by RINA. The shuttle tanker was highly praised for saving fuel efficiency by up to 6% in the low-load section by applying a "DC-based electric propulsion system" for the first time. The highly-recognized features of the LPG carrier includes i) eco-friendliness as it is equipped with the Exhaust Gas Cleaning System (EGCS) and Selective Catalytic Reduction (SCR) and ii) a greatly-improved energy efficiency by applying Single Mixed Refrigerant (SMR)- one of the 16 industrial technological achievements in 2020 announced by the National Academy Engineering of Korea.



### Successful Entry into the Eco-friendly Ship Market

HHI has channeled its resources into developing eco-friendly technologies in preparation of the stricter environmental regulations of the International Maritime Organization (IMO). We developed commercial liquefied hydrogen carriers, and obtained AIP for its basic design from the Korea Register of Shipping and the Liberian International Ship and Corporate Registry (LISCR) in October last year. We also succeeded in developing a liquefied hydrogen cargo processing system and a Boil-Off Gas (BOG) processing system using fuel cells along with the basic design of ships. In addition, the ammonia-fuelled VLCC that significantly reduced greenhouse gas emissions obtained AIP for its basic design from DNV-GL (Norway-German Register of Shipping) in October last year. HHI has also run a demonstration center of a hybrid electric propulsion system based on a solid oxide fuel cell (SOFC) since August 2020; by obtaining AIP for the Aframax-class crude oil carriers to which this system was applied in November last year, the technological prowess and safety of the fuel-cell-fuelled vessel was officially recognized.



### Endeavoring to Prepare Measures to Improve Safety

HHI puts top priority on the health and safety of its employees. We have decided to invest a total of KRW160 billion over three years in the safety sector: we plan to scale up the safety innovation advisory committee, grant all workers the right to demand safe work, restructure the safety organization, and increase an investment in safety facilities. HHI has concentrated company-wide capabilities on implementing strict safety measures. In order to break the repeat of serious disasters and root out the insensitivity to safety, on April 23, 2020 (Thursday), all production activities were suspended and the "Company-wide Safety Conference" was held. In addition, the Standard Work Instruction has been completely revised so that all workers can do their jobs in the safest and most efficient production environment based on the accurate safety manual. We also published a special edition of the Standard Work Instruction which is customized for the shipbuilding industry. In addition, we have also introduced safety programs such as "Hi-SAFE," through which the site workers can directly suggest ideas on how to improve high-risk factors and work difficulties and "Safety Current Occupation Path System," in which only those who have successfully completed safety training are assigned responsible jobs. In July, Lee Choong-ho, a former head of the Seoul Division of the Korea Occupational Safety and Health Agency, was appointed as a safety advisory member (Executive-level) to contribute to reinforcement of the overall safety management infrastructure.





## HMD

### 20,000-ton RO-RO Selected as a World-class Product

The 20,000-ton roll-on roll-off (RO-RO) ship built by HMD was selected as the 2020 World-Class Product by the Ministry of Trade, Industry and Energy. As of now, HMD has a total of 14 types of World-Class Product including Medium Range Product Carriers (MR PC), feeder ships, medium-sized LPG/LEG/LNG carriers, methanol carriers, LNG bunkering vessels, Pure Car and Truck Carriers (PCTC), container/RO-RO combined ships, asphalt carriers, juice carriers, LNG dual fuel bulk carriers, etc.



### Outstanding Shipbuilder in the Global Ferries Market

HMD is a prominent player in the passenger shipbuilding market as well. Following the construction of the first 17,000-ton class car ferry in 2002, HMD succeeded in building a series of larger-class car ferries (31,000-ton and 27,000-ton) in 2018 and 2020. Until now, a total of three passenger ships have been successfully delivered to the customers. A 27,000-ton class car ferry, which has been built since August 2019, is scheduled to be put into operation for the Incheon-Jeju route starting from September 2021. In 2019 alone, we won an order from a European ferry company for a 25,000-ton class car ferry and signed a contract with the Ulsan Information Industry Promotion Agency (UIPA) to build the first electric-fueled ICT convergence whale sea tour ship in Korea. HMD is aggressively solidifying its position to a greater extent in the domestic and overseas passenger ship construction market.



### Leading the Future Shipbuilding Market by Developing Eco-friendly Technologies

HMD, as the industrial leader, is proactively preparing for the future shipbuilding market by developing a range of eco-friendly technologies that can meet the IMO's tightened environmental requirements. In 2019, we already received AIPs for ammonia dual-fuelled vessels (July), commercial liquefied hydrogen carriers (October), and ballast water non-discharge containership and small LNG carriers to which the 'B-type cargo tanks' are applied (both in November). As a result of these efforts for quality innovation as well as technology development, HMD was honored with the Presidential Citation at the 46th National Quality Management Contest held at the end of 2019.



## HSHI

### Delivery of the World's First LNG-fuelled Container Ship

HSHI held a signing ceremony to commemorate the successful delivery of "CMA CGM TENERE," the world's first LNG-fuelled container ship (14800 TEU class), at the company's main building on September 15, 2020, in the presence of Senior Managing Director Yoon Sung-il of the Customer Support Division of HSHI, and Senior Director Bandomatich of a Singapore's EPS. The vessel is 366 meters long, 51 meters wide, and 29.9 meters deep, equipped with a pyramid-shaped LNG fuel tank, a Fuel Gas Supply System (FGSS), and a ME-GI dual fuel engine. It is a vessel that can sail round-trip along the Asian and European routes on a single LNG charge.



### Delivery of the World's First Ocean-sailing LNG-fuelled Bulk Carrier

HSHI made history by building the world's first ocean-going LNG-fuelled bulk vessel. A naming ceremony was held at the company's wharf on December 11th for two 180,000-ton LNG-fuelled bulk carriers made by HSHI: the ceremony was attended by many distinguished guests including Prime Minister Chung Sye-kyun, CEO Seo Myeong-deuk of Hline Shipping, CEO Ka Sam-hyun of KSOE, and CEO Kim Hyung-kwan of HSHI. Each ship is 292 meters long, 45 meters wide, and 24.8 meters deep, making it Korea's first large LNG-fuelled ocean-going vessel. At the event, these two vessels were named "HL ECO" and "HL Green" respectively.



### Industrial Equipment Division Split-off as a Wholly-owned Subsidiary

HSHI held the 23rd general shareholders' meeting at Hotel Hyundai Mokpo on March 22, 2021 and passed the agenda for the spinning off its "Industrial Equipment" division into a subsidiary. The new split-off named Hyundai Infra Solution was established as a wholly owned subsidiary of HSHI with capital of KRW 5 billion; and its head office was located in Seongnam-si, Gyeonggi-do. Hyundai Infra Solution held a "split-off report and inaugural general meeting" in May 2021.





# 01

# BUSINESS OVERVIEW

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# Korea Shipbuilding & Offshore Engineering (KSOE)



Co-CEOs of KSOE  
**Kwon Oh-gap & Ka Sam-hyun**

**By securing unrivaled technologies, we will create unrivaled value for the future.**

**Dear stakeholders,**

Last year was challenging to all of us as the global economy was massively hit by the COVID-19 pandemic. Subsequently, shipbuilding orders fell dramatically to the lowest level since 2016 in the midst of increased uncertainty caused by the coronavirus-triggered economic downturn. Despite facing such difficulties, we still successfully delivered the world's first LNG-fuelled container ship, which won widespread praise in the global market. Our technical achievements were meaningfully recognized, especially in the fields of electric propulsion, ammonia propulsion, and hydrogen carriers. In order to achieve the goal of securing unrivaled technology in the carbon-neutral era, KSOE, the holding company of HHI and its affiliates, will do our best to maximize the synergy among the subsidiaries and affiliates. The development of eco-friendly technologies is not merely an option but an imperative in order to survive since we face the accelerating mega trend of the ESG management. Our strong technological advantage in the LNG-fuelled ship sector can become a good foundation for this move, and we will further strive to secure and commercialize proprietary technologies in the non-carbon-fuelled (i.e. electricity, ammonia, or hydrogen) ship sector. We will also continue enhancing the corporate environment, reinforcing social responsibility, and improving governance to be a company truly loved and trusted by every stakeholder.

## Mission

### Hyundai Spirit

KSOE firmly believes there is no challenge too great for us to meet with our dauntlessness and unwavering drive backed up by the infinite potential, no matter how impossible it may seem at the moment. It is the philosophy of the founder Chung Ju-yung and the ground spirit of Hyundai Group.



### Creative Wisdom

Wisdom to seek novelty and innovation to meet the needs of customers and our society



### Strong Determination

Attitude to take bold adventures with a strong sense of mastery



### Unwavering Drive

Power to achieve goals with a strong spirit and indomitable will

## Management Vision

A **Respected Corporation** with Advanced Technologies and High-Quality Products  
A **Trusted Corporation** with Fair and Transparent Management  
An **Admired Corporation** with Social Contribution

## Management Philosophy

We have five management philosophies in place that must be shared and practiced by all personnel to fulfill our corporate social responsibility.



**1** Enhancing Corporate Value Through Sustainable Growth



**2** Upholding Fair and Transparent Business Practices



**3** Pursuing Safe and Environmentally Friendly Business Practices



**4** Promoting Strong Labor-Management Relations Built on Mutual Respect and Trust



**5** Demonstrating Our Commitment to Global Corporate Citizenship

## Business Policy

### 2021 Slogan

Shaping Future with Innovation Technology

### 2021 Business Guidelines

- 1** Sharing more synergy among Group companies
- 2** Creating Value for the Future
- 3** Securing Global Talents
- 4** Building a Responsible and Autonomy Culture

## Business Overview

Duly established under the Monopoly Regulation and Fair Trade Act (MRFTA), KSOE is a holding-operating company that exercises control over other entities and engages in its own business of future technology projects at the same time. Our subsidiaries consolidated under the Korean International Financial Reporting Standards (K-IFRS) are HHI, HMD, HMSI, and the major business sectors include shipbuilding, offshore & industrial plant, and engine & machinery.

## 2020 Achievements

We were the first in Korea to obtain Approval In Principle (AIP) for ammonia-fuelled ships from Lloyd's Register of the UK, and the first in the world to obtain AIP for domestic commercial liquefied hydrogen carriers from Korean Register of Shipping and Liberian International Ship and Corporate Registry (LISCR). These achievements were possible because we have fulfilled our role as a professional technology-centered holding company based on our eco-friendly R&D efforts. Recently, the Singaporean and Chinese fair trade commissions approved the merger with Daewoo Shipbuilding & Marine Engineering (DSME), enabling us to take one step closer to solidifying our position as the world's no. 1 shipbuilding and offshore business group.

## 2021 Outlook and Targets

In line with the globally-stricter environmental regulations, we are committed to securing and commercializing proprietary technologies in the field of ship powered by non-carbon fuels such as electricity, ammonia and hydrogen, including technical advancement in the LNG-fuelled ships, in which we have already proved our competitive edge. In addition, by applying cutting-edge information technology, we will continue to develop and advance the smart ship technologies that are economical, eco-friendly and stable in operation. We will also solidify our market position as the world's No. 1 shipbuilding and offshore business group by obtaining approval for the merger with DSME from the fair trade commissions of Korea, Japan and the EU.

## Financial Highlights

Category	Unit	2018	2019	2020
Total Revenue	KRW 100M	131,610	151,826	149,037
Shipbuilding	KRW 100M	102,535	133,137	131,223
Offshore & Industrial Plant	KRW 100M	22,711	14,584	12,140
Engine & Machinery	KRW 100M	10,772	12,650	14,728
Green Energy	KRW 100M	3,476	4,604	4,966
Construction Equipment	KRW 100M	783	1,060	1,293
Others	KRW 100M	5,439	3,830	4,202
Operating Profit (Loss)	KRW 100M	-4,814	2,902	744
Net Profit (Loss)	KRW 100M	-4,536	2,131	-8,352
Total Assets	KRW 100M	247,299	250,554	252,442
Total Liabilities	KRW 100M	116,189	121,291	128,230
Total Equity	KRW 100M	131,110	129,263	124,212
Debt Ratio	%	88.6	93.8	103.2
Net Debt-to-Equity Ratio	%	-	19.3	14.9
Operating Margin	%	-3.7	1.9	0.5
Return on Assets	%	-1.8	0.9	-3.3
Credit Rating	Grade	-	-	-

## Value Distribution to Stakeholders

Recipient	Unit	2018	2019	2020	
Partner companies	Raw material procurement (major raw material purchasing prices, inclusive of intercompany transactions)	KRW 100M	82,737	84,917	95,259
Employee	Salary and benefits	KRW 100M	17,862	17,717	16,195
Shareholders and investors	Interest expenses	KRW 100M	1,385	1,657	2,089
Government	Corporate tax (profit)	KRW 100M	-2,090	-1,231	2,662
Local communities	Donations	KRW 100M	74	70	88

# Hyundai Heavy Industries (HHI)



CEO of HHI  
Han Young-seuk

**We will rise to any new challenges and continue to drive innovations to pave the way for the future.**

**Dear stakeholders,**

This is the year before HHI's 50th anniversary. It will be a year of vital importance as we are about to lay the foundation for sustainable growth for the next 100 years, that will take us beyond the glory of the past 50 years. In addition, as the global economy is positively recovering from the COVID-19 pandemic crisis, the marine cargo volume is expected to increase and the orders for eco-friendly ships are likely to be placed in earnest. Accordingly, HHI stands to shape a promising and dynamic year.

It is essential that we comply with more strengthened carbon dioxide emission regulations imposed by the International Maritime Organization (IMO). In line with the "carbon neutrality" target pursued by the global community, we will jointly develop the unrivaled technologies with the KSOE Future Technology Research Institute to secure our competitive edge in the eco-friendly ship sector.

HHI will also put the top business priorities on "Safety First" to settle a safety culture and prevent industrial accidents: last year, we declared the building of a "New Safety Culture" and are currently building an autonomous responsible safety management system. HHI will further spread the safety-first culture at the operation sites.

We will also create an organizational culture of trust and harmony. Trust is the basis in creating a more advanced and win-win labor-management relationship. Going forward, HHI will make it the first year of labor-management cooperation for the next 100 years. Your unwavering support will be appreciated as always.

## Business Policy

**2021 Slogan** Global Leader, Breaking Through Crisis, Pioneering Future!

- 2021 Business Guidelines**
- 1 Planing Safety on Top Priority
  - 2 Innovating Operating System
  - 3 Spearheading Future Technology
  - 4 Establishing Trust and Harmony

## Business Overview

**Shipbuilding** With over 40 years of experience and know-how in shipbuilding as well as diverse product mix and strong business relationships with world-class shipping companies, we have long maintained a reputation as an unparalleled leader in this industry. Not only do we boast advanced technologies in the fields of environmentally friendly ships and smart ships, but we also have secured cost competitiveness by integrating purchasing functions across all our shipbuilding affiliates.

**Offshore & Industrial Plant** In a seamless process, we design, purchase, manufacture, transport, install, and test-run offshore facilities used for developing offshore oil fields and projects. Equipped with the best production facilities and technologies, including a 10,000-ton floating crane and a 1 million-ton construction dock, we have successfully completed to date some 170 offshore projects around the world.

**Engine & Machinery** Equipped with all facilities required for the entire stages from material production to advanced material processing, assembly, and commissioning, we supply two-stroke engines, HiMSEN engines, and land-based engine power plants, among others. We are the only Korean engine maker with its own original technology to manufacture four-stroke engines, while also actively responding to the tightened IMO environmental regulations by developing our own environmentally friendly products such as gas engines.

## 2020 Achievements

The new shipbuilding market froze in the first half of 2020 under the horrific spread of COVID-19 across the world. Most shipping companies maintained a wait-and-see position due to a lingering economic downturn and prolonged shutdown policies in many countries. Ship orders fell significantly short of the original forecast. In the second half of the year, thanks to the market gradually recovering with the resumption of economic activities in major economies, HHI managed to receive orders for a total of 33 ships, worth about \$4.1 billion, and the order backlog was a total of 106 ships (worth approximately \$15 billion, a volume requiring over two years of work) as of the end of the year. The total revenue was KRW8.312 trillion, and the operating profit was KRW 32.5 billion due to setbacks in the exchange rates and the absence of one-time profit factors in the offshore plant sector.

## 2021 Outlook and Targets

Orders for containerhips are expected to increase thanks to the rebounding container traffic and rising freight rates in line with the economic recovery. The demand to replace old crude oil carriers/containerhips emitting greenhouse gases is likely to escalate as the IMO environmental regulations are increasingly being tightened. In addition, more orders for gas (LNG/LPG) carriers are likely to be placed as both the import of LNG/LPG from Asia and the export to North America, the Middle East and Russia tend to rise at the same time. HHI is expected to maintain a high level of shares in the market for environmentally friendly ships such as LNG carriers, based on our distinctive competitiveness in technology and sales competencies. In 2021, HHI aims to win shipbuilding orders worth \$7.2 billion, up 76% from the previous year; the total order target including the Offshore & Industrial Plant and Engine & Machinery businesses is \$8.9 billion. Accordingly, we expect to achieve the total revenue of KRW 8.3 trillion for 2021, which is similar to the previous year.



## Core Competencies

### Finest Technologies and Infrastructure in the Global Shipbuilding Industry

- World's largest cumulative shipbuilding volume
- A variety of world-class products registered
- Acquired AIP for the world's first liquefied hydrogen carriers (2020)
- Delivered a seawater/glycol LNG-FSRU (floating storage regasification unit) (2019)
- Received AIP from Lloyd's Register on a fuel supply system for LPG-fuelled ships (2019)
- Received ABS approval for the self-developed ISS (Integrated Smart-Ship Solution)
- World's first to deliver an LNG-FSRU (floating storage regasification unit) (2014)
- Applied single mixed refrigerant (SMR) technology to LNG carriers for the first time in the world
- World's first to build a SMR LNG re-liquefaction testing facility
- Korea's first to deliver an LNG carrier
- Korea's first to deliver an eco-friendly LNG carrier powered by dual-fuel engines

## Growth Strategy

### Short-Term Strategy (by 2021)

- Construction period reduction via volume improvement and annual shipbuilding capacity expansion for gas carriers
- Production competitiveness improvement via further collaboration with outside partner companies and optimal operation
- Cost reduction via optimal design and strategic procurement

### Mid/Long-Term Strategy (by 2024)

- Leading the market for environmentally friendly and energy efficient ships with the world's finest technologies
- Making inroads into future growth markets via persistent technology development efforts
- Establishing a technology-oriented management system
- Developing a next-generation ICT convergence business model
- Shaping HHI into a premium brand name
- Engaging in a wider variety of joint projects with international partners

## Financial Highlights <sup>1</sup>

Category	Unit	2019	2020
Total Revenue	KRW 100M	54,567	83,120
Shipbuilding	KRW 100M	38,204	58,771
Offshore & Industrial Plant	KRW 100M	8,080	8,970
Engine & Machinery	KRW 100M	7,832	14,728
Others	KRW 100M	450	654
Operating Profit (Loss)	KRW 100M	1,295	325
Net Profit (Loss)	KRW 100M	-889	-4,314
Total Assets	KRW 100M	138,695	137,997
Total Liabilities	KRW 100M	82,466	84,389
Total Equity	KRW 100M	56,229	53,608
Debt Ratio	%	146.7	157.4
Net Debt-to-Equity Ratio	%	48.4	50.0
Operating Margin	%	2.4	0.4
Return on Assets	%	-0.6	-3.1
Credit Rating <sup>2</sup>	Grade	A-	A-

<sup>1</sup> FY2019 is the first reporting period after HHI was established anew through the split-off from KSOE on June 1, 2019.

<sup>2</sup> Korea Ratings(May 27, 2019~), Korea Ratings(2020)

## Value Distribution to Stakeholders

Recipient	Unit	2019	2020	
Partner companies	Raw material procurement (major raw material purchasing prices, inclusive of intercompany transactions)	KRW 100M	31,656	47,206
Employees	Salary and benefits	KRW 100M	5,683	8,436
Shareholders and investors	Interest expense	KRW 100M	802	1,556
Government	Corporate tax (profit)	KRW 100M	-146	-1,086
Local communities	Donations	KRW 100M	2	31

# Hyundai Mipo Dockyard (HMD)



President & CEO of HMD  
**Shin Hyeon-dae**

## We will secure an edge in the future ship market by rising to any challenges and initiating innovations.

### Dear stakeholders,

The year 2020 has been the toughest year due to the unprecedented COVID-19 pandemic. In the midst of such difficulties, the HMD employees have still managed to prove their global sales/marketing competitiveness and production capabilities through continuous innovation in the shipbuilding methods and development of the required technologies.

HMD considers this year to be an opportunity to take another leap forward as the market is expected to gradually recover. For that reason, we have set the following business plan for 2021. The number of ships to be built, based on the keel laying, is set at 52, an increase of 4 from last year, and the number of ships to be delivered is 47, a decrease of 3 ships from the previous year. The revenue target is set at KRW 3 trillion, slightly higher than the previous year's performance.

Under the slogan of "Challenge and Innovation for the Future!", the main business policies of HMD include becoming a global top safety company, overcoming crises through substantive management, leading the future technology/market, and establishing a corporate culture of harmony and coexistence. We will focus on achieving our business goals with these policies.

In addition, we will also channel our capabilities into securing a competitive edge in the future shipbuilding market by developing competitive eco-friendly technologies such as ammonia dual-fuelled vessels, liquefied hydrogen carriers and liquefied CO<sub>2</sub> carriers.

## Business Policy

<b>2021 Slogan</b>	Challenges and Innovations Toward The Future!
<b>2021 Business Guidelines</b>	<ol style="list-style-type: none"> <li>1 World-class Safety-centered Enterprise</li> <li>2 Overcoming Crises by Ensuring Stable Internal Management</li> <li>3 Global Leadership in Future Technology and the Market</li> <li>4 Corporate Culture Valuing Harmony and Coexistence</li> </ol>

## Business Overview

HMD claims the world's largest market share for mid-sized ships with its top-quality products tailored to different customers. Further, our production base in Vietnam, HVS (Hyundai Vietnam Shipbuilding) is adding an average of 20 ships to our annual production capacity.

**PC Tanker**  
Our product & chemical tankers (PC tankers) are designed to transport various oil products, bio oil, and liquid chemicals. Having a similar structure to oil tankers, PC tankers have a series of separate cargo tanks coated with specialized coatings and are connected to complicated piping, allowing the vessel to load and transport various types of liquid products with safety hazards at the same time.

**Containership**  
The feeder ships of HMD boast superior fuel efficiency compared to our competitors. Notably, our improved hull forms and various eco-friendly ship technologies have been successfully applied to our ships such as electronically controlled engines. The eco-friendly equipment built in the ships is highly acclaimed by shipping companies as it enables the use of LNG and low-sulfur fuel and no discharge of the ballast water while sailing in environmentally regulated areas.

**Gas Carrier**  
Based on the success stories in building gas carriers capable of transporting LPG, LEG, LNG, etc., we are leading the future shipbuilding market by adding a new line of eco-friendly ships. We will continue to develop eco-friendly technologies down the road, including LPG/ammonia dual fueled vessels, and liquefied hydrogen and liquefied CO<sub>2</sub> carriers.

## 2020 Achievements

HMD managed to achieve its production goals without a single serious accident for four consecutive years, by taking preemptive quarantine actions with all employees in unity under the unprecedented crisis caused by COVID-19 in 2020. We focused on strengthening our internal capacity even under such unimaginable circumstances. In particular, we successfully expanded our business portfolio by building the first 30,000 cubic meter class LNG carrier and a 27,000-ton class car ferry. We have also carried out various tasks to build a smart shipyard without any setbacks whatsoever in order to secure the future growth engines.

## 2021 Outlook and Targets

In accordance with our 2021 targets, HMD aims to win shipbuilding orders for 78 ships, USD 3.5 billion in contract value, and KRW 3 trillion in revenue this year. As the shipbuilding market is expected to gradually rebound along with the global economic recovery, we intend to win even more orders through more aggressive sales and marketing activities. We will also strive to diversify the ship types and discover niche markets through the development of the required technologies. Through these efforts, we will further sharpen our edge in the future shipbuilding market.

## Growth Strategy

### Maintaining Competitiveness of Flagship Models

<b>PC Tanker</b>	<ul style="list-style-type: none"> <li>· Building PC tankers superior in quality, price, and competitiveness</li> <li>· Developing environmentally friendly and energy efficient new hull forms</li> <li>· Advancing into the market for stainless steel chemical tankers</li> </ul>
<b>Containership</b>	<ul style="list-style-type: none"> <li>· Increasing the share in the feeder ship market by developing standard new hull forms</li> <li>· Improving the performance and Energy Efficiency Design Index (EEDI) through the diversification of hull forms</li> <li>· Developing an eco-friendly containership that does not discharge ballast water</li> </ul>
<b>Gas Carrier</b>	<ul style="list-style-type: none"> <li>· Improving the competitiveness of small/mid-sized LPG/LEG/LNG carriers</li> <li>· Developing LPG and Ammonia dual-fuelled vessel</li> <li>· Developing liquefied hydrogen/CO<sub>2</sub> carriers</li> <li>· Developing our new technology for the C-type tank and cargo handling system</li> </ul>
<b>RO-RO &amp; PCTC</b>	<ul style="list-style-type: none"> <li>· Improving cost competitiveness with enhanced designs and construction methods</li> <li>· Diversifying hull forms for eco-friendly RO-RO and PCTC ships</li> </ul>

### Expanding the Market Share of Strategic Models

1 OSV: Offshore Supply Vessel  
2 PSV: Platform Supply Vessel

<b>Small-Sized LNG Carrier</b>	<ul style="list-style-type: none"> <li>· Developing small LNG carrier hull forms</li> <li>· Securing technology for floating storage regasification units (FSRU)</li> <li>· Obtaining LNG cargo containment system technology</li> </ul>
<b>Multi-Purpose Special Carrier</b>	<ul style="list-style-type: none"> <li>· Securing the capabilities to build high value-added special carriers</li> <li>· Making entry into the market for polar ships such as shuttle tankers</li> <li>· Securing the in-house design capabilities for OSV<sup>1</sup> and PSV<sup>2</sup></li> </ul>
<b>RO-PAX</b>	<ul style="list-style-type: none"> <li>· Strengthening collaboration with domestic interior companies</li> <li>· Establishing an optimal construction system for RO-PAX ships</li> <li>· Securing orders for coastal passenger vessels from domestic customers and high-end ferries from overseas</li> </ul>

### Reinforcing Capabilities for Sustainable Growth

<b>Talent Development</b>	<ul style="list-style-type: none"> <li>· Nurturing specialists in all job lines</li> <li>· Achieving stable labor-management relations and retaining future talents</li> </ul>
<b>Securing Top-Notch Technologies and Design Capabilities</b>	<ul style="list-style-type: none"> <li>· Adopting environmentally friendly, smart shipbuilding technologies</li> <li>· Developing smart connected ships</li> <li>· Reinforcing the capabilities to design and construct special-purpose ships</li> </ul>
<b>Expanding Profitable Businesses</b>	<ul style="list-style-type: none"> <li>· Increasing revenue and profit from overseas business (HVS)</li> <li>· Expanding technology-export businesses</li> </ul>
<b>Creating an Optimal Smart Workplace</b>	<ul style="list-style-type: none"> <li>· Creating a smart shipyard based on digital transformation</li> <li>· Establishing a product lifecycle management (PLM) system</li> <li>· Implementing an integrated safety system</li> </ul>

## Financial Highlights

Category	Unit	2018	2019	2020
Total Revenue	KRW 100M	24,030	29,941	27,920
Operating Profit (Loss)	KRW 100M	709	926	367
Net Profit (Loss)	KRW 100M	1,207	612	-123
Total Assets	KRW 100M	34,637	33,806	35,990
Total Liabilities	KRW 100M	11,466	10,267	12,315
Total Equity	KRW 100M	23,172	23,540	23,675
Debt Ratio	%	49.5	43.6	52.0
Net Debt-to-Equity Ratio	%	-	-	-
Operating Margin	%	3.0	3.1	1.3
Return on Assets	%	3.5	1.8	-0.3
Credit Rating <sup>1</sup>	Grade	A3+	-	-

<sup>1</sup> NICE Investors Service (2018), Credit Rating (not performed) (2019, 2020)

## Value Distribution to Stakeholders

Recipient	Unit	2018	2019	2020	
Partner companies	Raw material procurement (major raw material purchasing prices, inclusive of intercompany transactions)	KRW 100M	14,891	19,390	17,709
Employees	Salary and benefits	KRW 100M	3,080	3,323	3,113
Shareholders and investors	Interest expense	KRW 100M	168	96	71
Government	Corporate tax (profit)	KRW 100M	296	244	-79
Local communities	Donations	KRW 100M	19	19	29



# Hyundai Samho Heavy Industries (HSHI)



CEO of HSHI  
**Kim Hyung-kwan**

## As a pioneering company, we will shape the future of eco-friendly ships.

### Dear stakeholders,

HSHI has endeavored to enhance its competitive advantages by continuing to invest in eco-friendly smart ships with digital technologies such as informatization, automation, and mechanization.

This year, based on the world's first experience in building LNG-fuelled tankers, container ships, and bulkers, we are now pioneering the construction of LPG-fuelled ships. HSHI is expected to play a major role in ammonia and hydrogen fuelled ships as we move forward over the coming years.

In the future, any companies that do not consider the environment and society without transparent governance will find it difficult to maintain their business sustainability. To be an ESG-oriented company, an autonomous safety system will be established in HSHI to better protect the employees and eradicate the major industrial accidents. HSHI will also expand the safety-related investment, training, and PR activities. With all the employees, we will continue with our campaign to protect the environment, serve the community, and enhance the capacity of our suppliers.

HSHI has overcome numerous challenges to reach the current stage since its foundation. Such experience and accumulated technology gathered over the years will serve as the foundation to secure a stable business volume, improve profits, and thereby create value for you.

Thank you.

## Business Policy

**2021 Slogan** Innovations, Challenges, and a New Leap Forward!

- 2021 Business Guidelines**
- 1 Building and Practicing a Safety Culture
  - 2 Improving Competitiveness with Innovative Technology
  - 3 Realizing Value beyond Customer Satisfaction
  - 4 Communication-based and Win-Win Corporate Culture

## Business Overview

**Shipbuilding** Since our dockyard was established in Yeongam, South Jeolla Province in 1992, we have evolved into the world's fourth largest shipbuilder capable of constructing 40 ships annually. Boasting its advanced technology for building eco-friendly ships, HSHI has won the largest volume of shipbuilding orders in the category of LNG-fuelled ships. We will further endeavor to successfully construct LPG-fuelled ships this year.

**Industrial Equipment** Based on our superior technologies accumulated for more than 40 years, we have manufactured different types of cranes and bulk handling plants since our acquisition of HHI's Transporting Equipment Business Unit in 2004. The business unit that we acquired will soon be split-off into a wholly owned subsidiary "Hyundai Infra Solution" around May of this year.

**Offshore** We have been pushing ahead with offshore projects to diversify our business and sophisticate our technological capabilities. We successfully built a floating production storage offloading (FPSO) in collaboration with HHI in 2007. We also built and delivered a floating-production unit (FPU) and a semi-submersible drilling rig in 2015 and 2018, respectively.

## 2020 Achievements

In 2020, HSHI outperformed by doubling the amount of LNG carrier shipbuilding orders despite the global economic crisis caused by COVID-19. Revenue increased by 12% from 2019 to reach KRW 3.9 trillion, and the contract amount totaled 27 ships, worth \$3.7 billion amid the spread of the infectious disease. In particular, last year, the company succeeded in delivering the world's first LNG-fuelled containership and bulker, which attracted immense global attention. Since then, we have continued to lead the LNG-fuelled tanker market. Such business achievements are expected to have a positive effect in winning orders for dual fuel ships in the future.

## 2021 Outlook and Targets

To achieve a better performance this year, HSHI sets to achieve the revenue target of KRW 4.1 trillion, and win orders for 37 ships (worth \$4.4 billion) in 2021. In terms of production, HSHI plans to build a total of 33 ships: the portion of dual fuel ships such as LNG carriers and LNG/LPG vessels will account for 64% as 21 ships. However, uncertainty is still high in the business environment since the border closures and factory shutdowns can be replayed at any time if any COVID-19 mutant virus appears, and the ship prices have not fully recovered due to an excessive supply in the shipbuilding sector. Under these circumstances, however, we will endeavor to secure a stable work volume and improve the cost effectiveness so that the company can take another step away from this crisis.

## Core Competencies

### Leader in Building

#### Environmentally Friendly Ships

- Delivery of the world's first LNG dual-fuelled containership
- Delivery of Korea's first LNG dual fuelled ocean-going vessel (B/C)
- Construction of the world's first LPG dual-fuelled VLGC

### Close Collaboration and Synergy within the Group

- Cost reduction through the integrated procurement of equipment and materials
- Enhancing competency through job rotation among the affiliates and the use of a global network
- Sharing new technologies and improvement cases among the shipbuilding affiliates

## Growth Strategy

### Reinforcing the Eco-friendly Shipbuilding Capabilities

- Strengthening competitiveness by developing innovative technologies
- Building the capacity of DT and fostering human resources
- Realizing customer satisfaction through preemptive quality control
- Securing profitability through cost reduction

### Computerization/Automation of the Processes

- Leading the eco-friendly and high-efficiency ship market
- Making inroads into future-oriented growth markets through the aggressive development of technology
- Sharpening the edge in eco-friendly and smart ship technologies
- Building a Visible Shipyard (Future of Shipyard, FoS)

## Financial Highlights

Category	Unit	2018	2019	2020
Total Revenue	KRW 100M	26,197	34,883	39,180
Shipbuilding (continuing)	KRW 100M	26,197	34,883	39,180
Shipbuilding (discontinued)	KRW 100M	21,580	-	-
Financial (discontinued)	KRW 100M	5,821	-	-
Operating Profit (Loss)	KRW 100M	-2,289	52	156
Net Profit (Loss)	KRW 100M	-855	115	-591
Total Assets	KRW 100M	40,260	43,145	45,815
Total Liabilities	KRW 100M	20,892	23,821	26,881
Total Equity	KRW 100M	19,369	19,325	18,934
Debt Ratio	%	107.9	123.3	142.0
Net Debt-to-Equity Ratio	%	14.9	37.8	38.9
Operating Margin	%	-8.7	0.1	0.4
Return on Assets	%	-2.1	0.3	-1.3
Credit Rating <sup>1</sup>	Grade	BBB+	BBB+	BBB+

<sup>1</sup> NICE Investors Service (2018), Korea Ratings (2019, 2020)

## Value Distribution to Stakeholders

Recipient	Unit	2018	2019	2020	
Partner companies	Raw material procurement (major raw material purchasing prices, inclusive of intercompany transactions)	KRW 100M	18,643	21,909	25,756
Employees	Salary and benefits	KRW 100M	2,842	3,039	2,793
Shareholders and investors	Interest expense	KRW 100M	182	213	378
Government	Corporate tax (profit)	KRW 100M	-502	70	-218
Local communities	Donations	KRW 100M	12	14	16

# Global Network

KS OE's consolidated subsidiaries (24 entities) supply products and services necessary for production and operation of ships, engaging in shipbuilding, shipping and equipment manufacturing

## Consolidated Entities

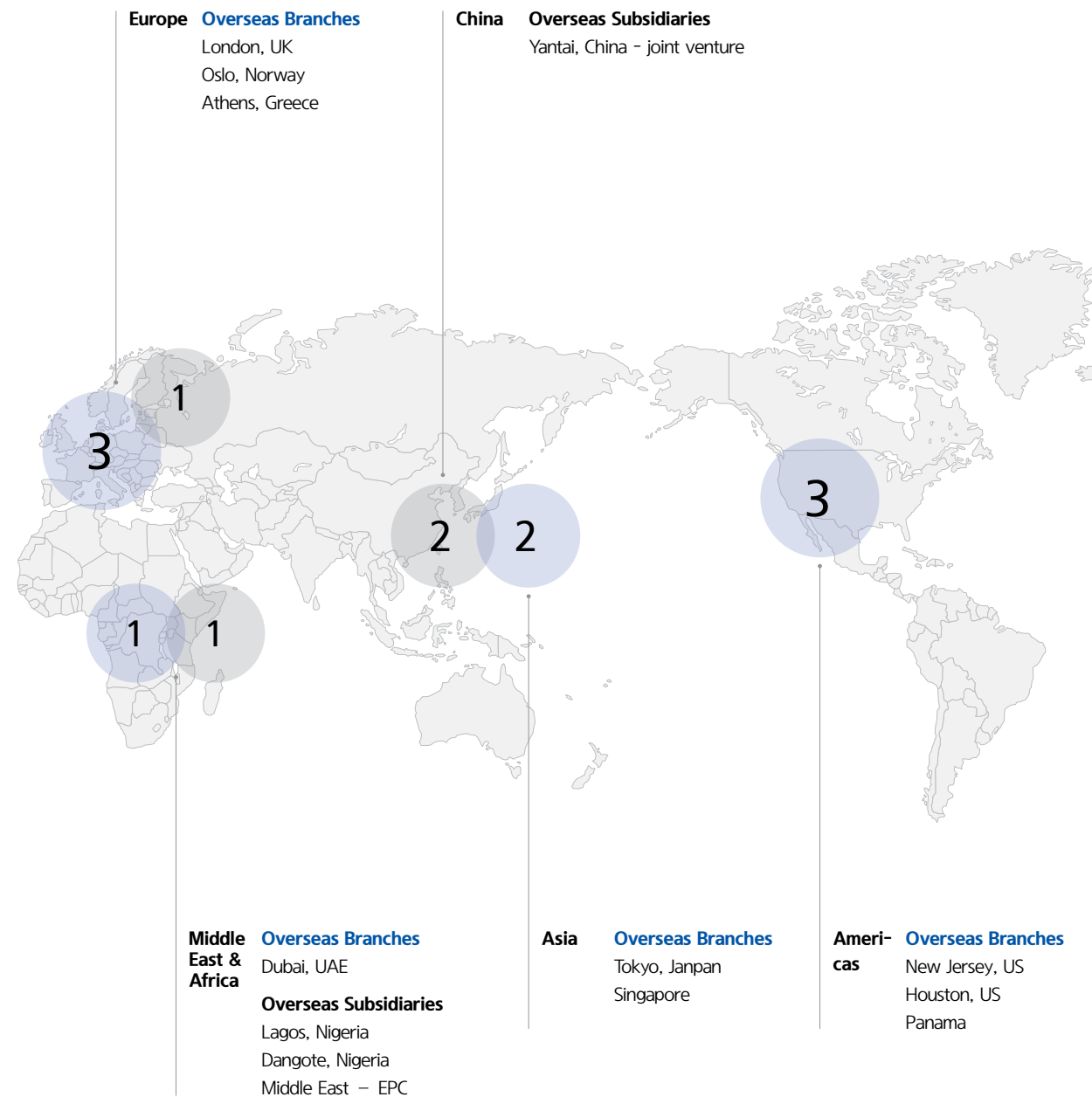
(Unit: KRW 1M)

Entity Name	Foundation Date	Location	Main Business	2020 Total Assets
Hyundai Heavy Industries (HHI) Co., Ltd.	Jun. 3, 2019	Ulsan-si	Shipbuilding	13,799,674
Hyundai Samho Heavy Industries (HSHI) Co., Ltd.	Nov. 4, 1998	Jeollanam-do	Shipbuilding	4,581,475
Hyundai Mipo Dockyard (HMD) Co., Ltd.	Apr. 28, 1975	Ulsan-si	Shipbuilding	3,553,619
KOMAS Corporation	Jul. 15, 2008	Ulsan-si	Shipping	33,978
Hyundai E&T	Dec. 3, 2004	Ulsan-si	Other engineering services	19,367
HHI Sports	Feb. 22, 2008	Ulsan-si	K-league football club operation	9,345
Hyundai Heavy Industries Mos Co., Ltd.	Jul. 25, 2016	Ulsan-si	Business facilities management services	46,014
Hyundai Energy Solutions Co., Ltd.	Dec. 21, 2016	Gyeonggi-do	Renewable energy-related business such as solar power	459,174
HHI Power Systems Co., Ltd.	Aug. 6, 2018	Gyeonggi-do	Manufacture of utility boilers and scrubbers	181,400
Hyundai Seen Tec Co., Ltd.	Dec. 20, 2019	Ulsan-si	Design of boilers	12,033
Hyundai Engine LLC (Formerly, Warsilla Hyundai Engine LLC)	Jul. 05, 2007	Jeollanam-do	Manufacture of internal combustion engines	53,621
Hyundai-Vietnam Shipbuilding Co., Ltd.	Sep. 30, 1996	Vietnam	Shipbuilding	347,000
Hyundai Transformers and Engineering India PVT, Ltd.	Nov. 11, 2011	India	Manufacture and sale of transformers	-
PHECO Inc.	Mar. 21, 2005	US	Design services	257
Hyundai Heavy Industries Brasil - Manufacturing and Trading of Construction Equipment	Jul. 11, 2011	Brazil	Manufacture, trade and repair of heavy equipment	123,570
Hyundai Heavy Industries Miraflores Power Plant Inc.	Sep. 14, 2012	Panama	Other manufacturing	-
HHI MAURITIUS LIMITED	Sep. 19, 2002	Mauritius	Other manufacturing	-
Hyundai West Africa Limited	Nov. 5, 2012	Nigeria	Manufacture of other transport equipment	13
Hyundai Arabia Company L.L.C	Nov. 10, 2012	Saudi Arabia	Industrial plant construction	15,808
Hyundai Samho Heavy Industries Panama, Inc.	Jan. 20, 2011	Panama	Construction - Industrial Equipment Construction	1,516
Yantai Hyundai Moon Heavy Industries Co., Ltd.	Mar. 17, 2004	China	Manufacture and sale of industrial boilers	60,201
Hyundai Energy Solutions America, Inc.	Apr. 19, 2019	US	Sale of photovoltaic (PV) modules	32,893
Hyundai Heavy Industries Technology Center India Private Limited	Nov. 26, 2019	India	R&D	2,721
Hyundai Heavy Industries Free Zone Enterprise	Jan. 16, 2020	Nigeria	Construction of industrial plants	395

## Overseas Branches and Subsidiaries

Overseas Branches **9**

Overseas Subsidiaries **4**





# Value Chain

KSQE and its subsidiaries generate value using their outstanding resources and expertise. Each of the six categories of capital invested in our business activities plays a key role in creating economic, environmental and social outputs, which we distribute to stakeholders via each business model built on our management philosophy and visions.

1 based on the closing price of KSQE in 2020  
 2 KSQE, HHI, HMD, and HSHI  
 3 HHI, HMD, and HSHI

## Input

### Financial Capital

- No. of subsidiaries: 24 (11 domestic, 13 overseas)
- Market capitalization: KRW 7,6788 trillion <sup>1</sup>
- Financing from shareholders and investors: 3 listed companies

### Manufacture Capital

- Annual shipbuilding capacity: 16.77 million GT
- Marine engine production capacity: 16 million BHP
- Other shipyards' capacities: See annual report.
- PP&E: KRW 9,9705 trillion
- Plant & equipment investment: KRW 374.6 billion

### Intellectual Capital

- New technologies to further strengthen competitiveness in the market, reinforced R&D capacity, etc.
- 2020 R&D expenses (relative to revenue): KRW 85.2 billion (0.6%)
- Key R&D organizations: See 'R&D' Section in Part 2 of this report
- No. of R&D personnel: 513

### Human Capital

- Total headcount (male/ female, inclusive of fixed-term contract workers)
- KSQE: 526/129      · HHI: 12,832/591
- HMD: 2,975/91      · HSHI: 3,553/83
- No. of labor union members (membership rate relative to those with rights to join): 12,040 (94.7%) <sup>2</sup>

### Social Relations Capital

- HHI Group 1% Nanum Foundation
- General shareholders' meeting for enhanced value of stakeholders and exercise of their rights, after-sales service for customers, Group Shared Development Committee, Social Contribution, etc.

### Environmental Capital

- Certified to ISO 14001 <sup>3</sup>
- Certified to ISO 50001 (HHI and HSHI)
- Environmentally friendly policies such as developing GHG reduction technologies
- Annual energy consumption: 16,156 TJ <sup>2</sup>
- Environmental investments: KRW 111.1 billion <sup>2</sup>

## Business Activities



## Output

### Financial Capital

- Revenue: KRW 14,9037 trillion
- Operation Profit: KRW 74.4 billion
- Credit Rating: A- (HHI, corporate bond rating, Korea Ratings (2020))

### Manufacture Capital

- Ship delivery: 35 units, two-stroke engine: 232 units, four-stroke engine: 627 units
- Total man-hours for building ships: 45.08 million M/H
- Total man-hours for building offshore & industrial plant: 1.99 million M/H
- Total man-hours for building engine & machinery: 2.34 million M/H
- Order backlog: KRW 22,8335 trillion

### Intellectual Capital

- No. of intellectual property rights applications filed: 513
- No. of products registered as MOTIE's World Class Products: 44
- No. of skills selected for Core Skill Transfer Program in 2020: 70

### Human Capital

- No. of personnel who completed job-specific specialists training: 4,699 <sup>2</sup>
- No. of manufacturing engineers who completed job improvement trainings: 3,675 <sup>3</sup>
- Cumulative no. of personnel awarded at WorldSkills Competition: 100 <sup>2</sup>
- Rate of personnel staying at work over a year after parental leave (male/female): 90%/69% <sup>2</sup>
- Training time per employee: 23 hours <sup>2</sup>
- Cumulative no. of personnel with Master Craftsmanship qualifications: 1,521 <sup>3</sup>

### Social relations Capital

- World's largest market share for shipbuilding (by order book)
- World's No.1 four-stroke engine (HiMSEN)
- World's largest market share for two-stroke engines
- No. of personnel of partner companies who completed job improvement training: 3,953 <sup>3</sup>
- Total volunteering time: 18,947 hours

### Environmental Capital

- GHG emissions: 932,106 tCO<sub>2</sub>e <sup>2</sup>
- Waste discharge (general/designated): 59,720 tons/4,955 tons <sup>2</sup>
- Wastewater discharge: 22,520 tons <sup>2</sup>
- No. of violations of environmental laws/regulations: 0 <sup>2</sup>

## Outcome

### Shareholders and Investors

Promoting shareholder value and protecting their rights through stable profit creation and risk control

### Customers

Delivering products/services that meet the customer needs by utilizing our resources and expertise

### Employees

Boosting job satisfaction via the improvement of benefits and working conditions, and operating the programs and systems for developing their capacity and quality of life satisfaction and morale via programs for learning & development

### Local communities

Shared growth with the local community through continuous communication and social contribution activities

### Partner companies

Promoting fair trade and win-win partnerships with partner companies

### Industries

Establishing the ecosystem of ecofriendly industries



# 02

# SUSTAINABILITY PERFORMANCE

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# Sustainable Management Strategy

KSOE actively pursues corporate value enhancement through sustainable growth. KSOE creates shared values in a wide range of areas, including but not limited to economy, environment and society, based on its well-organized sustainable management activities. Under the three major operational policies as below, we plan and perform various activities for each category and continuously disclose key achievements to stakeholders.

## Sustainable Management System

KSOE operates an efficient and sustainable management system by assigning professionals and departments to each sustainability initiative. The relevant departments perform comprehensive management for the planning activities, execution, assessment and companywide strategic planning. Collected information is utilized to plan and execute new sustainability initiatives and is also used for integrated reporting.

### Mission

**We create and share economic, environmental and social values through the systematic activities of sustainability management**

### Operational Policy

Transparent Disclosure	Systematic Performance Management	Continuous Improvement
<ul style="list-style-type: none"> <li>Operating communication channels customized to stakeholders</li> <li>Disclosing sustainable management activities and achievements</li> </ul>	<ul style="list-style-type: none"> <li>Following up on each area of sustainable management activities and performance under the five management philosophies</li> </ul>	<ul style="list-style-type: none"> <li>Conducting a multidimensional analysis of sustainable management activities and performance</li> <li>Addressing shortcomings and enhancing strengths</li> </ul>

### Management Philosophy

Upgrading corporate value through continuous growth	Upholding Fair and Transparent Business Practices	Pursuing Safe and Environmentally Friendly Business Practices	Promoting Strong Labor-Management Relations Built on Mutual Respect and Trust	Demonstrating Our Commitment to Global Corporate Citizenship
Securing core capability to drive future growth Implementing flexible business management and global business system	Supporting open and fair competition in accordance with free market economy Promoting sound and transparent corporate governance structure	Creating a pleasant and safe work environment Environmentally friendly production activities and technology development	Fostering a vibrant organizational culture based on trust and participation Performing all duties and responsibilities to enhance corporate competitiveness	Contributing to mankind prosperity by creating social values Promoting the culture and welfare of local communities

### Direction

### Stakeholders

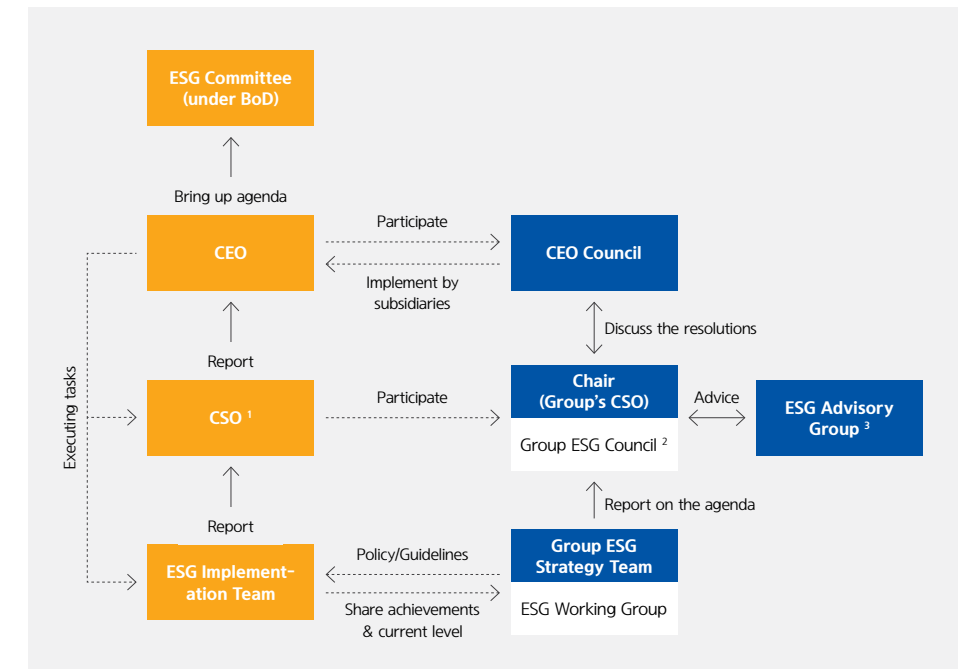
Customers, Employees, Partner companies, Shareholders	Customers, Employees, Partner companies, Industries	Employees, Local communities	Employees, Partner companies	Partner companies, Employees, Local communities
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# ESG Promotion System

## Establishment of a Group ESG Governance System

### ESG Promotion System (Subsidiaries)

### ESG Promotion System (Group)



- 1 CSO: Chief Sustainability Officer
- 2 Consists of CSOs of subsidiaries
- 3 Consists of outside experts for each ESG section

## Group ESG Issue Sharing & Policy Decision-making System

Process	Key Content
<b>1 Report on the Agenda</b>	Report ESG agenda and key issues for Group
<b>2 Deliberation of the Agenda</b>	Discuss on ESG agenda deliberation and counterplan for issues
<b>3 Advise</b>	Advise from outside expertise on the ESG agenda and other matters
<b>4 CEO Council</b>	Discuss on policy decisions and review on the implementation plan for subsidiaries
<b>5 Execute Tasks</b>	Execute tasks and manage achievements of ESG departments for subsidiaries



## Communication with Stakeholders

Customers, shareholders and investors, partner companies, local communities, industries, and our employees are the key stakeholders that influence and are influenced by KSOE, across all management activities. KSOE operates various communication channels for these stakeholders' participation in sustainable management.



# UN SDGs

The UN Sustainable Development Goals (SDGs) set forth a universal call to action for the period from 2016 to 2030, to achieve sustainable development on a global scale. Achieving the goals requires efforts and cooperation throughout our society, and the role of a company in this context is to create a growth engine and innovations for economic development and job creation.

## Key SDGs

## Targets

	Ensure healthy lives and promote well-being for all ages	<p>3.4 Reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being</p> <p>3.8 Achieve universal health coverage, including financial risk protection, access to quality essential healthcare services and access to safe, effective, quality and affordable essential medicines and vaccines for all</p> <p>3.9 Substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination</p>
	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	<p>4.4 Substantially increase the number of youths and adults who have relevant skills, including technical and vocational skills, for employment, suitable jobs and entrepreneurship</p> <p>4.5 Eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations</p>
	Ensure access to water and sanitation for all	<p>6.3 Improve water quality by reducing pollution, eliminating dumping and minimizing the release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and the safe reuse globally</p>
	Ensure access to affordable, reliable, sustainable and modern energy	<p>7.2 Increase substantially the share of renewable energy in the global energy mix</p> <p>7.3 Double the global rate of improvement in energy efficiency</p>
	Promote inclusive and sustainable economic growth, employment and suitable work for all	<p>8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors</p> <p>8.3 Promote development-oriented policies that support productive activities, suitable job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services</p> <p>8.5 Achieve full and productive employment and suitable work for all women and men, including for young people and persons with disabilities, and equal pay for the work of equal value</p> <p>8.6 Substantially reduce the proportion of youth not in employment, education or training</p> <p>8.7 Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and the use of child soldiers, and by 2025 end child labour in all its forms</p>
	Build a resilient infrastructure, promote sustainable industrialization and foster innovation	<p>9.4 Upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and the greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities</p>

By aligning its management direction with SDGs, a company can not only create a new business model but also evolve into a sustainable entity. KSQE and its shipbuilding subsidiaries continuously work on strategies for the Group's mid/long-term growth by identifying key global trends through the UN SDGs. Of the 17 goals, our focus mainly lies on 11 goals (3, 4, 6-10, 12-14, and 16) and 26 targets, as we strive to contribute to implementing this blueprint to achieve a better and more sustainable future for all.

## KSQE and its shipbuilding subsidiaries' contribution to achieving SDGs

- Supporting healthcare and medical expenses for the healthy lives of personnel: operating the Health Promotion Center and Oriental Medical Center; and providing professional mental health promotion services such as psychological evaluation, group counseling and group psychological education
  - Healthcare programs for personnel such as smoking cessation and weight management treatment
- 
- Securing tech talents through programs such as the Core Skill Transfer Program, and nurturing outstanding experts through well-organized technical training programs
  - Participating in National Human Resources Development Consortium
- 
- Employing internal environmental standards for the effluent discharge stricter than the legal requirements, minimizing the amount of untreated wastewater by proactively managing wastewater sources, and monitoring water quality in real-time
- 
- Developing environmentally friendly and energy efficient ships
  - Reducing energy consumption by using energy efficient LED lights, etc.
- 
- Expanding high value-added business, improving economic productivity, and creating jobs by building smart shipyards based on digital transformation (DT)
  - Creating quality jobs through employment
  - Implementing a fair and objective performance evaluation & compensation system for all personnel
  - Offering training and financial services to partner companies to promote shared growth
  - Creating a roadmap for human rights management at a Group level
- 
- Reducing fuel costs and optimizing energy usage through smart ship solutions and intelligent equipment management solutions

	Reduce inequality within and among countries	10.4 Ensure equal opportunity and reduce the inequalities of the outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard
	Ensure sustainable consumption and production patterns	<p>12.2 Achieve the sustainable management and efficient use of natural resources</p> <p>12.4 Achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with the agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment</p> <p>12.5 Substantially reduce waste generation through prevention, reduction, recycling and reuse</p> <p>12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle</p>
	Take urgent action to combat climate change and its impacts	13.2 Integrate climate change measures into national policies, strategies and planning
	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	<p>14.1 Prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution</p> <p>14.2 Sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans</p>
	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	<p>16.3 Promote the rule of law at the national and international levels and ensure equal access to justice for all</p> <p>16.5 Substantially reduce corruption and bribery in all their forms</p> <p>16.6 Develop effective, accountable and transparent institutions at all levels</p> <p>16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels</p>

- Caring for the underprivileged, pursuing co-prosperity with local communities, and promoting independence for future generations

- Acquiring international certification for an environmental management system
- Minimizing pollutant discharge through prevention facilities, environment personnel training, and the regular monitoring of concentration
- Finding substitutes for hazardous chemicals and inspecting facilities regularly

- Monitoring and managing energy usage and GHG emissions by worksite and facility, based on the IPCC global standard and Korea's GHG calculation guideline
- Operating an Energy Storage System (ESS)
- Participating in KPX's demand response programs

- Offering repair services to make existing ships more eco-friendly by installing ballast water treatment systems and SOx exhaust gas cleaning systems
- Maintaining equipment to prevent marine accidents associated with the arrival/departure of ships and performing safety management, ship operator training and joint training sessions on a continual basis

- Implementing transparent and responsible management by valuing compliance and business ethics
- Implementing reasonable governance structure to maintain checks and balances
- Pursuing inclusive management activities by engaging various stakeholders in management, including active communication with the labor union



# Materiality Assessment

Each year, to select the core topics of the annual integrated report, KSOE and its shipbuilding subsidiaries conduct a materiality assessment regarding the stakeholders' interests, improvements, and business impact levels on corporate activities.

The assessment of 2020 identified a pool of 29 topics in light of global reporting standards such as the GRI Standards and the UN SDGs, various social issues, and sustainable management information within the same industries. The identified issues are classified into core, top and general topics by the levels of public attention and business impact.

This report discloses KSOE and its shipbuilding subsidiaries' (HHI, HMD, and HSHI) management approach to and the key performance relating to the core topics, and where deemed necessary for continuity with the past reports and/or complete disclosure of information regarding value creation, also discloses those relating to the top and general topics.

## Assessment Process

KSOE and its shipbuilding subsidiaries perform the materiality assessments to select the topics for the sustainability report. As these topics are important to KSOE and its shipbuilding subsidiaries, they are determined in consideration of the impact on the business of the KSOE group and the degree of concerns among the stakeholders.

<b>Step 1 Identify Sustainable Management Topics</b>	Identified 29 sustainability topics pools by reviewing the external environment surrounding KSOE and its shipbuilding subsidiaries. <ul style="list-style-type: none"> <li>· ESG Disclosure and Assessment Initiative Requirements (GRI Standards, SASB, TCFD, MSCI, UNGC, SDGs, and ISO26000)</li> <li>· Sustainability topics addressed in the same industry</li> <li>· Sustainability topics covered in the media</li> </ul>
<b>Step 2 Assess Public Interest</b>	<ul style="list-style-type: none"> <li>· Analyzed global guidelines for sustainability (GRI Standards, UN SDGs)</li> <li>· Analyzed external media exposure on the economic, environmental and social issues of KSOE, HMD, HHI, and HSHI (6,663 issues)</li> <li>· Issues reported in the same industry</li> <li>· Conducted a survey on stakeholders' interest(March 2021)</li> </ul>
<b>Step 3 Assess Business Impact</b>	<ul style="list-style-type: none"> <li>· Analyzed the internal board agenda and CEO message</li> <li>· Surveyed stakeholders, including KSOE and its shipbuilding subsidiaries' employees, on business impact(March 2021)</li> </ul>
<b>Step 4 Verify Effectiveness</b>	Selected 8 topics with a high level of business impact and stakeholder interest, and received the final approval from the ESG Committee, the highest decision-making body on sustainability issues, under the BOD.

## Assessment Result

Through the materiality assessments, a total of eight sustainability issues were selected as core topics. For an easier understanding of the stakeholders, the KSOE group's responsive activities, achievements, and future plans/directions regarding the high-material topics are all covered by the report.

Material Topics	Topic Boundary	GRI	Ranking by Category	
			by Public Interest	by Business Impact
1 Creating a safe workplace and raising safety awareness	Internally: Production Externally: Partner companies	GRI 403-1~10	2	3
2 Compliance Management and Business Ethics (Transparent disclosure of management information)	Internally: R&D, Purchase, Production, Sales/Marketing	GRI 102-16,17 GRI 205-1~3	5	1
3 Pursuing environmental management by developing more environmentally friendly technologies	Internally: R&D, Production Externally: Local communities	GRI 302-5	1	7
4 Expanding R&D and securing new technologies	Internally: R&D Externally: R&D Center	N/A	10	4
5 Value creation through transformation and innovation	Internally: Company-wide Externally: Local communities	GRI 201-1,3 GRI 202-1	6	5
6 Ensuring sound governance	Internally: Company-wide Externally: Shareholder/Investor	GRI 102-18~39	12	2
7 Reducing waste and pollutant emissions	Internally: Production Externally: Local communities	GRI 305-5~7, GRI 306-1~5	3	13
8 Improving product/service quality and enhancing customer satisfaction	Internally: R&D, Production Externally: Customer, Partner companies	GRI 416-1,2	9	11

## Materiality Assessment Matrix

### Core Topics

- 1 Creating a safe workplace and raising safety
- 2 Compliance Management 및 Business Ethics (Transparent disclosure of management information)
- 3 Pursuing environmental management by developing more environmentally friendly technologies
- 4 Expanding R&D and securing new technologies
- 5 Value creation through transformation and innovation
- 6 Ensuring sound governance
- 7 Reducing waste and pollutant emissions
- 8 Improving product/service quality and enhancing customer satisfaction

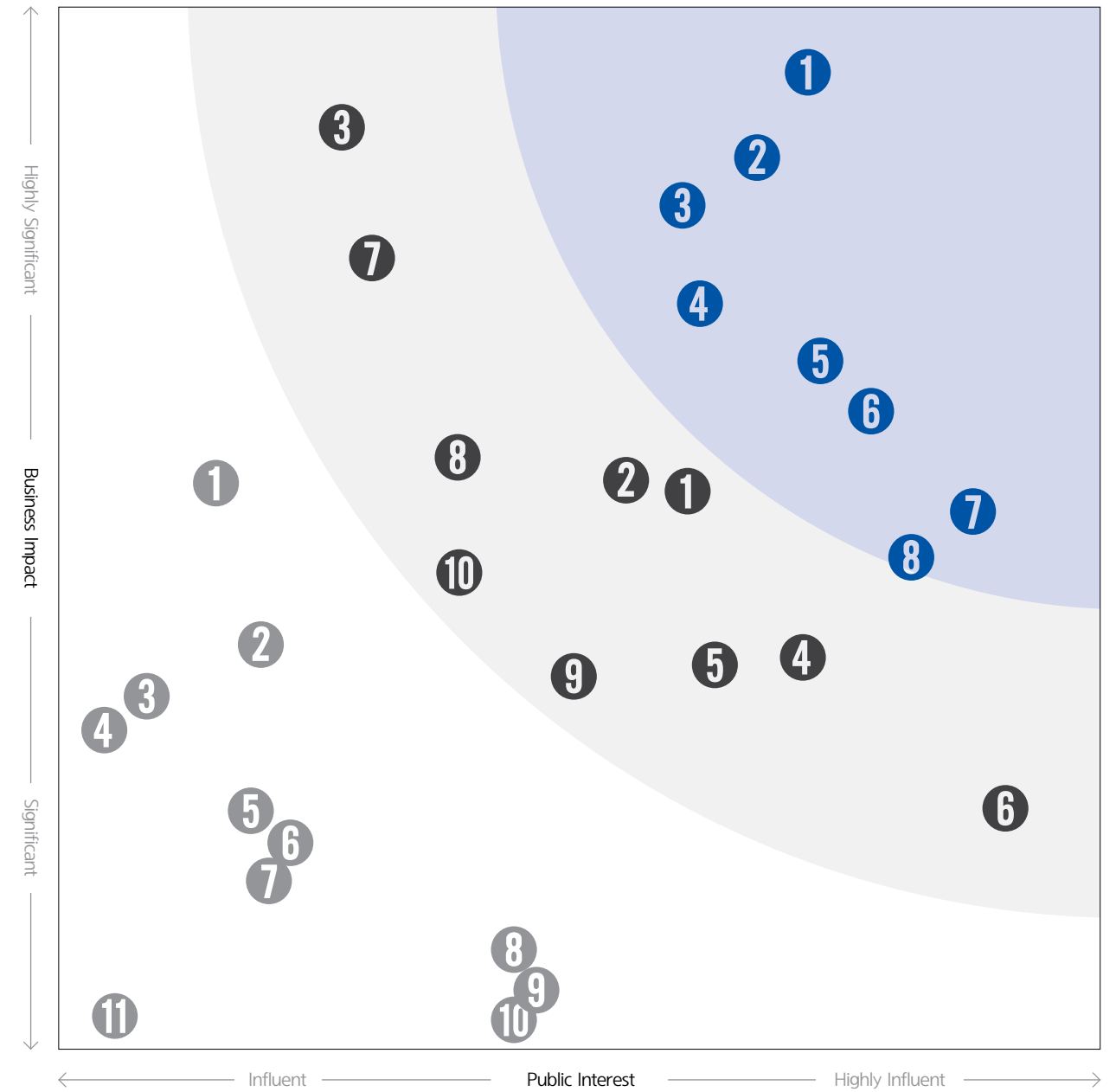
### Top Topics

- 1 Diversifying business and exploring new opportunities
- 2 Addressing climate change issues, including GHG emissions control
- 3 Operating an integrated risk management system
- 4 Enhancing job security and promoting sound labor-management relations
- 5 Improving material and energy efficiency
- 6 Respecting the human rights of all personnel
- 7 Building and operating resource circulation, reuse, and a recycling framework
- 8 Promoting shared growth with partner companies
- 9 Social contribution activities
- 10 Attracting and retaining talent

### General Topics

- 1 Improving the quality of life for all personnel, including through a better welfare system
- 2 Respecting the human/labor rights of partner companies' personnel
- 3 Enhancing a fair trade system
- 4 Reinforcing competencies of personnel (HRD)
- 5 Ensuring customer safety and health
- 6 Reducing adverse environmental impacts of partner companies
- 7 Contributing to the co-prosperity of local communities
- 8 Ensuring diversity and inclusion
- 9 Communication with stakeholders
- 10 Ensuring a fair distribution of earnings
- 11 Ensuring information security, including through protecting confidential and personal information

● Core Topics ● Top Topics ● General Topics



# Enhancing Corporate Value Through Sustainable Growth

Creating new growth engines through continual change and innovation is crucial to sustainable growth in the fast-paced global business environment. KSOE will enhance corporate and shareholder value and deliver customer satisfaction by identifying quality and technology as top priorities.

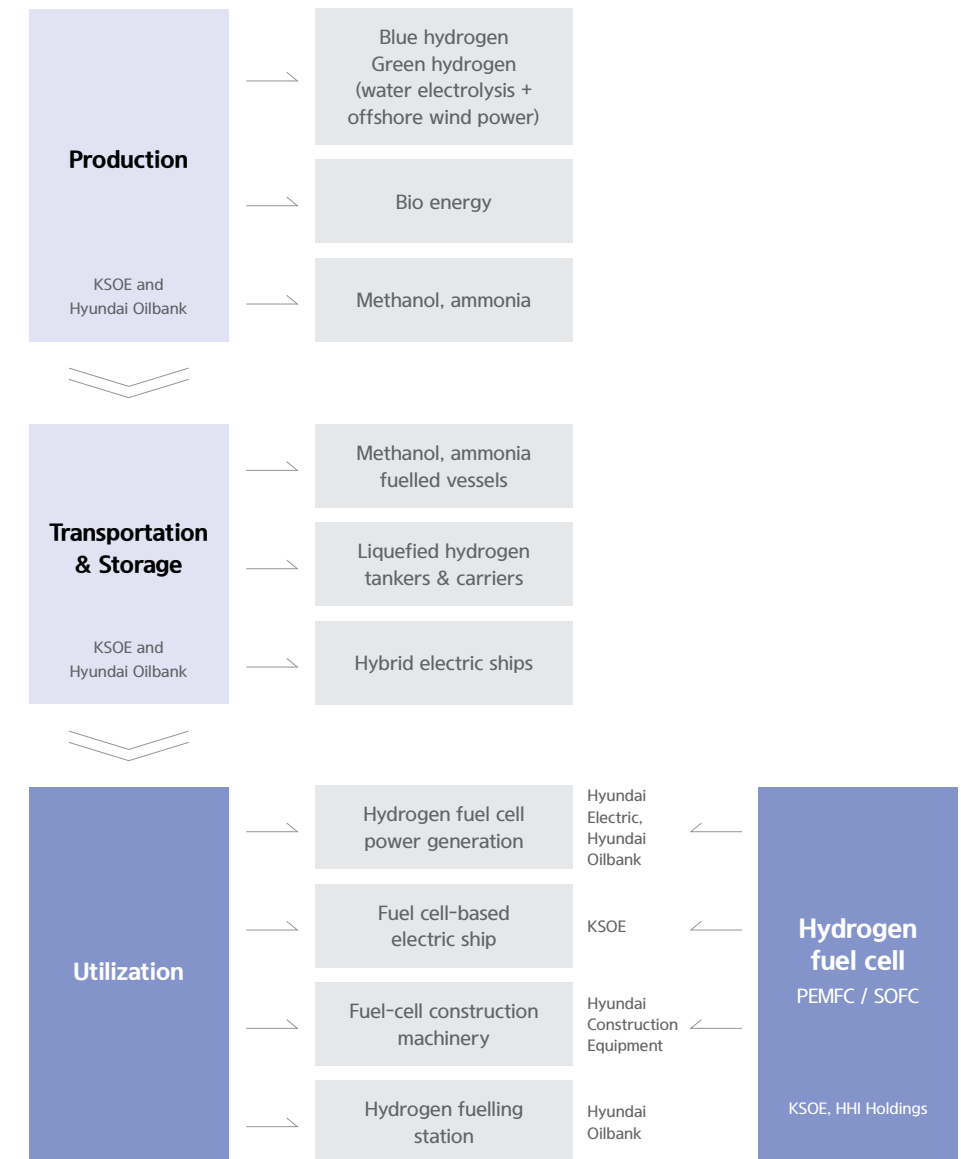
- 45 Future Growth
- 48 R&D
- 54 Quality Management

## Future Growth

The HHI group has set the hydrogen business as a future growth engine and drew up a plan to create a hydrogen value chain that spans the entire industrial cycle of hydrogen- from production, storage, transportation, to utilization- together with its affiliates.

KSOE and its shipbuilding subsidiaries are major participants in the HHI group's hydrogen value chain. By concentrating our capabilities in the core value businesses such as Green Hydrogen Infrastructure, Digital Ships, and Eco-Friendly Ships, we aim to grow into a world-class shipbuilding and offshore company having a market-leading eco-friendly ship technology by 2030.



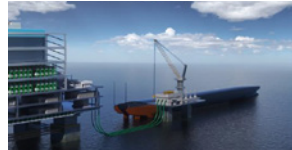
### HHI Group' Hydrogen Value Chain







## Green Hydrogen Infrastructure

Endeavoring to preempt the offshore green hydrogen infrastructure market based on the industry's best shipbuilding and offshore technology

Offshore renewable power generation infrastructure	Offshore Green hydrogen production infrastructure	Hydrogen transport infrastructure
 <ul style="list-style-type: none"> <li>· Floating offshore wind turbines to generate renewable energy</li> <li>· Plan to use the energy from offshore wind farm for green hydrogen water electrolysis</li> </ul>	 <ul style="list-style-type: none"> <li>· Joint development of the original technology of high-efficiency water electrolysis system with domestic research institutes</li> <li>· Converging hydrogen water electrolysis technology with offshore plants to jointly develop an offshore green hydrogen production plant (By 2025)</li> </ul>	 <ul style="list-style-type: none"> <li>· Obtained AIP for liquefied hydrogen carriers in 2020</li> <li>· Promote the development of international standards for hydrogen ships (2021)</li> <li>· Develop liquefied hydrogen cargo technology (by 2023)</li> <li>· Demonstrate the hydrogen carriers (by 2027)</li> </ul>

## Digital Ships

Digital technology is applied to ensure the highest efficiency and safety

Autonomous navigation support	Onboard safety management	Digital twin
 <p>[Navigation support system]</p> <ul style="list-style-type: none"> <li>· Application of the world's first autonomous navigation support system</li> <li>· Advancement of marine autonomous navigation support system                             <ul style="list-style-type: none"> <li>- Prevents safety accidents by automatically recognizing the nearby vessels</li> <li>- Providing an efficient navigation environment</li> </ul> </li> </ul>	 <p>[Onboard video analysis system- Fire detection]</p> <ul style="list-style-type: none"> <li>· Danger warning after detecting abnormalities in advance through the video data analysis onboard                             <ul style="list-style-type: none"> <li>- Automatic recognition of accidents onboard such as a fire</li> <li>- Rapid initial response</li> </ul> </li> </ul>	 <p>[Digital Twin Platform]</p> <ul style="list-style-type: none"> <li>· World's first digital twin virtual commissioning service</li> <li>· Expansion of the advance notice maintenance service through risk prediction/management                             <ul style="list-style-type: none"> <li>- Pre-detection of onboard equipment and system status</li> <li>- Prediction and response to failures</li> </ul> </li> </ul>

## Eco-friendly Ship

**LNG Propulsion Ship** Boosting competitiveness in the LNG era through the advancement of eco-friendly technology

<b>Methane slip reduction technology</b>	<ul style="list-style-type: none"> <li>· Zero methane generated during LNG combustion</li> <li>· Blocking GHG methane leakage</li> </ul>
<b>Energy Efficiency Aids</b>	<ul style="list-style-type: none"> <li>· Reduces carbon emissions by saving fuel                             <ul style="list-style-type: none"> <li>- Rotor sail (about 6% fuel economy improved)</li> <li>- Air lubrication (about 4% fuel economy improved)</li> </ul> </li> </ul>
<b>Exhaust gas carbon capture</b>	<ul style="list-style-type: none"> <li>· Promoting additional development of the devices that capture, store, and process emitted carbons</li> </ul>

**Ammonia propulsion ship** Securing the leading position in ammonia propulsion technology based on LPG technology

Technology	Ammonia	LPG	Ownership Status
Fuel tank	○	○	Secured (owned)
NOx emission control	○	○	
FGSS	X	○	LPG technology-based speed development
Ammonia engine	X	○	

**Hydrogen fuel cell propulsion ship** Commercialization of the world's first hydrogen fuel cell propulsion ship

<b>Capacity</b>	Hydrogen fuel tank
	Electric propulsion and control
<b>Initiatives</b>	Hydrogen fuel cell
	Hydrogen supply system

# R&D

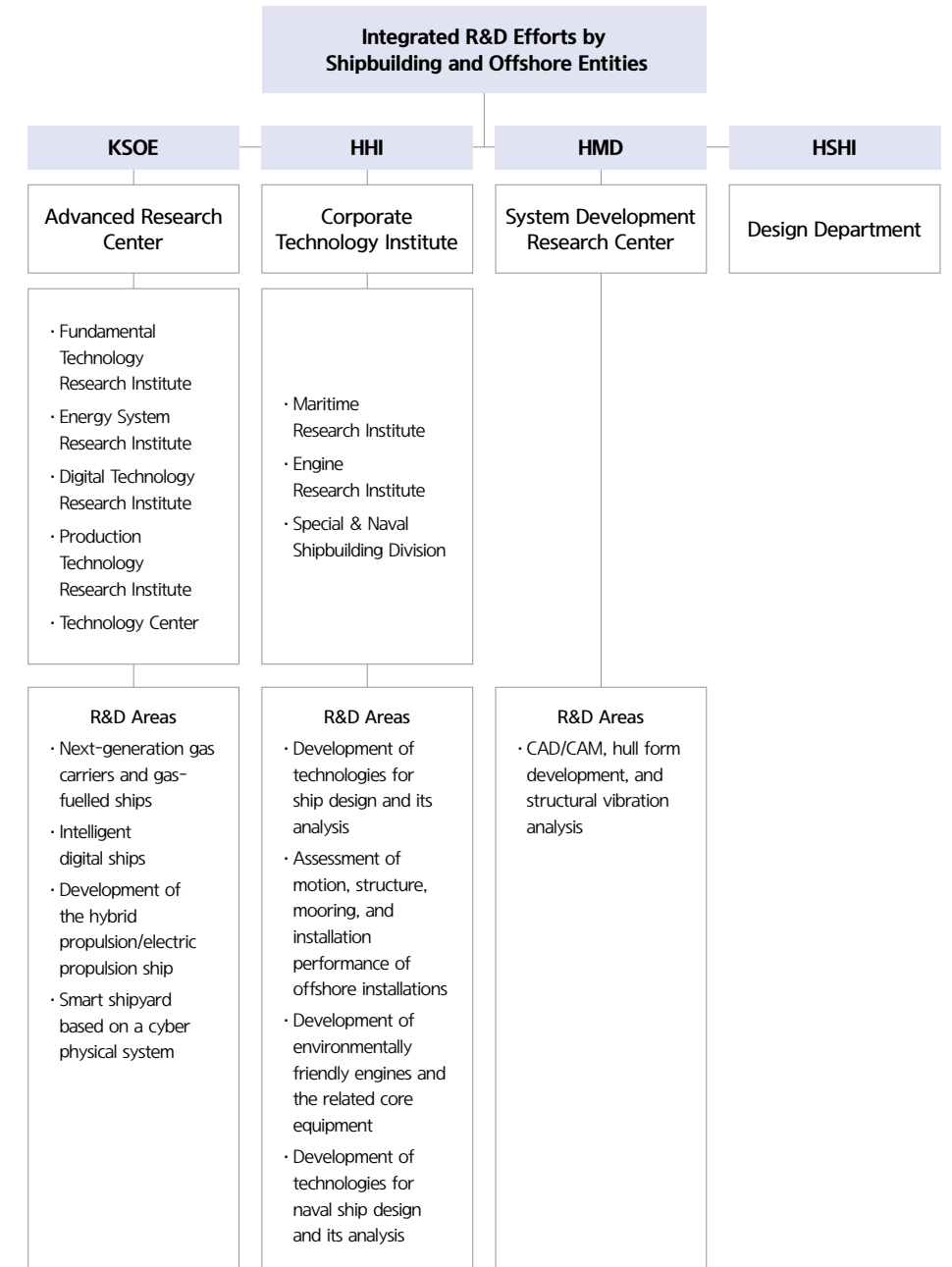
As the sub-holding company of HHI Group's shipbuilding and offshore business, KSOE is fulfilling its pivotal role of presenting the mid/long-term development directions and growth strategies. To solidify our unrivaled competitive edge as the global leader in the shipbuilding and offshore industry, we are now concentrating our R&D capabilities on developing eco-friendly advanced ships and constructing autonomously-operated shipyards based on ICT/robots.

## Management System



# R&D Governance

Advanced Research Center of KSOE has four research institutes and one technology center. Each research institute has a specialized field of expertise, and is focusing on the development of both innovative and common element technologies to drive future growth of the shipbuilding and offshore business. The technology center contributes to profitability improvement and sales growth of the company by helping the affiliates reduce costs, differentiate products, and prevent quality failures.



## R&D Activities

### Future Unrivaled Technology

To achieve the goal of building advanced ships, the main R&D areas are focused on developing technologies for i) improving competitiveness of gas carriers, ii) realizing eco-friendly propulsion such as ammonia/hydrogen in response to the IMO environmental regulations, iii) reducing greenhouse gas emissions, and iv) autonomous navigation vessel combined with intelligent navigation/engine automation system, etc. We are also targeting to secure future unrivaled technologies, such as building a futuristic autonomous shipyard that combines cutting-edge ICT and intelligent robot technology.

● Smart Ship ● Smart Shipyard

### R&D Roadmap

A mid- to long-term product/technology roadmap has been prepared to secure unrivaled competitiveness. We have carefully selected the core development items according to the roadmap, and currently concentrating the entire group's R&D capabilities into the items, which will be ultimately used for building advanced ships and autonomous shipyards.

● Short-term goals : '22~'24 ● Mid-term goals : '25~'27 ● Long-term goals : '28~'30

Item	Unrivaled Technologies	Main Goals and Directions	Key Points for Differentiation in the Market	Roadmap				
Future Ship Propulsion	Ammonia propulsion	<ul style="list-style-type: none"> <li>Secure the technology gap for ammonia fuelled vessels under the increasing implementation of CO<sub>2</sub> Zero regulations</li> <li>Differentiate ammonia fuelled vessels</li> </ul>	<ul style="list-style-type: none"> <li>Superior ammonia-fuelled engine compared to competitors</li> <li>Safety package and gas treatment system against ammonia toxicity</li> <li>High-efficiency exhaust gas treatment system</li> </ul>	<table border="0"> <tr> <td><b>Short-term goals</b></td> <td><b>Mid-term goals</b></td> </tr> <tr> <td> <ul style="list-style-type: none"> <li>Develop ammonia HMMSEN engine</li> <li>Win orders for HMMSEN engine-based ammonia fuelled medium-sized vessels</li> </ul> </td> <td> <ul style="list-style-type: none"> <li>Win orders for large-scale ammonia-fuelled vessels based on own engines</li> </ul> </td> </tr> </table>	<b>Short-term goals</b>	<b>Mid-term goals</b>	<ul style="list-style-type: none"> <li>Develop ammonia HMMSEN engine</li> <li>Win orders for HMMSEN engine-based ammonia fuelled medium-sized vessels</li> </ul>	<ul style="list-style-type: none"> <li>Win orders for large-scale ammonia-fuelled vessels based on own engines</li> </ul>
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	Hydrogen propulsion/carriers	<ul style="list-style-type: none"> <li>Be ordered hydrogen carriers by developing differentiating technology</li> <li>Enter the new hydrogen economy market by developing core hydrogen technology</li> </ul>	<ul style="list-style-type: none"> <li>Boil-Off Gas Lossless Cargo Handling System</li> <li>Independent package of the fuel supply system linked to the future propulsion system</li> <li>Higher-quality and more durable liquefied hydrogen tank compared to competitors</li> </ul>	<table border="0"> <tr> <td><b>Short-term goals</b></td> <td><b>Mid-term goals</b></td> </tr> <tr> <td> <ul style="list-style-type: none"> <li>Secure technology to differentiate liquefied hydrogen cargo containment/handling systems</li> </ul> </td> <td> <ul style="list-style-type: none"> <li>Win orders for hydrogen carriers for demonstration projects</li> </ul> </td> </tr> </table>	<b>Short-term goals</b>	<b>Mid-term goals</b>	<ul style="list-style-type: none"> <li>Secure technology to differentiate liquefied hydrogen cargo containment/handling systems</li> </ul>	<ul style="list-style-type: none"> <li>Win orders for hydrogen carriers for demonstration projects</li> </ul>
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Fuel cell propulsion	<ul style="list-style-type: none"> <li>Preempt the power generation/propulsion systems for next-generation ships</li> <li>Maintain the unrivaled technological gap in the eco-friendly ship market</li> </ul>	<ul style="list-style-type: none"> <li>Multi-fuel compatible fuel cell system</li> <li>Excellent load follow and highly durable fuel cell system</li> <li>Next-generation eco-friendly integrated ship design package and optimal operation solution</li> </ul>	<table border="0"> <tr> <td><b>Short-term goals</b></td> <td><b>Long-term goals</b></td> </tr> <tr> <td> <ul style="list-style-type: none"> <li>Develop a fuel cell propulsion system for small and medium-sized ships</li> </ul> </td> <td> <ul style="list-style-type: none"> <li>Develop a fuel cell propulsion system for large ships</li> </ul> </td> </tr> </table>	<b>Short-term goals</b>	<b>Long-term goals</b>	<ul style="list-style-type: none"> <li>Develop a fuel cell propulsion system for small and medium-sized ships</li> </ul>	<ul style="list-style-type: none"> <li>Develop a fuel cell propulsion system for large ships</li> </ul>	
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Electric propulsion	<ul style="list-style-type: none"> <li>Lead the ship propulsion solution market by developing the next-generation eco-friendly/high-efficiency electric propulsion system</li> </ul>	<ul style="list-style-type: none"> <li>Optimal electric propulsion and power generation design package for each ship type</li> <li>Optimal energy control solutions</li> <li>Localization of major equipment: possession of independent models</li> </ul>	<table border="0"> <tr> <td><b>Short-/Mid-term goals</b></td> <td><b>Long-term goals</b></td> </tr> <tr> <td> <ul style="list-style-type: none"> <li>Commercialize hybrid electric propulsion system (4MW, 15MW, and 30 MW in order)</li> </ul> </td> <td> <ul style="list-style-type: none"> <li>Commercialize a 50MW hybrid electric propulsion system</li> </ul> </td> </tr> </table>	<b>Short-/Mid-term goals</b>	<b>Long-term goals</b>	<ul style="list-style-type: none"> <li>Commercialize hybrid electric propulsion system (4MW, 15MW, and 30 MW in order)</li> </ul>	<ul style="list-style-type: none"> <li>Commercialize a 50MW hybrid electric propulsion system</li> </ul>	
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Smart Ship	Autonomous navigation	<ul style="list-style-type: none"> <li>Lead autonomous navigation technology in the era of unmanned logistics by commercializing autonomous navigation solutions for large merchant ships</li> </ul>	<ul style="list-style-type: none"> <li>Leading intelligent autonomous navigation solutions</li> <li>Leading integrated control/diagnosis solution for core equipment/engines</li> <li>Scalability secured through ship/land interaction</li> </ul>	<table border="0"> <tr> <td><b>Short-term goals</b></td> <td><b>Long-term goals</b></td> </tr> <tr> <td> <ul style="list-style-type: none"> <li>Demonstrate the autonomous navigation of whale watching boats</li> <li>Commercialize an autonomous navigation solution (minimum crew/remote control)</li> </ul> </td> <td> <ul style="list-style-type: none"> <li>Commercialize fully autonomous navigation vessels (unmanned navigation)</li> </ul> </td> </tr> </table>	<b>Short-term goals</b>	<b>Long-term goals</b>	<ul style="list-style-type: none"> <li>Demonstrate the autonomous navigation of whale watching boats</li> <li>Commercialize an autonomous navigation solution (minimum crew/remote control)</li> </ul>	<ul style="list-style-type: none"> <li>Commercialize fully autonomous navigation vessels (unmanned navigation)</li> </ul>
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Digital-twin ship	<ul style="list-style-type: none"> <li>Secure engineering competitiveness through the virtual digitization of ship assets</li> <li>Promote a new service business such as the ship life-cycle digital twin management solution</li> </ul>	<ul style="list-style-type: none"> <li>Crew assistance and vessel management based on no. 1 shipyard know-how</li> <li>Reduction of the risk of designing high value-added new ship types: reducing the commissioning risks</li> <li>Reducing operating costs/risks</li> </ul>	<table border="0"> <tr> <td><b>Short-term goals</b></td> <td><b>Mid-term goals</b></td> </tr> <tr> <td> <ul style="list-style-type: none"> <li>Commercialize the LNGC virtual commissioning solution</li> </ul> </td> <td> <ul style="list-style-type: none"> <li>Commercialize life cycle digital twin ships</li> </ul> </td> </tr> </table>	<b>Short-term goals</b>	<b>Mid-term goals</b>	<ul style="list-style-type: none"> <li>Commercialize the LNGC virtual commissioning solution</li> </ul>	<ul style="list-style-type: none"> <li>Commercialize life cycle digital twin ships</li> </ul>	
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Eco-friendliness	Reduction of marine GHG	<ul style="list-style-type: none"> <li>Commercialize the new construction/remodeling of eco-friendly ships through the development of an own model for marine environmental equipment</li> <li>Strengthen the competitiveness of eco-friendly solution technology</li> </ul>	<ul style="list-style-type: none"> <li>Establishing a preemptive product lineup in response to the regulations</li> <li>Optimal installation solution for retrofit/new construction</li> <li>More improved GHG reduction performance compared to the competitors</li> </ul>	<table border="0"> <tr> <td><b>Short-term goals</b></td> <td></td> </tr> <tr> <td> <ul style="list-style-type: none"> <li>HMMSEN engine's methane slip reduction device</li> <li>Exhaust gas CO<sub>2</sub> ionization reduction device</li> </ul> </td> <td></td> </tr> </table>	<b>Short-term goals</b>		<ul style="list-style-type: none"> <li>HMMSEN engine's methane slip reduction device</li> <li>Exhaust gas CO<sub>2</sub> ionization reduction device</li> </ul>	
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Smart Shipyard	Digital-twin yard	<ul style="list-style-type: none"> <li>Establish the digital twin yard based on production performance/simulation</li> <li>Maximize productivity through the optimal operation of simulation/AI-based production resources</li> </ul>	<ul style="list-style-type: none"> <li>Connected/predictable optimized yard operation solution</li> <li>Autonomous yard operation solutions using an intelligent system</li> </ul>	<table border="0"> <tr> <td><b>Short-term goals</b></td> <td><b>Mid-term goals</b></td> </tr> <tr> <td> <ul style="list-style-type: none"> <li>Integrated simulation-based yard operation system</li> </ul> </td> <td> <ul style="list-style-type: none"> <li>Integrated AI-based autonomous yard operation system</li> </ul> </td> </tr> </table>	<b>Short-term goals</b>	<b>Mid-term goals</b>	<ul style="list-style-type: none"> <li>Integrated simulation-based yard operation system</li> </ul>	<ul style="list-style-type: none"> <li>Integrated AI-based autonomous yard operation system</li> </ul>
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Intelligent automation	<ul style="list-style-type: none"> <li>Build a first-class shipyard through the development and deployment of an intelligent production automation system</li> </ul>	<ul style="list-style-type: none"> <li>Solution to improve work efficiency using simulation/AI-based optimal operation of production resources</li> <li>Intelligent task recognition/execution solution incorporating digital technology</li> </ul>	<table border="0"> <tr> <td><b>Short-term goals</b></td> <td><b>Mid-term goals</b></td> </tr> <tr> <td> <ul style="list-style-type: none"> <li>Welding automation with intelligent robots/carriages</li> </ul> </td> <td> <ul style="list-style-type: none"> <li>Painting automation with intelligent robots</li> </ul> </td> </tr> </table>	<b>Short-term goals</b>	<b>Mid-term goals</b>	<ul style="list-style-type: none"> <li>Welding automation with intelligent robots/carriages</li> </ul>	<ul style="list-style-type: none"> <li>Painting automation with intelligent robots</li> </ul>	
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## R&D Achievements

### KSOE

#### Development of New-Concept, Eco-Friendly Ships

Having an eco-friendly ship technologies will ultimately be a game changer in the future shipbuilding industry. KSOE has been developing eco-friendly and high-efficiency ships that can satisfy both the marine environmental regulatory bodies and customers. In 2020, we developed a wind-assisted propulsion system that improves the fuel efficiency of VLCC and a Hyundai Air Resistance Saver (Hi-ARS) that enhances the fuel efficiency of LNG carriers, which set us apart from other shipbuilders. In addition, we also strive to develop propulsion technologies using ammonia, hydrogen, and fuel cells to dramatically reduce carbon emissions.



#### Development of the Next-Generation LNG Carriers and LNG-fuelled Ships

KSOE's Cargo Handling System and Cargo Containment System are where the KSOE's core LNG carrier technologies are applied: both systems have been recognized as having the best technologies by customers as well as the registers of shipping. In 2020, we successfully conducted a trial run of the Fuel Gas Supply Systems of both LNG carriers and LNG-fuelled container ships, contributing to the early delivery of the world's first LNG-fuelled large container ships of HSHI. We also developed an engineering technology for an LNG bunkering vessel, which is called a floating offshore LNG gas station. This technology was a great help to HMD in their winning the order of an 18,000 cubic-meter class LNG bunkering vessel. In the explosively growing market for LNG carriers and LNG-fuelled ships, we will keep upgrading the systems through R&D to beat the competitors in the global market.



#### Development of Intelligent Digital Ships

The independently-developed electric propulsion system has been adopted for the Ulsan ICT convergence electric propulsion smart ship and a 7,500 cubic-meter bunkering ship, proving its technological excellence. In addition to this successful commercialization, the system itself is being upgraded to a fuel-cell-based system. We also succeeded in applying the Hyundai Intelligent Navigation Assistant System (Hi-NAS) with AI/AR technologies to large merchant ships: for a full-fledged commercialization of Hi-NAS, Avikus, a subsidiary, was founded. The internally-developed Hyundai Intelligent Digital Twin Ship (HiDTS) is an asset management solution that enables an efficient life-cycle management of ships, from design to decommissioning. HiDTS was the first in the world to receive AIP from Lloyd's Register. The KSOE's electric propulsion, autonomous navigation, and digital ship technologies are now greatly advancing to the unrivaled level.



#### Application of New Materials to Actual Ships and Construction of Smart Yards

In a market where there is a fierce price competition, the cost competitiveness should be secured. By applying new materials to the LNG fuel tanks, we have greatly contributed to the improvement of competitiveness in winning orders for LNG carriers and LNG fuelled ships. By applying an economical welding material for 9% Ni steel to the actual ship, the economic efficiency has been improved by more than 50%. In addition to the development of an eco-friendly high-performance new materials, we are enhancing the safety and cost competitiveness by realizing production automation using automatic bending machines and welding robots and building a smart yard with digital and simulation technology. The smart production, facility management, production automation, and robot automation technologies required for smart yards have already been developed and are being implemented at the sites.



### HHI

#### Development of New Hull Forms for Main Shiptypes

The Shipbuilding & Offshore Division has developed new hull forms for the Main shiptypes of 300K/157K DWT crude oil carriers, 15,900 TEU containerships, 174K LNG carriers, and 91K LPG carriers in an attempt to sharpen their competitiveness in winning orders. The main dimensions (length and width) of the ships were optimized, and energy saving devices such as Rudder Skirt, Hi-Fin and Hi-FCF were applied according to the characteristics of each ship type to maintain or improve the existing performance.

#### Development of spray foam insulation for the IMO type B independent tank and a structural digital twin system

The shipbuilding and offshore division developed the spray foam insulation for IMO type B independent fuel tanks and applied it to the LNG fuel tanks of 14,700 TEU containerships. The existing spray foam insulation was superior in efficiency with a simpler and more intuitive structure than the panel-type insulation system, but could not be applied to the B-type LNG fuel tank because it failed to meet the strict design regulations. This newly developed spray foam insulation was the first in the industry to be applied to the B-type LNG fuel tanks: it dramatically reduced the production and installation costs. We have also developed the structural digital twin system "Digital HiPIX" that enables the analysis of the structural integrity of the fuel tank: Digital HiPIX is the first system in the industry that processes the signals measured by the sensors and simulations for the IMO type B independent fuel tanks. The system is expected to contribute to improving sales competitiveness by providing shipowners with verification on the structural stability and a periodic inspection exemption service.

#### Development of the largest-capacity 86,000 cubic-meter LPG carrier that can pass the old Panama Canal

The Shipbuilding & Offshore Division has developed the world's largest 86,000 cubic-meter LPG carrier, which can pass through the old Panama Canal. While maintaining the main dimensions (length, width, depth) of the existing 84,000 cubic-meter LPG carrier hull forms, the load capacity has been maximized. By adopting the LPG Fuel Gas Supply System, it satisfies both Energy Efficiency Design Index (EEDI) Phase 3 and Energy Efficiency Existing Ship Index (EEXI), both of which are the IMO GHG regulatory regulations. More recently, the division has successfully won orders for multiple products.

#### Development of a new fixed platform model

The Shipbuilding & Offshore Division has developed a new fixed platform model that combines the advantages of fixed/floating offshore structures. This model features the integrated upper/lower structures for the easy transportation/ installation in the target sea area: the design helps minimize offshore work and the number of required fleets. This new fixed platform model is expected to lower the risk of offshore operations and shorten the construction period, thereby securing a competitive advantage over the conventional fixed platform.

#### Development of intelligent integrated control system for marine engines

The Engine & Machinery Division independently developed an integrated control system (HiMECS) for the core ship equipment such as Selective Catalytic Reduction as well as HiMSEN Engine, a medium-sized marine engine. The developed HiMECS has been applied to a 115,000 cubic-meter crude oil carrier. By creating its own design based on the years of experience and knowledge, we were able to reduce costs as well as secure original control technology. This will serve as the foundation for the future development of state diagnosis and control optimization technology incorporating big data. In addition, a virtual commissioning environment was established to shorten the commissioning period. This control system won the Jang Young-sil Award in the 29th week of 2020 in recognition of the outstanding performance and independent technology applied to the dual fuel engine.

#### Development of a Hybrid propulsion system

The Engine & Machinery division developed a hybrid propulsion system for small- and medium-sized ships and obtained AIP from the Korea Register of Shipping (KR). The hybrid propulsion system drives the propeller using the engine, shaft generator (propulsion motor), and high-capacity battery connected to the gearbox. By doing so, it minimizes the operating time of the propulsion engine in the coastal area and prevents air pollution caused by exhaust gas. During general sailing, it is possible to save fuel by using a high-efficiency main propulsion engine and a shaft generator, rather than an auxiliary engine, to generate electricity. This hybrid propulsion system has been selected for alternative aquatic resource research vessels: it is going to be increasingly applied to small- and medium-sized vessels at home and abroad.

#### Development of underwater radiated noise analysis technology for ships

In order to reduce the probability of being detected and/or being hit by an enemy ship's torpedoes or mines, the Special Shipping Division has developed an underwater radiated noise analysis technology based on the Statistical Energy Analysis (SEA). Unlike the conventional underwater radiated noise analysis that is largely done by government-funded research institutes such as the Korea Institute of Machinery and the Agency for Defense Development (ADD), our technology enables customers to predict the level of underwater radiated noise and proactively reflect the reduction measures in the ship design. Therefore, this technology is expected to contribute significantly to resolving the risks of ships being built and enhancing the sales competitiveness of new projects.

# Quality Management

KS OE and its shipbuilding subsidiaries are committed to winning customer confidence by delivering excellent products and services. To that end, each company has acquired and is maintaining ISO 9001 certification – the international standard for a quality management system established and executed by International Organization for Standardization (ISO). KS OE continues to improve quality management by incorporating customer feedback while engaging in various activities so that every employee becomes aware of the importance of quality management.

## Management System

Vision	Enhancing customer satisfaction and reliability through quality management			
Objective	Leading the development of quality-centered technology and realizing customer-oriented quality management			
	<b>KSOE</b>	<b>HHI</b>	<b>HMD</b>	<b>HSHI</b>
2020 Achievements	<ul style="list-style-type: none"> <li>Held a quality work exchange meeting in the shipbuilding industry</li> <li>Improved the customer satisfaction survey</li> <li>Improved the quality of equipment supplied to affiliates</li> </ul>	<ul style="list-style-type: none"> <li>Operation of remotely operated survey and inspection workshop</li> <li>Establishment of monitoring system for the advanced welding process (WeDAS 2.0)</li> <li>Renewal of ASME (American Society of Mechanical Engineers) Non-nuclear Certificates</li> <li>Vitalization of QA system</li> </ul>	<ul style="list-style-type: none"> <li>Established the DT quality management system (management of remote inspection, smart accuracy, digital DFT (Dry Film Thickness))</li> <li>Quality consulting for subcontractors on management improvement</li> <li>1% improvement in the NDT pass rate</li> </ul>	<ul style="list-style-type: none"> <li>Dispatched quality instructors to external partners and provided technical support</li> <li>NCRS self-inspection activities</li> <li>External QZ activities</li> </ul>
2021 Initiatives	Providing the best products and services by implementing quality management	Operation of the highest level of the Quality Management System (QMS)	Leading the best quality based on optimized data analysis	Preemptive responses to customers on quality issues
Implementation Plan (Details)	<ul style="list-style-type: none"> <li>Promoting Group-Wide collaboration for quality improvement</li> <li>Enhancing future value through quality innovation</li> </ul>	<ul style="list-style-type: none"> <li>Compliance with principles and basic of quality standards</li> <li>Minimizing the costs of quality failure through a quality audit and preventive quality control</li> <li>Advancement of the perceived level of quality by customers</li> </ul>	<ul style="list-style-type: none"> <li>Quality improvement centered on the 4 tasks: Simplifying, Concentrating, Leading, and Connecting</li> <li>Reinforcement of tailored quality training programs and field-oriented quality training</li> <li>Utilizing quality system through upgrading the quality program function</li> </ul>	<ul style="list-style-type: none"> <li>Preemptive response to customers and proactive support for production/process</li> <li>Minimizing the cost of poor quality and achieving customer satisfaction through preemptive quality control</li> <li>Quality improvement of external partners, proactive management of FAT</li> <li>Self-inspection workshop certification</li> </ul>

# Quality Management System

Company	Management Tool	Discussion Forum	Responsible Organization	
KSOE	ISO 9001 (accredited in 2020)	<ul style="list-style-type: none"> <li>Shipbuilding subsidiary quality management meeting</li> <li>Shipbuilding Subsidiary quality matters exchange meeting</li> </ul>	Quality Planning Team	
HHI	ISO 9001 (accredited in 1992)	<ul style="list-style-type: none"> <li>Executives meeting and breakfast meeting</li> <li>Briefing session on the cost of poor quality and current quality level</li> <li>Briefing session on quality management achievements</li> </ul>	<ul style="list-style-type: none"> <li>Quality management meeting</li> <li>Quality meeting with customers, client</li> <li>Quality Management Meeting for Production Dep't</li> <li>Progress meeting for each project</li> <li>Block/ship launching contest</li> <li>Presentation of group &amp; launching performance, pre-delivery inspection</li> <li>Meeting to improve quality related to A/S Claim</li> <li>[Monthly/quarterly/product-specific] Regular Quality Meeting</li> <li>Production/Technology/Quality Council</li> <li>Domestic/overseas customer quality meeting</li> <li>Quality issue status checkup meeting</li> <li>Initial/special construction kick-off consultation</li> <li>Prior consultation/inspection on outsourced QLI risks</li> </ul>	Shipbuilding & Offshore Quality Management Dep't 1&2
HMD	ISO 9001 (accredited in 1997)	<ul style="list-style-type: none"> <li>Executive breakfast meeting</li> <li>Special Committee on Quality, Accuracy, and After-Sales Services</li> <li>Production process quality meeting</li> <li>Welding Quality Improvement Council</li> <li>Smart accuracy control development meeting</li> </ul>	Quality Management Dept.	

HSHI	ISO 9001 (accredited in 1998)	<ul style="list-style-type: none"> <li>· QM meeting</li> <li>· Quality improvement breakfast meeting</li> <li>· Pre-erection/launching/delivery contest</li> <li>· Presentation on improvement of quality issues during construction and after-sales claims</li> </ul>	System QM Dept.
		<ul style="list-style-type: none"> <li>· Design innovation TFT meeting</li> <li>· LNG optimal shipbuilding TFT meeting</li> <li>· LPG risk management TFT meeting</li> <li>· Initial equipment delay prevention TFT meeting</li> <li>· Hull precision TFT meeting</li> <li>· Equipment maker virtual quality meeting</li> <li>· Monthly quality improvement meeting</li> </ul>	Hull QM Dept.

## QMS Operation and Assessment

The effectiveness of our QMS is ensured through annual external audits (by QMS Certification Body) as well as periodic internal audits to check on each team's work process and compliance.

Company	Business Unit	Quality Audit in 2020	No. of issued PARs or CARs	Expected effect
KSOE		ISO 9001 QM System Certification Audit ISO 9001 QM System Internal Audit	· 54(100%) - 38 internal - 16 external	<ul style="list-style-type: none"> <li>· Confirming/improving conformity to and effectiveness of the QM system requirements</li> <li>· Increasing the effectiveness of the QM system through risk and opportunity management, achieve improved results, and prevent adverse impacts</li> </ul>
	Shipbuilding & Offshore (Shipbuilding)	ISO 9001 QM System Certificate Audit ISO 9001 QM System Internal Audit	· 25(100%) [25 internal]	<ul style="list-style-type: none"> <li>· Inspecting and improving conformity, effectiveness and execution status of ISO9001 Quality Management System</li> <li>· Continuous technology development and quality improvement through risk and opportunity management</li> </ul>
HHI	Shipbuilding & Offshore (Offshore)	ISO 9001 Quality Management System(QMS) External Audit ISO 9001 Quality Management System(QMS) Internal Audit KEPIC Internal QA Audit King's Quay Project Internal Quality Audit King's Quay Project Engineering Sub-contractor Quality Audit ITER Project Internal Quality Audit	· 45(100%) [45 internal]	<ul style="list-style-type: none"> <li>· Proactive quality prevention activities by identifying potential risks related to internal/external context of the organization and taking preemptive measures/management</li> <li>· Systematic quality improvement effect through efficient management of implementation plans linked to each department's quality goals</li> <li>· Expecting quality improvement by identifying the quality requirements and standards required for each project</li> <li>· Expecting independent quality improvement by strengthening pre-quality control, enabling quality monitoring by the management, and carrying out the detailed implementation plans for quality objectives</li> </ul>
	Engine & Machinery	ISO 9001 Certification Audit(DNV) ISO 9001 Internal Audit KEPIC Nuclear Power Internal Audit KR-QA Customer Audit DNV MSA Customer Audit Korea Hydro & Nuclear Power Customer Audit	· 99(100%) - 88 internal - 11 external	<ul style="list-style-type: none"> <li>· Confirmation of conformity to ISO 9001 requirements of Quality Management System, and system improvement</li> <li>· Improving the organizational performance and laying the foundation for sustainable development</li> </ul>
HMD		ISO 9001 Internal Quality Audit All (45) Dep't (including outside factories) ISO 3834 Internal On-site Inspection	· 90(100%) [90 internal]	<ul style="list-style-type: none"> <li>· Reinforcing technology standardization for design and development - Special ship types (LNG and RO-PAX), etc.</li> <li>· Strengthening the control of identification and traceability of documented information by improving the document classification system</li> <li>· Checking of the standard process for measuring resources</li> <li>· Improvement of welding quality by strictly managing the welding qualifications, equipment and materials</li> </ul>



HSHI	ISO 9001 Certification Audit (DNV)	· 11(100%)	· Reducing rework by ensuring that the standard work is performed in compliance with the standards preparation/promotion criteria
	HSHI ISO 9001 Quality Internal Audit (32 cases)	· 223(100%) [223 internal]	
	In-house partner ISO 9001 Quality Internal Audit (16 cases)	· In-house partner companies 136 (100%) [136 internal]	· Securing customer quality reliability by establishing a system for holding/using valid instruments and monitoring them periodically
			· Preemptive measures to secure quality competitiveness by conducting in-house partner risk assessment

### Cost of Poor Quality

We categorize the cost of poor quality into 11 detailed items to efficiently manage the quality performance of each department. Then each item is subdivided again into three groups: Priority Improvement, Expansion of Improvement, and Maintenance of Improvement. By concentrating on the Priority Improvement group, we effectively reduced the overall cost of poor quality.

### Quality Training

KSOE and the shipbuilding subsidiaries offered in 2020 various courses by engaging internal and external instructors, including courses on quality issue root cause analysis, advanced product quality planning (APQP), and the analysis and utilization of quality costs, etc. To foster QMS experts, we annually offer an internal quality auditor certification course and an ISO-accredited auditor certification course, with experts with international quality certificates providing support to improve the companywide QMS.

Company	Business Unit	Curriculum
KSOE		· ISO9001 Internal Auditor Training
	Shipbuilding & Offshore (Shipbuilding)	· ISO 9001 internal quality auditor certification training · Training on analyzing the root cause of quality issue · Training on the analysis and utilization of quality costs · Statistical training for data analysis · Partner quality control training · LNG-fuelled vessels practical training · Offshore explosion-proof practical training · Carbon steel welding process training · Shaft & Rudder Stock training
HHI	Shipbuilding & Offshore (Offshore)	· ISO 9001 Internal Auditor Qualification Course · Curriculum for the Cause Analysis of Quality Problems · Curriculum for the Control of Sub-contractor's Quality System
	Engine & Machinery	· ISO9001 internal/certification auditor training · Understanding and maintaining two-stroke engine (theory) · Training on the latest trends of two-stroke engine and regulatory policies · Basic training for environmental machinery (FGSS / SCR) · Quality problem cause analysis technique process · Nuclear power job training · Quality instructor training · Quality circle training
HMD		· LineQC training · Training for new hires to improve quality mindset · Specialized training for each quality management department - Hull (major CSR changes in 2020, etc.) - Outfitting (understanding of EGCS and SCR systems, etc.) - Special vessel (introduction to LNG reliquefaction system, etc.) - Painting (Interline 9001 characteristics and painting specifications, etc.) - Material (types and characteristics of reliquefaction equipment, etc.) - NDT (9% Ni steel PAUT, etc.) - Accuracy (main panel difference and internal material level difference, etc.) - Register (DNV-GL) seminar training (1st to 4th) - Training by an invited design expert (by Piping Design Department) - LNG Cargo Handling System (Intensive) (H8323:KNUTSEN)

Information Security

HSHI

- Virtual non-face-to-face quality education through '3Tube'
- 1:1 Hi-Q training for field workers using tablet PCs
- QM Academy training
- Training on job improvement and development
- Ship quality reminder training
- Cross-training of inspection work
- LNG expert training
- Job competency improvement for collaboration inspectors
- Training by external lecturers (shipping classification society, manufacturer, design expert)
- New or supplementary LQC/MQC/LPT training
- On-site training for low-quality departments
- Skills improvement training for foreigners
- Quality training for new welders
- 1:1 quality training for welders incurring excessive cost of poor quality

First shipbuilder certified by the two international information security standards



HHI is the first-ever shipbuilder certified by the ISO27001 (Information Security Management System, ISMS) and ISO27701 (Privacy Information Management System, PIMS), the two most authoritative international standards in the field of information security, at the same time last March. To be certified, plans and measures to prevent the leakage of corporate information assets and personal information should be in place. By obtaining the ISO27001 certification, HHI has proven that it complies with the Information and Communications Network Act, the Personal Information Protection Act, and the latest European General Data Protection Regulation (GDPR) and protects major computer systems from various cyber security threats. As an ISO27701-certified shipbuilder, we can proudly say that we do safely manage the customers' personal information. Now, we are ready to accelerate our digital innovations including the Integrated Smart Ship Solution (ISS) and Smart Engine Management Solution (HiEMS).

Building the industry's first quantum cryptography communications system



HHI has introduced quantum cryptography communications technology for the first time in the global shipbuilding industry in an effort to reinforce the security level of the defense technology. The quantum cryptography communications adopted by HHI in March use a quantum cryptography key that cannot be hacked during data transmissions between the sender and receiver. It is a new communications security technology that fundamentally blocks any

hacking attempts. With the more advanced security system that ideally protects defense/industrial technologies with quantum cryptography communications, HHI will speed up finalizing a 5G-based smart shipyard early.

Quality Control for Partner Companies

Through periodic quality audits and diagnoses, we identify the root cause of each critical quality issue, while helping improve the partner companies' QMS levels. Quality review meetings are held with the partner companies to find issues and share ideas to prevent a recurrence. We also hold a quality contest and reward excellent partner companies to encourage a focus on quality improvement.

Company	Dept.	Main Activities
KSOE		· Conducted quality diagnosis on external partner companies with multiple after-sales claims (8 companies)
	Shipbuilding & Offshore (shipbuilding)	· Quality system maintenance through regular due diligence of outside partner companies · Transition to self-inspection in the case of excellent external partners through regular evaluations · Conducted on-site training to improve the quality system of the external partners whose evaluation results are insufficient · Checked whether the company maintains its own quality control system through planned inspection · Preemptive management and independent quality maintenance through initial product quality inspection
HHI	Shipbuilding & Offshore (offshore)	· Every year, through the evaluation of sub-contractors Quality System, the quality level of each partner is checked. Those with a weak quality level are selected for additional instructions and system check for an improvement. · Reinforced pre-quality control of the external products to minimize problems before receiving
	Engine & Machinery	· Advancement of the APQP operation (core parts/process KCP verification) - Quality verification evaluation of the core parts of the initial engine · Partner companies QLI Risk Pre-Audit - QLI : Quality Leading Indicator · Established the measures to prevent recurrence of issues with outsourced goods and checked their implementation status · Managed and inspected the subcontracted goods from China by partner company · VOC listening and visit inspection for partner companies with frequent quality problems · Regular quality evaluation and post-evaluation for partner companies
HMD		· Implementation of the grade system through the quality evaluation of external equipment and suppliers - Graded into A to D (4 grades) - Grade A: Benefits given such as an exemption from QM inspection - Grade D: Quality improvement activities required through guidance and consulting by QM inspectors
		· Support for high value-added LNG DF TANK technology - Technical support for the fuel tank manufacture of eco-friendly ships (LNG DF Engine) - Support for QM manpower and technology transfer to secure fuel tank manufacturing technology (factory approval, welding technology guidance, manufacturing technology guidance, etc.)

HSHI

- Support for in-house partner companies' ISO 9001 accreditation
- Support for basic quality training for field workers using tablet PCs (Hi-Q activity)
- Technical support by dispatching internal quality experts to the outside partner companies
- Rewarding program for the excellent quality of partner companies
- Weekly quality management reporting to share issues
- New and supplementary training for the manufacturer QC personnel
- 1:1 quality training by visiting low-quality partner companies
- Support for quality improvement through periodic intensive inspections
- Support for preparation of welding specifications for new external partners and training for improving welder skills
- Conducted preemptive after-sales service prevention activities through an on-site inspection of major equipment/LNG insulation materials
- Quality workshop with outside partner companies
- Assessment of outside partner companies' QMS

## Activities and Achievements by Entity

KSOE

### Establishing a system to prevent recurrence of quality problems attributable to the series construction of ships

A computer system has been built to prevent recurrence of similar or identical quality issues. Through the system, the quality problems that occurred during shipbuilding are delivered to the production team of the successive ship so that a corrective action can be taken.

### Customer satisfaction survey and improvement measures

KSOE and its shipbuilding subsidiaries in order to objectively evaluate our products, services and work processes. Based on the results of the survey, we provided the directions for the quality improvement activities to each department.

### Introduction of production quality indicators

By improving the trial-run comments management system of the shipbuilding subsidiaries and analyzing comments from various angles using production quality indicators, we sought to improve the quality level perceived by customers.

## HHI Shipbuilding & Offshore Department

### Application to autonomous QA ships and building relevant systems

As we applied autonomous QC activities, including basic quality activities, quality campaigns, high-risk checkup, and quality completion responsibility system, no inspection was conducted before a ship delivery. Then, in the customer's Volatile Organic Compounds (VOC) test, we received a positive feedback on the quality level. From the monitoring on the after-sales service claims of the uninspected ship, it was also confirmed that the ship not subject to inspection was better managed than other general ships. The Enhanced Quality Management Program (EQMP) includes: Establishment of a non-inspection workshop for the entire internal process by conducting QC between the hull internal processes and providing high reliability information; quality control for outdoor space units; application of remote inspection; implementation of a real-time quality information sharing program for customers; assignment of the deputy supervision personnel for high-volume shipowners; and additional non-destructive testing for securing welding quality. Based on the EQMP, HHI established the Construction Quality Guarantee Program that enables internal quality inspection/control in the presence of the Register. HHI is going to apply this QA program to the entire project so that it can contribute to securing the best quality and improving productivity in the long term.

### Acquired AIP for the basic ABS design (ZAMA FSO Project)

Regarding the bidding of ZAMA FSO(Floating Storage and Offloading system) Project offloading system, ZAMA FSO is a case in which the bidder should make a design that meets the technical specifications and the Local Regulatory (Mexico), unlike general offshore projects which FEED is provided. In order to improve the reliability and secure public confidence of our design, we have acquired AIP(Approval in Principle) from ABS for a total of 24 design drawings, including the Outlined Specification, Tank Capacity Plan, and LQ Joiner Plan.

- 1 FEED : Front - End Engineering Design
- 2 ABS : America Bureau of Shipping



### Successful installation of top-side of 9,100-ton super large offshore facility



After fabrication of the top side of the King's Quay Project, a semi-submersible floating production system (FPS) currently under construction, we successfully mounted/installed a 9,100 ton class top side to the hull using Hyundai-1000, a 10,000-ton offshore crane. The 9,100-ton structure, which is equivalent to the weight of 6,200 mid-size passenger cars, is the heaviest one that has been lifted by a single offshore crane in Korea. The

Hyundai-10000 crane was used to erect the sinking ferry Sewol, which weighs a total of 8,400 tons, including the hull and support in 2018. This time, it succeeded in lifting 700 tons more setting a new record. The King's Quay Project ordered by the US oil developer Murphy in 2018 is to build a semi-submersible crude oil production facility. It is going to be installed in the Gulf of Mexico in the southern part of the US, and expected to produce 80,000 barrels of crude oil and 2.7 millionm<sup>3</sup> of natural gas per day. The related video clip also recorded the most views on HHI's official YouTube channel "HHITV."



## Activities and Achievements by Entity

### HHI Engine & Machinery Department

#### Expanded Engine FAT Remote Inspection

We tried to expand application of the non-face-to-face engine factory acceptance test (FAT) remote inspection in order to strengthen communication with customers in the midst of COVID-19 and to promote the excellence of our products. The non-face-to-face, remote inspection turned out to be effective not only as a communication channel with customers under COVID-19 but also as a tool to promote the product excellence and enhance corporate reliability. We plan to further expand the application of the non-face-to-face remote inspection system.



#### Demonstration test of the bio ship oil HiMSEN engine

In accordance with the IMO's carbon dioxide emission regulations, we conducted a demonstration test with bio fuel to reduce greenhouse gas (GHG) emissions from the ships. Compared to general operations with marine fuel oil, the emissions of GHG and air pollutants were reduced, while the performance was maintained at the same level. We seek to actively respond to the ship environmental regulations through R&D/investment in eco-friendly fuel engines.



#### Large Engine Mounted Generator (EMG) Demonstration Test

We have completed the demonstration test of the internally-developed 1.3MW class EMG. EMG is an eco-friendly product that generates the power required for a ship using the rotational force of the engine shaft for propulsion during ship operations. As electricity is generated by a large engine with higher fuel efficiency than a power generation engine, the fuel costs can be reduced and the ship's energy efficiency design index (EEDI) can be improved.

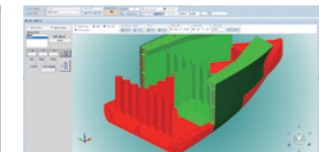
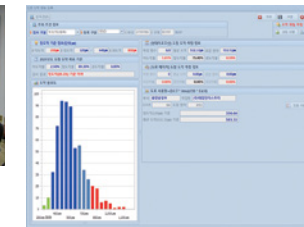


### HMD

#### Foundation for the Future Quality (DT/FoS)

Since there has been an increasing need for non-contact activities due to COVID-19, we are now expanding the application of the remote testing based on continuous R&D. Quality is controlled through non-contact, remote quality inspections on the products manufactured both domestically and abroad. To reduce the excessive use of marine paint, an "appropriate coating management system" has been established. We strive to stabilize the quality by maintaining an appropriate coating layer and to optimize the use of marine paint based on the collected coating information. The system will be further upgraded so that the coating management can be done through a mobile application. In addition, we have developed an dock simulation, as part of the data-based production system, to establish an "accuracy measurement data management system." With this system, the accuracy problems can be identified before erection, and work losses due to human errors can be minimized.

We will continue to improve the system so that the field-oriented smart accuracy control tool can be SIMPLE (Speedy, Informative, Mobile, Plain, Labor-less, Easy).



#### Level up quality awareness

Various quality campaigns were carried out to "secure the quality superiority" as indicated in the business policies of 2020. The 10 Quality Rules (pictograms) for each type of work, Basic Quality: Let's Comply with This!, and QM Created Contents (QCC) were newly prepared. Excellent works selected through a quality slogan contest were posted to each site office. In addition, the Excellent Line QC Award was escalated to the CEO Award to reflect the consensus on the need for quality improvement.



#### Quality/Process Control System for Shipowners (Q-MASTER)

As moving other countries is restricted all around the world due to the COVID-19 pandemic, Q-MASTER, a new electronic quality and production management system, has been developed and provided to shipowners. With Q-MASTER, shipowners can easily access to the quality control information of the shipbuilding process. Even without a ship supervisor dispatched, the shipyard can properly manage its own quality and production, and the shipowners can check the necessary information that help them to know how quality and production are optimally managed in real time by accessing the Q-MASTER. Recently, more and more Buyers tend not to dispatch a ship supervisor due to Builder's reliable and transparent quality system with company-wide campaign: "No site, In sight".



HSHI

**Remote Factory Acceptance Test (FAT)**

In response to changes in the external environment such as COVID-19, we introduced Remote FAT, which performs non-face-to-face inspections using video conferencing equipment without a local inspector in presence. From 2020 to 2021, more than 500 Remote FATs were performed for overseas and domestic equipment makers, which contributed to a faster inspection process, on-time delivery, and cost savings. As all relevant departments actively performed FATs, more practical and efficient inspection processes were made possible.



**Establishment of a DT system for shipowner inspections (Q-WiN platform)**

By breaking away from the paper-based communication to deliver the inspection schedules, comments, or various results to shipowners, the web-based Q-WiN platform enables non-face-to-face communication anytime, anywhere. Quick, transparent, and efficient inspections can be made on this true paperless platform.



**New Construction Remote Survey (NCRS)**

Regardless of the shipowner's presence in the inspection, QM shares the inspection results with the Register/QM/production through the Q-WiN platform. The shipowner can check the results remotely as well. As the LNG SUS pipe welding workshop was certified by the shipowner as well as the register, the QM self-inspection has been implemented in the workshop. QM self-inspection is currently being performed for the hull inspection in two projects.

In addition, we have added the VR images taken by a drone with 360-degree camera, which has been developed jointly with Gyeongnam Provincial Geochang College, to the Q-WiN platform to upgrade the quality transparency and traceability. Ultimately, we will succeed in implementing a full shipyard self-inspection.



**Qualified Zone**

In line with the introduction of the Qualified Zone, the excellent subcontractor workshops of external partners were designated as QZs. QZs are exempt from QM inspections, a practical benefit as they can save at least one day in the process. QZs can be motivated as well to focus more on the stabilization of the internal quality and competition in good faith with other secondary suppliers. (12 suppliers are QZ-certified among 52 secondary suppliers: Top 20%)



**Safety and Quality Guard Activities**

In addition to the safety guard activities performed by quality inspectors, quality personnel collaborates with safety personnel to prevent quality issues and improve the basic quality level. These efforts have led to a decrease in production rework. If any basic quality non-compliance is found during an on-site safety checkup, it is fed back to the QM and production departments so that an immediate action can be taken.



**Quality Campaign**

We conduct a quality campaign using major quality defects in hull/equipment/painting/CCS constructions. In addition, by encouraging all employees to voluntarily join the quality improvement/prevention activities, the individual awareness of quality compliance has been raised.



# Upholding Fair and Transparent Business Practices

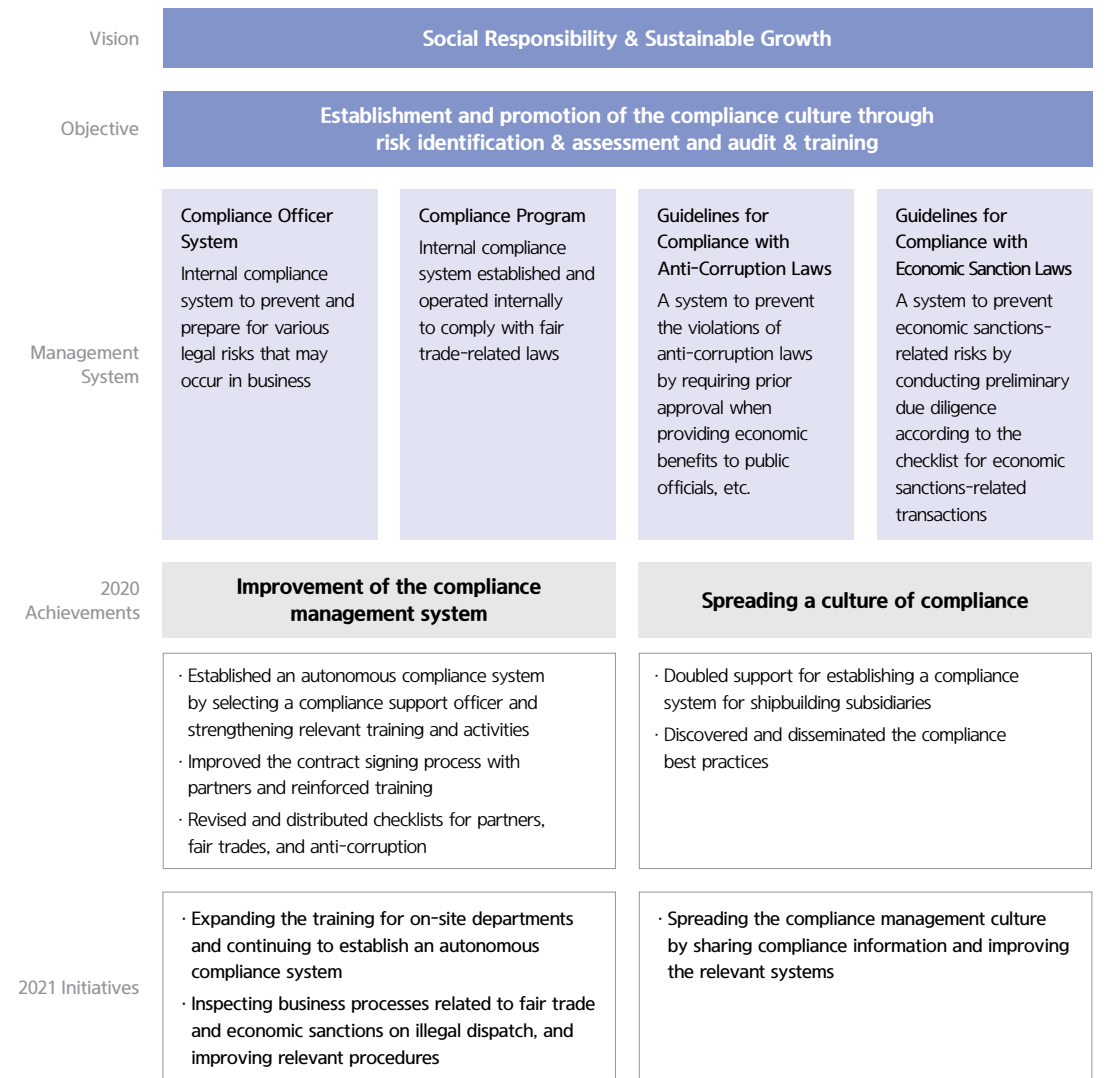
KSOE aims to be the most transparent company, rather than the largest one. By upholding sound ethical practices and compliance, we will work to create a market environment that contributes to the growth of all our stakeholders and the sustainability of our society.

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## Compliance Management

KSOE and its shipbuilding subsidiaries are committed to raising awareness of ethical and lawful conduct and complying with all applicable laws and regulations by ensuring the compliance guidelines are embedded in all their business activities. In order to practice the compliance management, we run a compliance program (CP) mainly consisting of training and consulting on fair trade. Many supportive activities are being made to establish an effective compliance monitoring system, settle a compliance management culture, meet the social demand for corporate roles, and ultimately achieve sustainable growth

### Management System





## Compliance Management Governance

CEO	· Expression of willingness for compliance management (annual)
Board of Directors	· Decision of initiatives and direction for compliance management
Compliance Officer (executives) Compliance Team	· Integrated operation of a compliance management system · Establishment and revision of criteria and standard for compliance management · Execution of compliance education and training programs · Check and consulting of compliance control · Introduction and education of the systems and laws related compliance
Compliance Assistant	· In-house inspection for compliance control · Introduction and education of the systems and laws related compliance

## BoD Reporting

Category	Compliance Audit Reporting	Compliance Program Audit Reporting
Frequency	Annual	Semi-annual
Content	Corporate compliance audit results	Distribution records of compliance program audit results and related materials

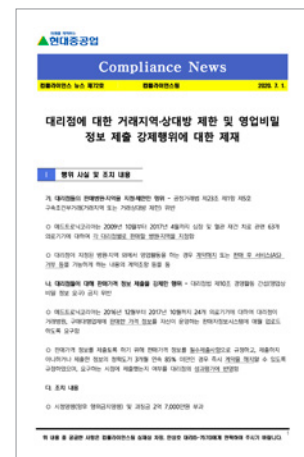
## Activities and Achievements in Compliance Control and Fair Trade

### Compliance Training

KSOE provides regular compliance training for major decision-making positions such as new executives, department heads, team managers, and new hires. In addition, based on the risk assessment results, KSOE identifies the business areas that require training for each major compliance issue category, and provide online/offline training and consulting services to spread awareness on the compliance management among the employees.

### Compliance Newsletter

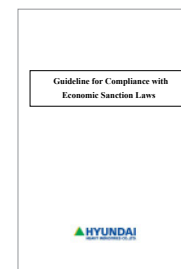
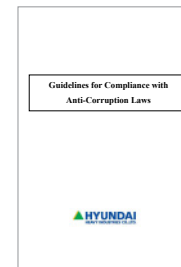
KSOE selects compliance issues (e.g. amendments to the relevant laws, fair trade, anti-corruption and economic sanctions, and violation cases) in a timely manner, and disseminates them in the form of newsletters to raise the awareness of the compliance management among the employees.



Issuance No.	Title
No. 66	Amendment to Guidelines For Inspection Of Request For And Misuse Of Technical Data
No. 67	Amendment to Industrial Technology Security Act
No. 68	Establishment and execution of the review guideline on the unfair advantage provided to affiliated persons
No. 69	Sanction cases for unfair advantage supports between AOO affiliates
No. 70	Cautions for Iran sanctions
No. 71	Enforcement Decree of Fair Trade Act
No. 72	Korean Fair Trade Commission(KFTC) sanction for exclusive dealing
No. 73	Sanction cases for SOO unfair advantage supports
No. 74	Violation cases of key laws related to agency agreements
No. 75	Announcement of US's economic sanction related to construction of military bases in South China sea
No. 76	Temporarily upper limit amount of agricultural, fishery, and livestock graft under Enforcement Decree Of Improper Solicitation and Graft Act
No. 77	Latest trends in US's economic sanction for Iran
No. 78	Sanction cases for HOO unfair advantage supports

### Approval and Review Regarding Anti-Corruption and Economic Sanctions

KSOE implements a pre-approval system and conducts legal reviews based on the guideline on compliance with anti-corruption laws and regulations to cultivate a clean and fair management culture and prevent any legal risks. In addition, we go through a pre-approval system and legal reviews based on the guideline on compliance with the laws and regulations on economic sanctions to effectively prevent risks at home and abroad. We introduced the guidelines for compliance with anti-corruption laws and the guidelines for compliance with the economic sanction laws in 2014 and 2018, respectively.



Purpose	· All employees of the affiliates and their partner companies are obliged to comply with the domestic and international anti-corruption/economic sanctions laws.
Scope	· Entities and their domestic/foreign subsidiaries exercising corporate and management rights · All employees · Companies or individuals who provide goods and services and stakeholders who do business with the company and their employees
Implementation Period	· Effective as of July 25, 2014 (Guidelines for Compliance with the Anti-Corruption Laws) · Effective May 14, 2018 (Guidelines for Compliance with the Economic Sanctions Laws)

### Appointment of Compliance Officer & Manager and distribution of compliance handbooks, checklists, and manuals

KSOE establishes a high-level compliance system is being established by the compliance officers (unregistered executives) and a compliance manager selected by the board of directors and distributes handbooks, checklists, and manuals that employees can refer to during their work to prevent compliance risks, and updates them frequently when needed. In 2020, the "Compliance Manual (Abuse of Market Dominance, Unfair Trade Practices, and Subcontracting)" was revised.

### Subcontracting Compliance Program Inspection

KSOE performs site inspections into departments that have direct business contracts with partner companies to review the process and systems of awarding contracts and issuing written requests for technical documents. The Compliance Program is being operated properly in accordance with the Program requirements such as on-site training for the relevant department and senior manager training.

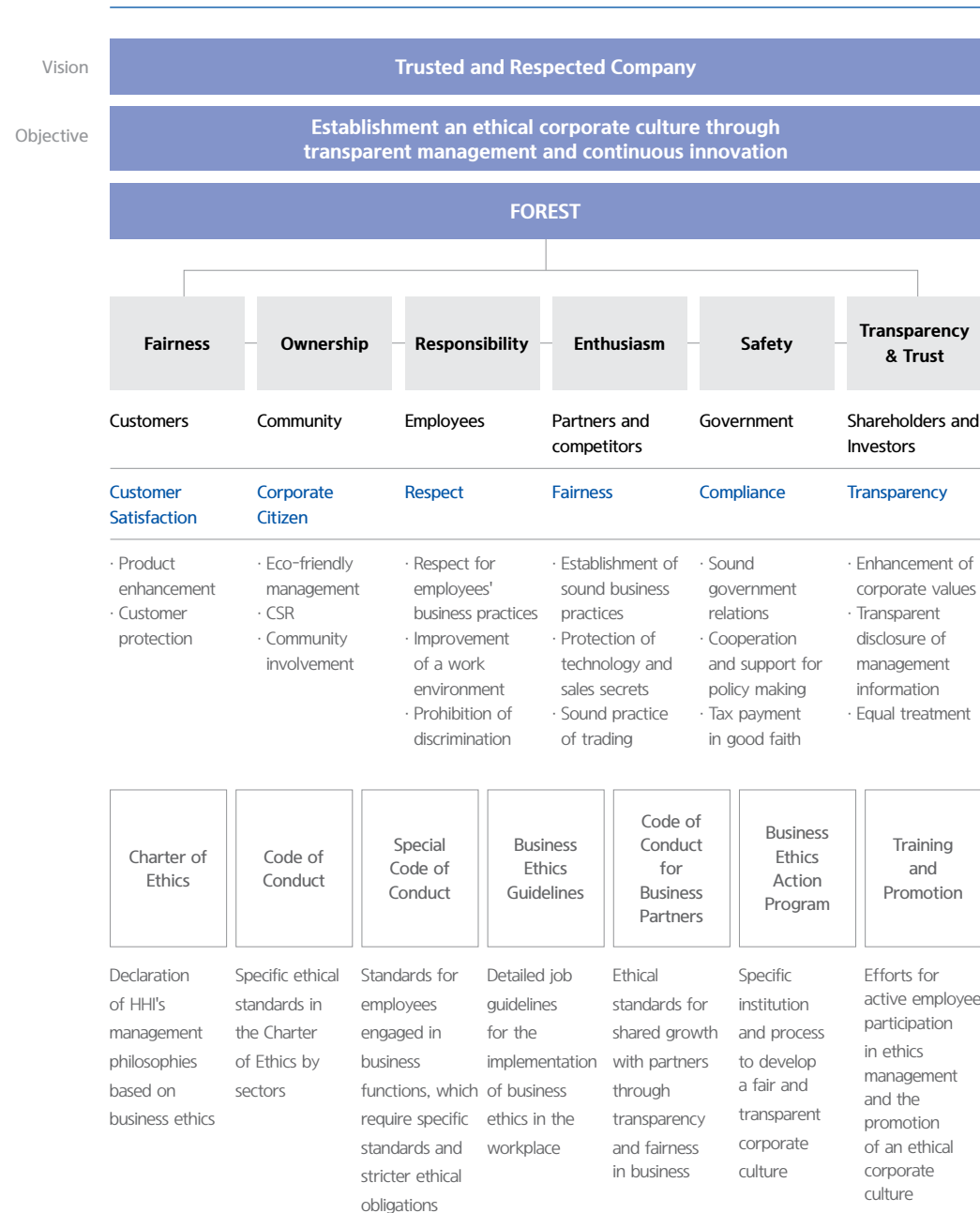
### Online Channel for Contractor Corruption Complaints

KSOE is that the compliance organization operates an online channel through which a partner companies can directly contact and report suspicious business transactions indicative of corruption, thereby contributing to the establishment of a fair subcontracting culture. Through the cyber counseling system, we do our best to protect the whistle blower or victim from being disadvantaged: disclosure of personal information of the whistle blower is prohibited, and the whistle blower who has suffered a disadvantage such as disclosure of identity or discrimination is allowed to apply for a protective measure or relief to the ethical management team. In 2020, the company received a total of 6 reports: 3 of them were relevant to vendor selection and the rest contained issues related to subcontracting. According to the company procedure, the reported cases were investigated and necessary actions were taken (cases closed).

# Business Ethics

HHI Group spares no effort to solidify its position as a “trusted and respected company” in a rapidly changing environment by pursuing transparent management and continuous innovation. We will put forth our best efforts to become a corporate that customers and partner companies want to trade with, one that investors want to invest in, one that employees want to work at, and one that fulfills its responsibility for the nation and communities.

## Management System



Category	2021 Initiatives
Clean Notice System	· Self-production of the campaign video, promotion of the mobile YouTube channel, in-house broadcasting, etc.
Business ethics homepage	· Application of the Chinese version, promotion of business ethics targeting local employees, and activation of reporting
Business ethics practice program	· Increasing convenience in self-check for employees business ethics compliance (new mobile version) · Encouraging online submission of the Business Ethics pledge and interest report
Online training content	· Developing/expanding non-face-to-face educational content due to COVID-19 · Provision of the business ethics training materials for overseas (local) recruits

## Governance of Business Ethics

Function/Position	Responsibility
CEO	· Setting directions and plans of ethics management
Audit Committee	· Evaluating audit performance and following up on corrective actions: ensuring the auditor's expertise and independence
Business Ethics Team	· Operating ethical management systems: providing business ethics trainings and programs: inspecting ethics violations: monitoring and preventing ethics risks: monitoring business ethics practices constantly

## Charter of Ethics

Since ethics regulations for procurement position were established in 1994, HHI Group has practiced and expanded its ethics program by amending the business ethics regulations and providing an online ethics violation reporting on the platform and training courses. In October 2005, we declared our Charter of Ethics which proclaims our ethical management philosophy, and have worked to make it fundamental to the way we do business.

### Charter of Ethics of HHI Group

We pursue to be a respected and trusted company that positively contributes to its customers, shareholders and society with the Hyundai Spirit. To achieve this goal, we hereby establish this Charter of Ethics, which defines our standards of conduct to follow in accomplishing faithfully our original role and social responsibilities as a corporate entity and we declare that we shall comply with this Charter of Ethics.

- 1 We shall be an ethical company that abides by all domestic and international laws and regulations through fair and transparent management practices.
- 2 We shall achieve customer satisfaction by meeting their needs and expectations.
- 3 We shall pursue maximizing the shareholder's value through fair and efficient management.
- 4 We shall work to fulfill our social responsibilities and duties as a member of our community, and contribute to the development of our nation and society.
- 5 We shall work to create a transparent and clean corporate culture through fair competition and trading practices.
- 6 We shall pursue to be a company with the highest quality human resources that offers equal opportunities to our employees in a safe and comfortable working environment.

## Materialization of Business Ethics

HHI Group has enacted the Code of Conduct, an elaboration of the Charter of Ethics by each job, and Business Ethics Guidelines, detailed job guidelines for the implementation of business ethics in the workplace. We are also regularly making revisions to reflect the changes of the environment such as related laws and regulations and social perception to enhance their effectiveness. We guide all the employees to comply with the business ethics regulations through promotional activities and internal audits.

### Employees

#### Code of Conduct

- Enforced on October 4, 2005
- 2nd revision on July 1, 2019
- 3rd revision on April 1, 2020 (clause on human rights respect and protection added)
- Criterion for action and evaluation

#### Special Code of Conduct

- Enforced on May 2, 2007
- Additional duties of employees engaged in six jobs requiring higher integrity and morality (procurement, HR, sales, finance/accounting, engineering and IT)

#### Business Ethics Guidelines

- Enforced on January 1, 2002
- 8th revision on July 1, 2020 (clause on employee practice ethics to prevent workplace harassment)
- Business process standards for understanding and practicing business ethics policies

### Partner companies

#### Code of Conduct for Partner Companies

- Enforced on October 4, 2005
- 3rd revision on December 1, 2019
- Duties applied to the personnel of HHI Group's partner companies

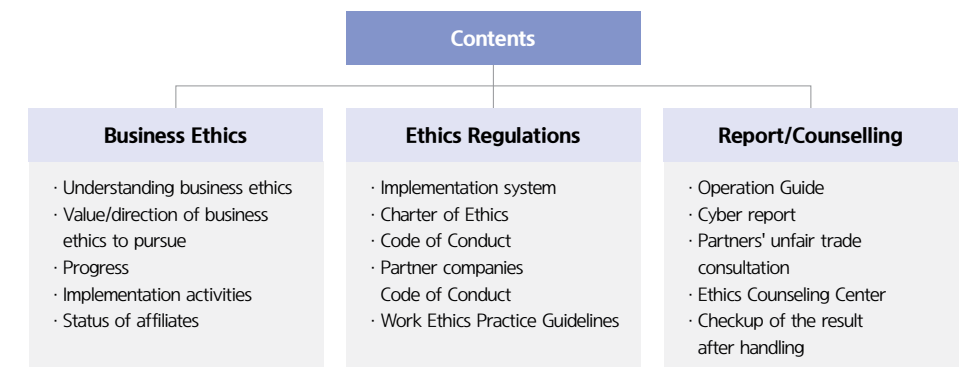
## Major Activities & Achievements

### Integrated Group Website

www.ethics.hhigroup.kr



In July 2018, the Group's integrated business ethics website opened to introduce the Group's business ethics practices and raise the ethics awareness of employees. Information on the Ethical Management System, Ethics Charter, Code of Ethics, and Guidelines for Practice of Work Ethics is available on the company website. The Guidelines for Practice of Work Ethics state that we comply with the laws and regulations related to fair trade and protection of SMEs, reject unfair and unlawful trade practices, and provide the standards for bans on bribery and anti-corruption. Through the Ethical Management System, it is easy to report on unethical behaviors and receive advice on unfair trade with vendors. The website provides a 'subcontractor hotline' through which partner companies can request consultation on subcontracting or unfair trades, a channel for filing complaints or reporting on corruption such as accounting fraud, and a channel for ethics counseling .



### Annual Business Ethics Confirmation

HHI Group's employees and its partner companies are required to submit an annual Business Ethics Confirmation (according to the internal regulations), to pledge their commitment to understanding the relevant regulations and abiding by corporate policies and guidelines. The pledge requires compliance with ethics regulations and the anti- corruption law to avoid unfair trades, corruption, illegal solicitation and graft as prohibited by laws and regulations.



## Major Activities & Achievements

**Conflicts of Interest Reporting** When a possible conflict of interest is identified, the employee in question is obligated to report the issue in advance to prevent an unfair result and establish a transparent trade practice. All employees of HHI Group and its partner companies are obligated to submit this conflict-of-interest report every year.

**Ethics Violation Reporting and Whistle Blower Protection** We are operating an online reporting window (integrated business ethics website) that allows 24/7 reports on the violations of the Code of Ethics and other laws such as illegally accepting gratuities or entertainment, obtaining unjust gains using their position or authority, and abusing authority. The reports can be submitted by phone, fax, e-mail, and/or mail. We aim to protect the whistleblower's identity and reward them in accordance with our reward guidelines. We received a total of 66 reports in 2020, and 36 cases of them were investigated: 14 cases turned out to be violations of ethical management, and the personnel shift for those involved was made in accordance with the related regulations and procedures. In addition, 30 cases including civil complaints were transferred to other responsible departments; the results of the transferred cases were checked and confirmed.

**Business Ethics Self-Monitoring and Risk Management** Every year, all employees conduct self-diagnosis in regards to compliance with ethical management to check the level of ethical management. This was to enhance their understanding of the related regulations and make improvements. Through constant monitoring of ethical management, an analysis on unethical behaviors and risks can be made in advance, and actions to improve the identified vulnerable processes are taken.

**On-Site Hearings of Business Ethics** KSOE holds field sessions to hear from employees and partner companies and diagnose and improve the level of ethics compliance.

**Business Ethics Training and Promotion** KSOE annually runs classroom training courses and online courses on business ethics. The materials are presented in formats such as animated movies, etc. to raise the understanding of employees and encourage their commitment. The training provides a case study of various unethical issues (e.g. anti-corruption and discrimination) and a Q&A session designed to induce a sense of sympathy. To embed business ethics throughout the Company, we mandate business ethics courses to all new hires and managers. New hires would understand the Charter of Ethics and the related policies of HHI while managers would be well equipped to base their business decision making on an ethical way of thinking. Moreover, we work to introduce our ethical management system at HHI Council, a consultative organization between HHI and its partner companies. The Ethics Management Team also works to spread ethics management over partner companies by visiting them to provide related training.

**Clean Notice System** Prior to major national holidays every year, we send out letters to our partner companies asking not to provide any gift to our employees. We advise our partner companies to report any bribery demands, including attempts, to our Business Ethics Team. When an employee unavoidably receives gifts from stakeholders, we guide them to return the gifts via our designated courier or donate to charities.

**Support for Ethics Management in Partner Companies** KSOE supports partner companies in their establishment of a business ethics culture. We have implemented the Code of Conduct for Business Partners since 2005 to embed a clean and transparent business practice. The Code of Conduct for Business Partners stipulates obligations such as transparent and fair business practices with partner companies and compliance with the related laws and regulations, placing a ban on providing monetary benefits, graft and treatment to employees. Other support to partner companies include support for the establishment of business ethics regulations and practice programs, the provision of classroom training for the introduction of ethics management, and the provision of promotional materials.

# Risk Management

To realize sustainable growth, KSOE and its shipbuilding subsidiaries preemptively identify and manage internal/external risks that may arise in the course of operations. In an effort to better respond to the risks in mostly large-scale shipbuilding/offshore projects, we have established an organic cooperation system among the departments in charge of the environment, society, and governance (ESG).

## Risk Management Governance

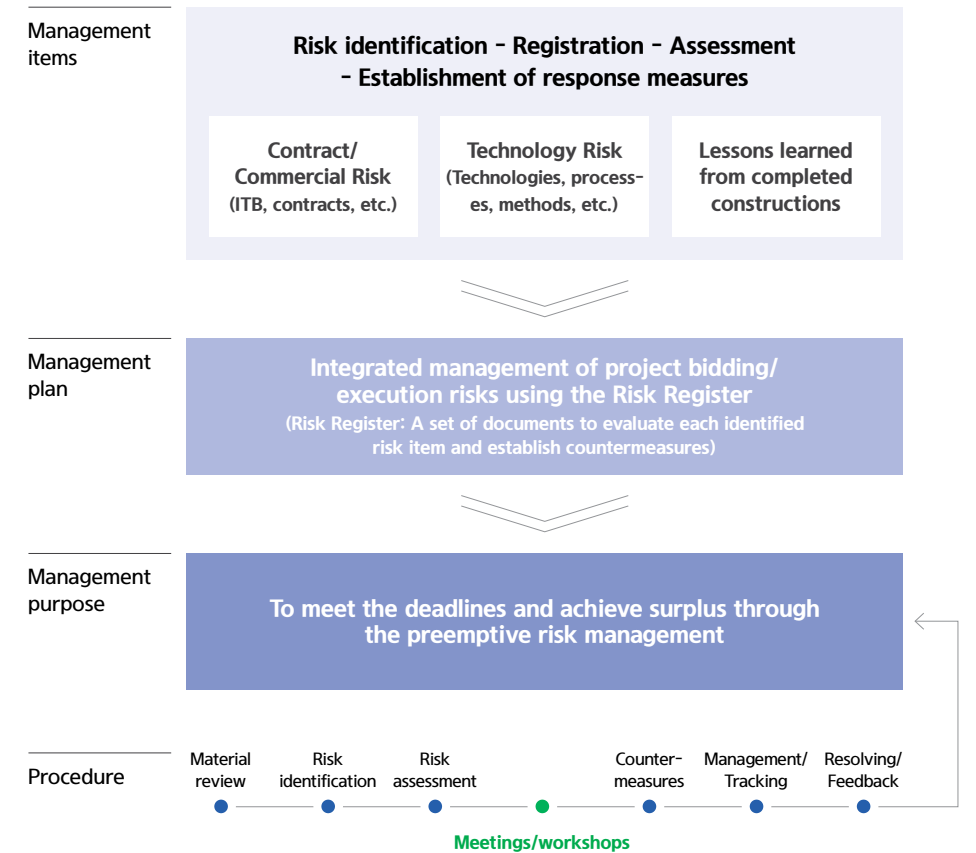


Risks are classified into business risks, financial risks, disaster/accident risks, and climate change risks for systematic management purposes. The four classified risk categories are subdivided again into specific risk factors and managed then by each responsible field unit. The field units work closely with each other to identify, evaluate, and prevent risks. We also collect/analyze risk-related data to establish a risk-response plan. The risks are also reported to the management for strategic management. In 2021, the report will be escalated to the ESG Committee under the BOD for the management of climate change risks. Based on our quality manpower and technological prowess, we will continue to respond to risks according to the response plans, and further strive to create business opportunities.

# Business Risk Management

For systematic risk management, a Project Risk Management (PRM) team has been formed. The PRM team and other teams involved actively cooperate from the initial stage to share relevant information and establish an organic risk response system.

We have established a company-wide contract management standard to make sure reasonable contracts (in relation to sales orders, implementation terms, and guarantees) are concluded and faithfully executed throughout the construction period. Going forward, we plan to establish a company-wide contract management process to minimize the contract risks.



## Financial Risk Management

### Internal Accounting Management System

KSOE and its shipbuilding subsidiaries have established and implemented the internal accounting management regulations in accordance with the Act on External Audit of Stock Companies, the Enforcement Decree of the Act, and the Regulations on an External Audit and Accounting. We also have set the policies and procedures necessary for evaluation and reporting in this regard. Through the rational and effective operation of the accounting management system, we enhance the reliability of the KSOE financial statements.

### External Business Risk Monitoring

KSOE and its shipbuilding subsidiaries constantly analyze and predict fluctuations in the industry, economy, finance, and raw material supply in consideration of the nature of the shipbuilding industry, which is sensitive to the external economic risks. In terms of the foreign exchange and commodities risks, which are highly volatile, we have separately established a risk committee responsible for monitoring, analyzing, and reflecting those risks in the management.

### Risk Committee

#### Foreign Exchange (FX) Risk Committee

KSOE have formed a Foreign Exchange Risk Committee that is responsible for periodically identifying the FX market and trends based on the analysis of macro/micro factors affecting the exchange rates. Major agenda items include the estimation/changes of foreign currency cash flow, changes in the FX exposure/net FX exposure, and hedging policy and implementation.

#### Commodities Risk Committee

Commodities are highly volatile in prices, supply availability, and quality. Thus, managing commodities is essential and critical in terms of sustainability management. By forming and operating a Commodities Risk Committee, KSOE regularly identifies the price trends of raw materials and analyzes the impact of price fluctuations on its business performance (including estimates). The committee reviews the risk analysis and management policies and hedging policies linked to raw material supply plans/status as the main agenda items.

## Natural Disaster/Accident Risk Management

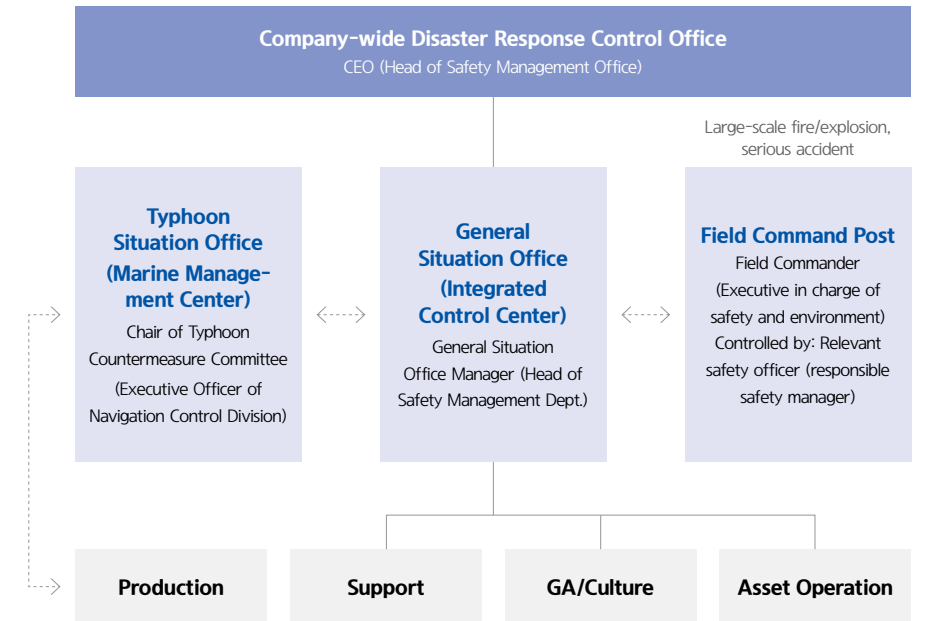
### COVID-19 Management

To better manage and respond to the risk of COVID-19, we formed a general situation office and carried out the response and prevention activities across the company in close collaboration with the related departments. We are doing our best to block off COVID-19 by preparing behavioral guidelines such as an avoidance of company-wide dining, refraining from overseas/domestic business trips including meeting external visitors within the factory, refraining from group meetings/events and group training within the business site.

### Natural Disaster/Accident Management

In preparation for natural disasters such as earthquakes, typhoons, and heavy rains, as well as the risks caused by man-made fires, KSOE and its shipbuilding subsidiaries have made emergency response manuals and distributed them to all employees for learning and practicing. The company-side disaster countermeasure division minimizes the risk of natural disasters by taking action according to the pre-established process in the event of disaster.

### Natural Disaster Risk Management Governance

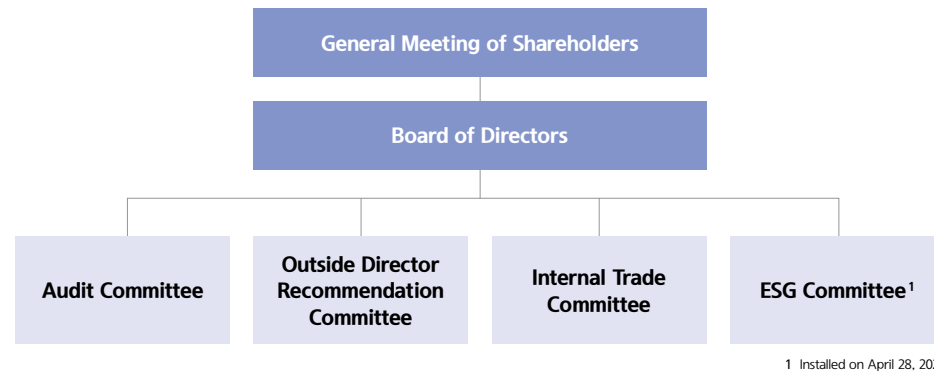




# Greater Management Transparency

KSOE and its shipbuilding subsidiaries are committed to building an advanced corporate governance structure that ensures the independence of the Board of Directors and promotes management transparency. Our goal is to fully comply with the laws and regulations governing corporate governance and circular shareholding while laying the foundation for a good corporate governance framework which operates a more efficient BoD and protects shareholder rights.

## Governance Structure of KSOE



The board of directors (BOD) decides on major management matters such as matters delegated by the general meeting of shareholders, basic policies for company operation, and matters related to business execution. Four committees (Outside Director Recommendation Committee, Audit Committee, Insider Transactions Committee, and ESG Committee) composed of a majority of outside directors have been established to pursue the efficiency and independence of the BOD decision-making process. In particular, the Audit Committee, which audits the management's business execution and the company's property status, is composed of only outside directors in an effort to strengthen supervision on the company/management and guarantee independence of its decision-making process. In addition, we are enhancing the convenience of shareholders in executing their voting rights by introducing the electronic voting system in March 2021.

### Board of Directors Operation

In order to realize a rational governance structure and enhance the management transparency, we have prepared the articles of incorporation in which the majority of the BOD should be outside directors. There are four subcommittees within the BOD: Outside Director Recommendation Committee, Audit Committee, Insider Transactions Committee, and the ESG Committee. The BOD is responsible for supervising the execution of duties by the management, including the right to vote on matters delegated by the general meeting of shareholders, the basic policies of the company and important matters related to business execution, the right to appoint the representative director and the chairman of the BOD. We comply with the requirements for appointment of outside directors under the Commercial Act: outside directors have no special relationship with the major shareholders, management, or affiliates. All directors comply with the Commercial Act and the Monopoly Regulation and Fair Trade Act to prevent conflicts of interest between companies. The BOD is composed of professional with expertise in each field, and there is no discrimination or restriction on the selection and evaluation of the directors based on age, gender, educational background, region of origin, etc. In addition, a dedicated organization is being operated so that outside directors can receive external professional support if necessary. In accordance with the revision of the Act on External Audit of Stock Companies in 2019, training on the role of the Audit Committee, major accounting processing, and an internal accounting management system has been provided to support outside directors in performing their duties faithfully.

### BoD Subcommittees

Committee	Objective and Authority
Audit Committee	<ul style="list-style-type: none"> <li>· Audits the management's performance of duties and has access to data and information necessary for audits</li> <li>· Reviews internal audit results and plans</li> </ul>
Outside Director Recommendation Committee	<ul style="list-style-type: none"> <li>· Performs the function of recommending candidates for outside directors with the necessary competencies to achieve the management objective</li> </ul>
Internal Trade Committee	<ul style="list-style-type: none"> <li>· Establishes the basic policies for internal trade and the selection criteria for counterparties, and checks on the operating status</li> </ul>
ESG Committee	<ul style="list-style-type: none"> <li>· Deliberates on matters related to ESG strategic directions, plans and implementations</li> <li>· Deliberates on matters related to corporate social responsibility</li> <li>· Discuss matters for the ESG capacity development and internalization, etc.</li> <li>· Matters submitted by other committees as they are deemed necessary for deliberation from the sustainability management perspective</li> </ul>

## Activities and Achievements by Entity

### KSOE

#### BoD Composition

(as of March 2021)

Category	Name	Position	Gender	Current Occupation	Committee (where listed as a member)	Initial Appointment Date	Specialized in
Internal Director	Kwon Oh-gap	Chair	Male	Chairman & CEO of KSOE and HHI Holdings	Outside Director Recommendation Committee	Oct. 2014	Business management
	Ka Sam-hyun	Director	Male	President of KSOE	Internal Trade Committee	Mar. 2020	Sales
Outside Director	Lim Suk-sig	Director	Male	Honorary professor at University of Seoul	Audit Committee, Outside Director Recommendation Committee, Internal Trade Committee	Dec. 2018	Finance
	Choe Hyuk	Director	Male	Honorary professor at Seoul National University		Mar. 2017	Finance
	Yun Yong-ro	Director	Male	Chairman & CEO of Koramco		Mar. 2019	Administration/ Business management

#### Remuneration of BoD Members

The ceiling of the remuneration of BoD members is decided by the resolution of the Annual General Shareholders' Meeting to ensure transparency and justification. The 2020 annual remuneration ceiling for directors approved by the General Shareholders' Meeting was KRW 4 billion for 3 internal directors and 4 outside directors, of which KRW 1.8 billion was actually paid out.

#### Shareholder Status and Dividend Policy

The number of KSOE's outstanding shares as of the end of 2019 is 70,773,116 of which 30.95% is held by the largest shareholder, HHI Holdings. The scale of dividend is determined in consideration of the size of the company's earnings, investment plans for future growth, and financial structure, within the range available for dividends. According to the dividend policy, we promote a dividend payout ratio of 30% or more (net income in the separate income statement). The dividend policy is subject to change depending on the circumstances including the subsidiary's IPO preparation. In order to enhance the shareholder value and increase the return to shareholders, we plan to determine the dividend by more comprehensively considering investment, cash flow, a financial structure, and dividend stability. Meanwhile, KSOE may distribute profits in cash and stock through a resolution of the BOD and an approval of the general meeting of shareholders in accordance with the articles of incorporation.

(as of December 2020)

Category	Name	No. of Shares	Proportion <sup>1</sup>
Shareholders with over 5%	HHI Holdings Co., Ltd.	21,907,124	30.98%
	NPS	7,310,284	10.34%
	KCC	4,673,962	6.61%
Minority shareholders		30,293,283	42.84%

<sup>1</sup> Base for proportion calculation by shareholder: Number of shares that can exercise voting rights (70,714,630 shares)  
Excluding the treasury stock (58,486 shares) and employee stock ownership association (1,181,140 shares)

### HHI

#### BoD Composition

(as of March 2021)

Category	Name	Position	Gender	Current Occupation	Committee (where listed as a member)	Initial Appointment Date	Specialized in
Internal Director	Han Young-seuk	Chair	Male	CEO of HHI	Internal Trade Committee	Jun. 2019	Business management
	Ka Sam-hyun	Director	Male	CEO of KSOE	Outside Director Recommendation Committee	Jun. 2019	Sales
	Cho Young-cheul	Director	Male	Head of Management Support Office, KSOE	Outside Director Recommendation Committee	Mar. 2020	Business management
Outside Director	Cho Jae-ho	Director	Male	Honorary professor of Economics at Ulsan University	Audit Committee, Internal Trade Committee, Outside Director Recommendation Committee	Jun. 2019	Finance
	Lim Yeong-cheol	Director	Male	Representative Attorney at Sejong Law Firm		Jun. 2019	Corporate Legal
	Won Jeong-hee	Director	Male	Advisor to Lee & Ko Law Firm		Jun. 2019	Finance
	Chae Joon	Director	Male	Professor of Seoul National University Business School		Mar. 2020	Finance

#### Remuneration of BoD members

The ceiling of the remuneration of BoD members is decided by the resolution of the Annual General Shareholders' Meeting to ensure transparency and justification. The 2020 annual remuneration ceiling for directors approved by the General Shareholders' Meeting was KRW 4 billion, of which KRW 1.36 billion was actually paid out.

#### Shareholder Status and Dividend Policy

The number of HHI's outstanding shares as of the end of 2020 is 70,773,116, all of which is held by KSOE.

## Activities and Achievements by Entity

### HMD BoD Composition

(as of March 2021)

Category	Name	Position	Gender	Current Occupation	Committee (where listed as a member)	Initial Appointment Date	Specialized in
Internal Director	Shin Hyeon-dae	Chair	Male	President & CEO of HMD	Outside Director Recommendation Committee	Mar. 2021	Business management
	Kim Jeong-hyeok	Director	Male	Executive officer at the Financial Support Unit, Management Support Office, HHI Holdings	Internal Trade Committee	Mar. 2020	Business management
Outside Director	Lim Jae-dong	Director	Male	Attorney at Law Firm Kim & Chang		Mar. 2019	Corporate Legal
	Yu Seung-won	Director	Male	Professor at Korea University	Audit Committee, Internal Trade Committee, Outside Director Recommendation Committee	Mar. 2020	Finance
	Joo Hyung-hwan	Director	Male	Visiting Professor at Yonsei University		Mar. 2021	Business Admin.

#### Remuneration of BoD Members

The ceiling of the remuneration of BoD members is decided by the resolution of the Annual General Shareholders' Meeting to ensure transparency and justification. The 2020 annual remuneration ceiling for directors approved by the General Shareholders' Meeting was KRW 1.7 billion, of which KRW 890 million was actually paid out.

#### Shareholders and Dividend Policy

The number of HMD's outstanding shares as of the end of 2019 is 39,942,149 of which 42.40% is held by the largest shareholder, KSOE. Based on the fundamental rule of 'paying out a stable dividend,' our dividend policy each year is decided after comprehensively considering the soundness of our financial structure and ways to maximize shareholder.

(as of December 2020)

Category	Name	No. of Shares	Proportion <sup>1</sup>
Shareholders with over 5%	KSOE	16,936,492	42.46%
	NPS	4,413,040	11.06%
Minority shareholders		15,152,635	37.99%

<sup>1</sup> Base for proportion calculations by shareholder: Number of shares that can exercise voting rights (39,884,298 shares) Excluding treasury stock (57,851 shares), NPS (4,413,040 shares) and employee stock ownership association

### HSHI

#### BoD Composition

(as of March 2021)

Category	Name	Position	Gender	Current Occupation	Committee (where listed as a member)	Initial Appointment Date	Specialized in
Internal Director	Kim Hyung-Kwan	Chair	Male	CEO of HSHI	Outside Director Recommendation Committee	Jul. 2020	Business management
	Jeong do-sam	Director	Male	Advisor to Samil Accounting Firm		Mar. 2020	Finance
Outside Director	Kim Hyoung-joo	Director	Male	Professor of Computer Engineering at Seoul National University, Outside director of Doosan	Audit Committee, Internal Trade Committee, Outside Director Recommendation Committee	Mar. 2018	Computer engineering
	Ko Chang-hyeon	Director	Male	Attorney at Kim & Chang Law Firm, Outside Director, Doosan Fuel Cell		Mar. 2021	Corporate Legal
Other Non-Managing Director	Kim Sung-joon	Director	Male	Head of KSOE Future Technology Research Center, CEO of Hyundai Mirae Partners		Mar. 2017	Marine technology
	Song In-jun	Director	Male	CEO of IMM Private Equity		Sept. 2017	Finance

#### Remuneration of BoD Members

The ceiling of the remuneration of BoD members is decided by the resolution of the Annual General Shareholders' meeting to ensure transparency and justification. The 2019 annual remuneration ceiling for directors approved by the General Shareholders' Meeting was KRW 2.5 billion, of which KRW 790 million was actually paid out.

#### Shareholder Status and Dividend Policy

The number of HSHI's outstanding shares as of the end of 2020 is 30,671,526 of which 80.54% is held by the largest shareholder, KSOE. Considering business conditions, dividends can be paid out in forms of cash, stock or other property on a quarterly basis. Based on the fundamental rule of 'paying out a stable dividend,' our dividend policy each year is decided after comprehensively considering the soundness of our financial structure and ways to maximize shareholder interests, etc.

(as of December 2020)

Name	Shareholders	No. of Shares	Proportion <sup>1</sup>
Shareholders with over 5%	KSOE	24,701,637	80.65%
	Triton 1	4,647,201	15.17%
Minority shareholders		944,230	3.08%

<sup>1</sup> Base for the proportion calculation by shareholder: Number of shares that can exercise voting rights (30,627,771 shares) Excluding treasury stock (43,755 shares) and employee stock ownership association (334,703 shares)



# Pursuing Safe and Environmentally Friendly Business Practices

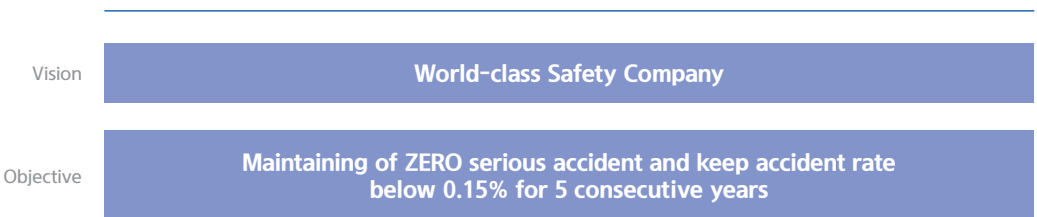
KSOE strives to reduce the risk of workplace accidents, improve worker safety and health, and further minimize the environmental impact of its business operations

- 89 Safety Management
- 92 Health Management
- 96 Environmental Management

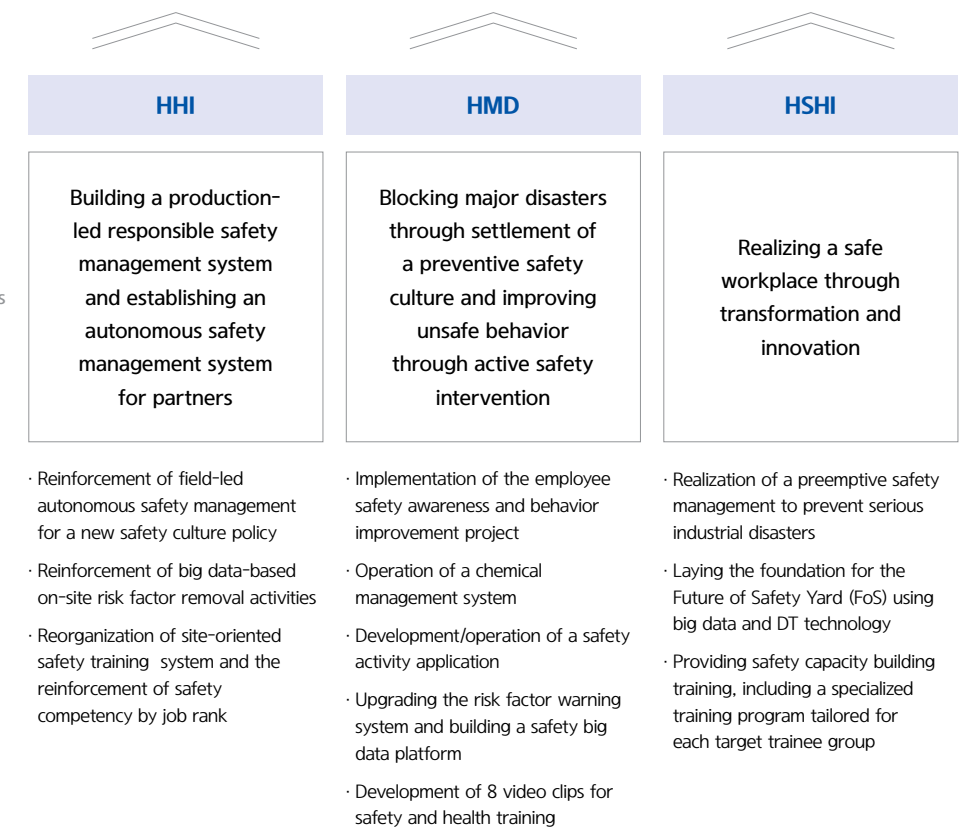
## Safety Management

In order to prevent serious and accidental disasters and create a safe workplace where anyone can work with their mind at ease, we continue to spread a safety culture under the management policy of "Safety First." In addition, under the health, safety, and environment (HSE) objectives/policies, we are moving fast to be a "World-class Safety Business." In order to achieve the goal, we are operating a safety management system based on the global HSE standards such as ISO 45001. We also have prepared a comprehensive safety management improvement plan and held the "New Safety Culture Declaration Ceremony", showing our strong commitment to building an autonomous safety management system as well as a new safety culture.

### Management System



2021 Initiatives



## Safety Management Governance

	HHI	HMD	HSHI
Management System	Accredited to Occupational Health and Safety Management System (ISO 45001)	Accredited to Occupational Health and Safety Management System (ISO 45001)	Accredited to Occupational Health and Safety Management System (ISO 45001)
Decision-Making Body (meeting frequency)	Industrial Health & Safety Committee (1-10 representatives each from the management and the labor union) (quarterly)	Industrial Health & Safety Committee (8 representatives each from the management and the labor union) (quarterly)	Industrial Health & Safety Committee (6 representatives each from the management and the labor union) (quarterly)
Dedicated Organization and Roles	<ul style="list-style-type: none"> <li>· Safety Management Office (directly controlled by CEO) : Company-wide HSE system/policy/ program planning</li> <li>· Safety department of each business unit (directly controlled by business representative) : On-site safety organization operation, HSE site management for shipowners</li> <li>· External regular audit on the safety management system (DNV.GL)</li> </ul>	<ul style="list-style-type: none"> <li>· Safety Team (directly controlled by CEO): technical support related to company-wide HSE system for the business owner , guidance and advice/ supervision for supervisors</li> <li>· External regular audit on the safety management system (DNV.GL)</li> </ul>	<ul style="list-style-type: none"> <li>· Safety Team (directly controlled by manufacturing headquarters): company-wide HSE system/policy/program planning</li> <li>· On-site safety organization operation, HSE site management for shipowners</li> <li>· External regular audit on the safety management system (DNV.GL)</li> </ul>
Key Performance Indicators	Accident rate, death rate per 10,000 workers, accident management goal completion rate	No. of major accidents & accident rate	No. of major accidents & accident rate

## Activities and Achievements by Entity

### HHI

#### Establishment and Implementation of Comprehensive Safety Management Improvement Measures

HHI established and implemented a comprehensive safety management improvement measure in order to i) prevent recurrence of the four serious disasters that occurred this year, ii) settle an autonomous safety culture in the field, and iii) raise the safety awareness of workers by improving the fundamental structure of safety management. The measure includes a) restructuring of the safety organization (such as separating the shipbuilding unit's production department and production division to the Safety Production Department and Safety Production Division, respectively), b) enhancing safety leadership by forming a safety risk management (SRM) team, which is to prevent the on-site safety team from being dependent on or biased toward the production division, c) granting all workers the right to demand safe work before increasing safety investment, and d) operating a SOP Innovation TF. Through the established comprehensive safety management improvement measure, the HHI's "Safety-First Management" can be shared again with employees. Continuous monitoring is carried out to ensure that the established safety measure is effectively operated in the field.

#### Specialized Safety Training System for Each Rank

Systematic safety training is provided for all personnel entering the company, including office technicians, production technicians, business partners (vendors), and visitors. In-house training is available in various forms depending on the type of training such as legally-compulsory course, qualification course, OJT, etc.

### HMD

#### Improvement of Unsafe Field Factors

Cranes, enclosed spaces, and gas hoses were added as inspection items to the bi-monthly intensive safety inspection. The scope of an accident-prone area subject to inspection was expanded to include warehouses, maintenance rooms, machine rooms and substations in an effort to improve the field unsafe factors. In addition, an inspection for the factories and PE plants with high rates of serious accidents was further strengthened.

#### Safety Management for New Ship Types

For 25,000-ton petrochemical product carriers, we have strengthened the control of exposure to the Interline 9001 hazards/risks by complying with the installation standards for ventilation and face-wash facilities and wearing a full-face respirator, protective clothing, and protective gloves. In addition, we also prevent explosions of LNG fuel tanks (P/S) by controlling access to the surrounding areas and prohibiting hot work. In the case of 300,000 cubic-meter LNG carriers, we are fully committed to preventing fires and explosions by thoroughly observing the essential safety measures (fire blanket/fire guard/arrangement, etc.) and conducting the regular inspections of fire extinguishing equipment when working at hot temperatures.

#### Safety and Health Guidance/Support for Partner Companies

Training on health and safety and their management systems/regulations is provided once a quarter for all business partners (vendors). We also periodically check the vendors' status, including their implementation of the hazardous/risk assessments, health and work environment, etc.

### HSHI

#### Crisis Response Team

We are operating a dedicated crisis response team to better prevent and respond to serious accident factors in the early stages. We conduct intensive inspections on the items that may lead to serious disasters such as falls, fires and explosions, and endeavor to eliminate safety blind spots in conjunction with on-site safety personnel and production supervisors.

#### Holding the Safety Improvement Meetings and Diagnosing the Safety Culture Level

We hold a safety improvement meeting to remove risk factors from the ship-design stage. We are currently discovering risk factors due to a change in the work environment (e.g. such as changes in the process/construction methods and the warehousing of new materials), and preparing the safe SOPs based on the previews by the design, production, and support departments. In Sept. 2020, we drew up the safety awareness improvement tasks on the basis of the safety culture level diagnosis for each rank. We quantitatively evaluated the safety level of all employees by rank in 12 fields and 39 items, which is required by the safety management system, and set a goal to improve the level of safety culture by eliminating the negative factors.

#### Promotion of the Safety Reward System

We have various reward systems prepared to encourage on-site safety activities. By rewarding teams for achieving zero accidents, we raise the company-wide awareness of safety. The employees who have contributed to disaster prevention are rewarded as Safety Contributors. To encourage active participation of the employees and give a sense of early achievement, a prompt reward system is increasingly applied to reward those who conducted safety activities.

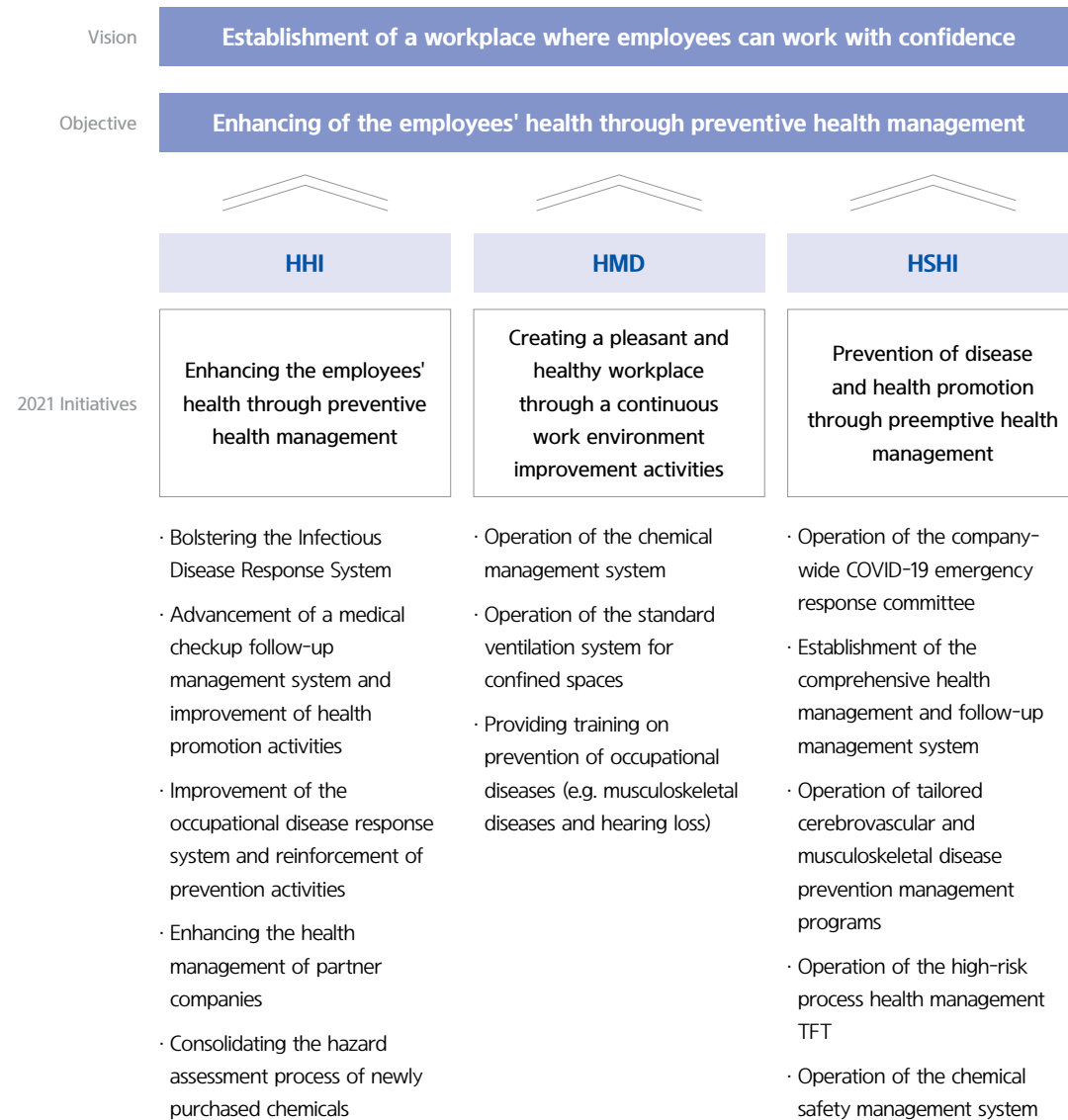
#### Customized Safety Training

We provide customized safety training to help strengthen the workers' capabilities and safety awareness. Training courses tailored to the workers with different competency/background, such as foreign workers or heavy equipment operators, are prepared. In particular, we ensure that only the workers who have completed safety training are assigned for work with a high risk of disaster (e.g. crane operation, longitudinal stiffener painting, etc.).

# Health Management

A general situation office was formed due to the inflow/spread of the COVID-19 in Korea, and has been operated continuously to prevent the inflow or spread of the virus into the company. To build a healthy workplace centered on prevention, we support employees' medical checkups and medical expenses, and provide in-house medical services by running an internal health promotion center, oriental medicine clinic, and psychological counseling room. We are strengthening a program designed to prevent/manage musculoskeletal and cardiovascular diseases, and carrying out various health promotion activities. In addition, we strive to improve the work environment by selecting appropriate protective equipment and systematically managing chemical substances.

## Management System



# Major Activities & Achievements by Entity

## HHI

### Conducting COVID-19 Preventive Activities

Thermal imaging cameras are installed at major entrances to quickly identify those who are symptomatic of the coronavirus, and video conferences are being increasingly held throughout the company to minimize contact. Masks have been distributed as well to all employees for 12 times since Feb. 2020; so far, a total of 1.3 million masks have been distributed. We also operate in-house screening clinics in case of emergency in consultation with the relevant medical organizations. A range of activities to contain spread of the virus have been made including preparation of internal step-by-step distancing guidelines, strengthening in-house cafeteria quarantine, introducing special quarantine and sanitation control, allowing working from home and early/delayed commuting, separating office space, managing entrants from abroad, providing self-isolation facilities, establishing an in-house movement record management system, and conducting a COVID-19 test prior to a gas trial operation.



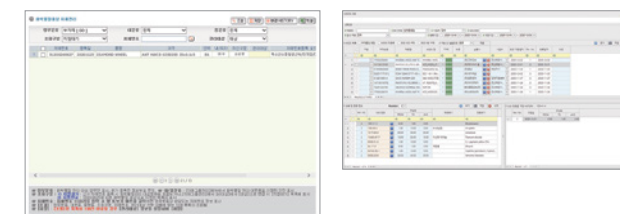
### Influenza Vaccination

We have annually vaccinated all our members against the flu as part of a health improvement effort during the winter season. Starting from 2007, the flu vaccination service is provided free of charge to all employees. In 2020, out of concerns about the Twindemic (flu+COVID-19), we urged our members to be vaccinated; as a result, a total of 9,562, up by 1.6 times, employees were vaccinated. (Inoculation rate: 70%)



### Chemical Control System in Operation

We verify whether a material is a chemical substance or not through the chemical substance management system. Once classified as a chemical substance, we request the Material Safety Data and Safety (MSDS) of the substance from the supplier and then carry out a hazard assessment. In the evaluation, the harmfulness and relevant legal regulations are comprehensively considered. Only approved products can be purchased/warehoused. The MSDSs obtained from the suppliers are saved in the MSDS database under the integrated HSE management system; the operators can easily browse and retrieve information on the chemical substances.





## Major Activities & Achievements by Entity

### HHI

#### Reinforcement of Ventilation Facilities in the Workplace

We have finished the safety inspections on local exhaust systems and the facility inspections for those specified in the hazardous risk prevention plan. Ventilation facilities (general ventilation facilities/local exhaust facilities/portable local exhaust facilities) have been upgraded through investment.



#### Managing/Improving Personal Protective Equipment (PPE)

Health impairments and safety accidents are prevented in advance through the continuous improvement of personal safety equipment used in the workplace, and appropriate protective equipment suitable for on-site workers has been newly registered so that workers can use them when necessary.



### HMD

#### Management of Occupational Illnesses

For the management of patients with musculoskeletal disorders, HMD surveyed 14 production teams for 3 months on a regular basis in 2020 to find out the potential harmful factors: 158 burdensome operations were identified and their harmful factors were improved. In the additional health examination and follow-up management, we conducted a hearing protection adhesion test for 85 patients with a high probability of being diagnosed with occupational diseases (D1), among those with suspected occupational diseases (C1). We selected appropriate protective equipment for these people and guided on how to wear it as part of an effort to prevent/manage hearing loss.

#### Healthcare and Medical Expenses Support System

General/special check-ups were conducted for 5,825 employees, and a necessary support was provided: a total of 931 interviewed with doctors for follow-up health management. In addition, we support medical expenses for our employees and their families, and provide health maintenance expenses and convalescent leave to those diagnosed with occupational diseases.

#### Operation of Employee Health Facilities

We run a health promotion center and oriental medicine medical center where any employee can receive physical therapy and oriental medicine treatment. We also have a Mind Garden where a counseling service is provided for our employees.

### HSHI

#### Operation of the Company-wide Emergency Response Committee against COVID-19

If there is a confirmed case of COVID-19, taking a prompt action to contain it in the earlier stage is vital. This is because the highly-infectious disease may quickly sweep the entire community, causing enormous tangible and intangible social loss. Thus, the company-wide emergency response committee is regularly held once a week to check the response status of COVID-19 and push forward with comprehensive measures. We also established an information sharing system to better collaborate with the quarantine authorities such as local public health centers and thereby to contain COVID-19 even if a confirmed case is reported in the community.

#### COVID-19 Preemptive Diagnosis Test

In order to monitor asymptomatic COVID-19 patients and effectively prevent herd infection, we carried out a preemptive diagnosis test in collaboration with the Yeongam-gun Public Health Center. The first round of the COVID-19 diagnosis test was conducted on foreign workers in the workplace: all 1,204 people tested negative. In the 2nd round for all 12,369 people (testing rate: 99%), all tested negative. In addition, for Muslims, we have conducted the preemptive diagnosis test frequently to prevent COVID-19.

#### Comprehensive Health Care

General check-ups and dyslipidemia tests are conducted every year to check the health of employees, and special examinations are performed for all employees who deal with harmful factors subject to special health check-ups. In particular, for employees over the age of 40, we support comprehensive check-ups every two years to ensure early diagnosis: the scope of screening items has been expanded to include low-dose chest CT, carotid ultrasound, and echocardiography. We are doing our best to prevent occupational diseases while caring for personal health by working with industrial physicians (for diagnosis, follow-up, and observation) and the nurses assigned for cerebrovascular disease prevention.

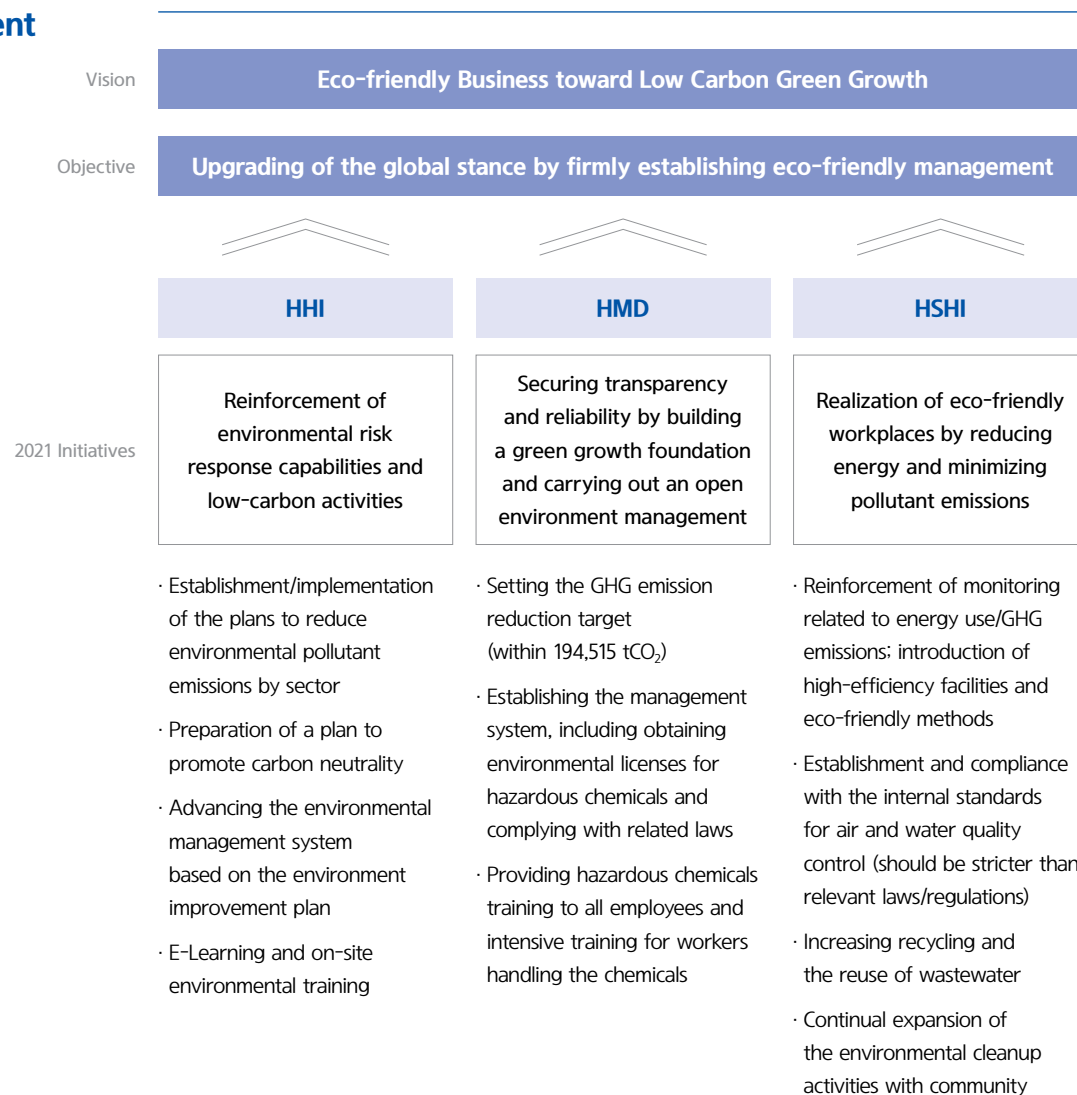
#### Preemptive Musculoskeletal Disease Prevention Program

To prevent musculoskeletal disorders, we have a rehabilitation center and an oriental medicine clinic internally, and also operate an external health promotion center. Various preemptive health management programs are in place. In particular, we encourage health practices by providing tailored special lectures for elderly workers, and exercise classes for symptomatic workers, and team stretching classes. We have created a preemptive program designed to prevent musculoskeletal disorders through active exercises (e.g. habitual self-exercise, improvement of muscle strength and flexibility) rather than passive treatments (e.g. Internal/external self-exercise programs, swimming exercise programs, Chuna medical therapy, etc.). Among the applicants who have completed self-exercise programs, we subsidize expenses to use (contracted) external fitness centers. All this is to help our employees make exercise a habit and maintain a healthy lifestyle.

# Environmental Management

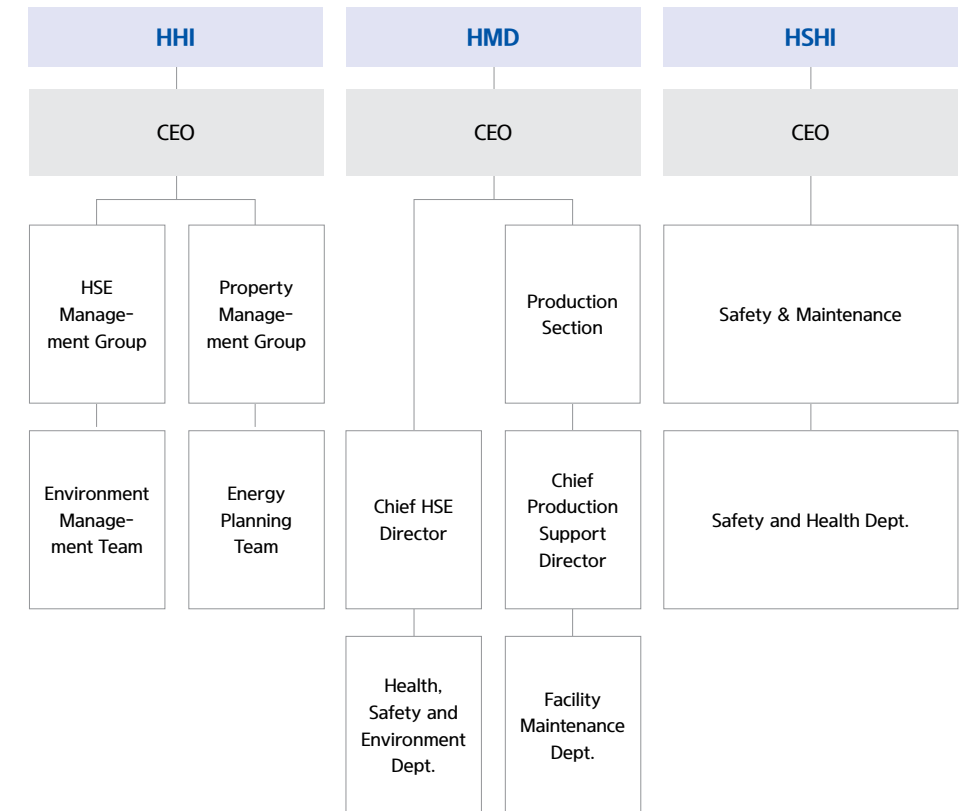
The world is increasingly paying attention to environmental management, including ESG management and carbon neutrality, as it faces ever-stricter environmental regulations. Accordingly, KSOE and its subsidiaries have established an environmental management system in accordance with the ISO 14001 (Environmental Management System). To ensure the transparency and objectivity of the environmental management system, the entire business site has been ISO14001 certified by an external certification body. To realize an eco-friendly workplace, we are reinforcing internal environmental pollution prevention activities and striving to minimize the environmental impact by performing environmental impact assessments inside/outside the workplace. In addition, we regularly conduct environmental compliance assessments and prepare measures in advance to better respond to the stringent environmental laws and regulations.

## Management System

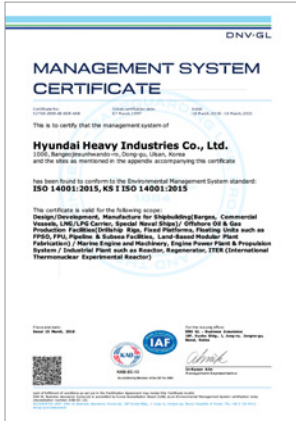


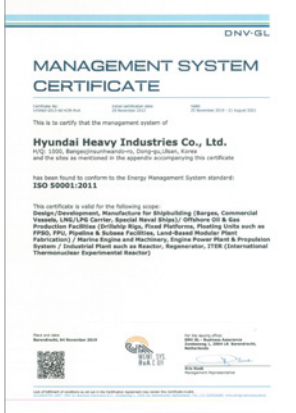



# Environmental Management Governance

KSOE and its shipbuilding subsidiaries newly formed an organization directly under the CEO for environmental management-related tasks, such as climate change, energy and GHG management, and activities to minimize the environmental impact at business sites: in the case of HHI, the environmental management team under the HSE management division, which is directly controlled by the CEO, is responsible; in HMD and HSHI, the safety and health department under Safety Director is responsible.



## Acquisition of International Certifications

HHI	HMD	HSHI
Environmental Management System(ISO14001) Energy Management System(ISO50001)	Environmental Management System(ISO14001)	Environmental Management System(ISO14001) Energy Management System(ISO50001)
		
		

## Climate Change Risks and Opportunities

Climate change is one of the most pressing environmental issues facing the industry as well as the general public today. The world is reinforcing its efforts to reduce greenhouse gases (GHG) to better respond to the threat of global warming. Industrialized countries are preparing stricter regulations to control GHG missions by introducing a GHG emission trading system, carbon tax, carbon labeling, etc. As of April 2010, the Framework Act on Low Carbon, Green Growth came into effect in Korea, by which all the applicable business sites are required to report their GHG emissions. A range of activities to reduce GHGs are under way.

### HHI

As HHI runs a business to which the emissions trading system (ETS) is applicable, we are currently controlling the GHG emissions generated from our production activities. If the emissions exceed the allowances, it is necessary to borrow the emission allowances for another implementation year within the planning period or purchase the shortage according to the emissions trading system. The HHI's efforts to reduce GHG emissions include use of renewable energy, installation of new inverters and high-efficiency LEDs for better energy efficiency, adjustment of supply voltage, and the improvement of the marine trial operation processes. By performing these various GHG reduction activities, the surplus emission permits secured during the second planning period were carried forward and some were sold to generate profits.

### HMD

HMD manages the GHGs generated out of its production activities as it is also subject to the ETS. To mitigate the risk of climate change, HMD mobilizes multiple ways to shrink its GHG emissions, including continuous monitoring. We also constantly check the prices in the domestic carbon credit trading market to better manage the corresponding risks while maximizing the opportunity factors. Raising the energy efficiency (going low-carbon) is inevitable for HMD as well in preparation for the planned carbon emission regulations by the International Maritime Organization (IMO). Currently, HMD produces the ships with dual fuel (DF) engines, and plan to develop next-generation eco-friendly smart ships (e.g. smart electric propulsion vessels).

### HSHI

Carbon reduction is no longer an option but a matter of survival. With this in mind, HSHI and its members endeavor to save energy and resources, reduce GHG emissions through the environmental impact assessment in the entire process, from design, purchase, production, and disposal. In addition to its recent installation of low-carbon, high-efficiency facilities in the production line, each department of HSHI has autonomously established their goals to implement carbon-reduction activities in our daily work. We are seeing a paradigm shift in the shipbuilding industry towards eco-friendly and smart ships in line with the stricter environmental regulations. As we recognize the climate change risk as an opportunity factor, we will keep focusing on building air pollution reduction vessels, dual fuel propulsion vessels, and LNG carriers that can contribute to carbon neutrality. By doing so, we will strive to be the leader in the global eco-friendly ship market.

## Energy and GHG Management

### HHI

#### GHG Management System

HHI established the HHI Greenhouse Gas Management System (HGMS), which calculates GHG emissions based on the IPCC (Intergovernmental Panel on Climate Change) global standard and Korea's GHG calculation guideline. Through HGMS, we monitor the energy usage and GHG emissions of each site and each emission facility. The emissions are estimated based on the accumulated data to effectively respond to the emissions trading system. In addition, the accuracy, completeness, and transparency of the GHG emissions have been secured through third-party verification after an internal audit. In 2020, HHI achieved a significant reduction of more than 5% by managing GHGs: the original goal was to reduce at least 5% compared to the GHG allowances (KAU). In addition, some of the surplus allowances were sold to generate revenue. In 2021, we plan to come up with various additional reduction measures with the goal of reducing GHG emissions by 15% from the 2015 GHG emissions level.

#### Energy management system

Based on the global standard of ISO 50001, HHI established an energy management system to monitor energy consumption and reflected the reduction amount into performance indicators of the department in charge of energy management. For 2021, the company has set targets to reduce its power by 4%, water/light/heat and city gas consumption by 3% each against the business plan. In order to promote efficient energy management, the Factory Energy Management System (FEMS) based on big data is utilized to optimize energy consumption for each factory/building. We also participate in the pilot project of the voluntary energy efficiency target system organized by the Korea Energy Management Corporation to supplement the energy source units, set the energy efficiency improvement goals, and actively perform energy-saving activities.

#### Enhancing Energy Efficiency

In order to save energy, we have made a continuous effort: for instance, we built high-voltage power equipment for the test operation, enhanced energy efficiency of air compression equipment, and constructed a city gas monitoring system. Currently, we are also taking the lead in the energy saving campaign with little things such as changing the bathroom lighting switches or using water saving machines. The company actually replaced all the light bulbs to LED lightings in all business sites. In 2020 alone, we saved about KRW 3.24 billion in energy costs. We are actively trying to improve the energy efficiency of the production facilities as well by using high-efficiency equipment and upgrading the crane control.

#### Green Factory

HHI is carrying out green factory activities that contribute to GHG emission reduction by recycling waste heat to produce steam and renewable energy such as wind/solar power. The company generated 72,597 tons of steam from the incineration facilities with a capacity of 400 tons and 1,500MWh of electricity from the wind turbines with a capacity of 1.65MW. In addition, we have set a future RE100 roadmap as a preemptive measure to achieve carbon neutrality. Under the RE100 roadmap, we will continue to increase the use of renewable energy in the plants.

### HMD

#### GHG Management System

HMD developed a GHG inventory based on the IPCC Guidelines in 2010. The company currently monitors GHG emissions from all facilities that it operates or controls such as production facilities, training centers and dormitories. The emissions are subject to annual third-party verification to ensure they comply with the IPCC Guidelines and Korea's GHG calculation guideline. The information on GHG emissions is reported to and reviewed by the meetings convened by CEO as well. In addition, the facilities consuming a large amount of energy (equivalent to emitting a large amount of GHG) are monitored and controlled by the control system in place. The facility capacity is being optimized to further enhance energy efficiency.

#### Energy management system

HMD has established a control system for energy-intensive equipment to enable remote/automatic control of energy consumption and operated the ESS for peak power management. In particular, in 2020, we are upgrading the energy management system by supplementing the energy consumption control system.

#### Enhancing Energy Efficiency

By upgrading the painting facility monitoring system and the compressed air dualization system that were installed in 2016, we were able to improve energy efficiency even further. The state of energy consumption is being monitored through an optimized control system.

### HSHI

#### GHG Management System

In accordance with international standards and domestic laws, the GHG emissions are calculated and managed in accordance with the TACCC principles: Transparency, Accuracy, Completeness, Comparability, and Consistency. To maintain reliability of the calculated emissions, they are verified again by a third-party institution. In 2020, the amount of GHG emitted from HSHI was 250,000 tons, and the main sources emitting GHG were power-use facilities and ship test operations. By introducing the company-wide energy use management responsibility system, advancing the test operation methods, and implementing LNGC & LNG DF offshore and gas test operations in parallel, we were able to reduce about 3,400 tons of GHG emissions.

#### Energy Management System

Since 2014 when the company was certified by ISO 50001 (Energy Management System), we have implemented the energy use management responsibility system to establish the management standards for the efficient use of energy and to encourage the production department (the main energy user) to join the energy conservation campaign. An incentive (reward) system was newly introduced to motivate the employees' active participation in the campaign and reward excellent management teams and individuals. In 2021, we plan to identify cases where energy is wasted in the yard, implement improvements through TFT activities, and efficiently manage energy using a remote control system of large-capacity facilities linked to ICT.

#### Enhancing Energy Efficiency

The project to build a remote control system for large-capacity facilities such as painting facilities, heating and cooling facilities for LNG ships, and boilers has been under progress from 2020 to 2021. We plan to increase the energy use efficiency by implementing a central remote management. In addition, we will continue to replace old energy-consuming parts with better-efficiency ones (e.g. LED lights, motors, etc.).



## Activities to minimize the environmental impact of the workplace

We spare no effort to minimize environmental impact by setting the emissions targets sequentially for each environmental item such as air pollutants and greenhouse gases. Through a range of management systems, the emission reduction performance is tightly managed so that the environmental impact can be minimized. We plan to come up with a measure for actual reduction of GHG emissions in consideration of future industry trends.

Category	HHI	HMD	HSHI
Air Pollutant Control	<p><b>Major Activities</b></p> <ul style="list-style-type: none"> <li>Control using the in-house integrated HSE management system according to self-management standards</li> <li>Self-measurement in accordance with the legal cycle to confirm compliance with air pollutant emission standards</li> <li>Use of solvent-free paint and investment in prevention facilities to reduce volatile organic compound emissions</li> <li>Established/implemented a reduction plan after signing an MOU with Ulsan City Hall and Nakdong River Basin Environment Administration on "voluntary agreement to reduce fine dust" in the 2018 Performance and Future Implementation Plan</li> </ul> <p><b>Achievements &amp; Future Initiatives</b></p> <ul style="list-style-type: none"> <li>2020: Set a 13.5% reduction from the 2014 level in fine dust emissions; the fine dust reduced more than the set goal.</li> <li>2021: Set a 27% reduction from the 2014 level in fine dust emissions</li> </ul>	<p><b>Major Activities</b></p> <ul style="list-style-type: none"> <li>Replacing 8 old boilers with low nitrogen oxide (NOx) boilers to reduce emissions of Nox</li> <li>Minimizing air pollutant emissions by actively using solvent-free paints (with less than 5% VOC) to reduce emissions of VOCs</li> </ul> <p><b>Achievements &amp; Future Initiatives</b></p> <ul style="list-style-type: none"> <li>2020: Reduced 23% in nitrogen oxide emissions and 10% in VOCs emissions compared to 2019</li> <li>2021: Aims to manage nitrogen oxide emissions to be within 10.9 tons/year; to increase the ratio of solvent-free points (with less than 5% VOC) to 10% to reduce VOCs emissions</li> </ul>	<p><b>Major Activities</b></p> <ul style="list-style-type: none"> <li>Apply and manage the air pollutant emission limit of 30% or less compared to the domestic legal standards</li> <li>Install and operate Regenerative Thermal Oxidizer (RTO) and Catalytic Oxidizer (CO) to reduce VOCs, and encouraging the gradual expansion of solvent-free paints</li> </ul> <p><b>Achievements &amp; Future Initiatives</b></p> <ul style="list-style-type: none"> <li>2020: Reduced nitrogen oxides by 52% from the allowance, and achieved 2% of the solvent-free paint usage</li> <li>2021: Aims to reduce nitrogen oxides by 30% from the allowance, and achieve 10% of the solvent-free paint usage</li> </ul>
Wastewater and Water Pollutant Control	<p><b>Major Activities</b></p> <ul style="list-style-type: none"> <li>Control using the in-house integrated HSE management system according to the self-management standards</li> <li>Calculation of the amount of specific water pollutants, controlling their sources, and reducing the amount of pollutants generated through regular water quality analysis for each wastewater discharge facility</li> </ul> <p><b>Achievements &amp; Future Initiatives</b></p> <ul style="list-style-type: none"> <li>2020: Established a proper management plan for total organic carbon (TOC) and tin, and achieve the goal of "not exceeding the emission limit of pollutants"</li> <li>2021: Plans to analyze/inspect all items for each emission facility, manage pollutant emission concentrations within 70% of the allowable standard, and maintain zero cases of exceeding the standard.</li> </ul>	<p><b>Major Activities</b></p> <ul style="list-style-type: none"> <li>Discharge after physical and chemical treatment at its own wastewater treatment plant (Ulsan City End Treatment Plant)</li> <li>Periodic analysis and the management of effluent water quality via a contracted specialized agency</li> <li>Investment in facilities (e.g. replacement of old facilities) to improve the wastewater treatment efficiency</li> </ul> <p><b>Achievements &amp; Future Initiatives</b></p> <ul style="list-style-type: none"> <li>2020: Set the water consumption amount to be KRW 1.36 billion and conducted water saving activities: 491,455 tons of water was recycled</li> <li>2021: Aims to save costs by installing the water-saving devices at off-site facilities</li> </ul>	<p><b>Major Activities</b></p> <ul style="list-style-type: none"> <li>Reinforce the monitoring of discharged water (50% or less compared to the legal standards) by installing an automatic water quality measurement network</li> <li>Reuse more than 180,000 tons of the treated gray water approved by the local government every year (water for yard cleaning, ballast water, etc.)</li> </ul> <p><b>Achievements &amp; Future Initiatives</b></p> <ul style="list-style-type: none"> <li>2020: Saved KRW 190 million by reusing 363,774 tons of gray water, rather than using industrial water</li> <li>2021: Aims to expand the reuse rate of gray water (in support of local community) (for road cleaning, landscaping, construction, etc.)</li> </ul>
Waste Management	<p><b>Major Activities</b></p> <ul style="list-style-type: none"> <li>Establishment of 3R (Reduction, Recycle, and Recovery) waste treatment process</li> <li>Waste handover/takeover management through the Allbaro system (a legal waste treatment system operated by Ministry of Environment)</li> </ul> <p><b>Achievements &amp; Future Initiatives</b></p> <ul style="list-style-type: none"> <li>2020: The goals were a circular utilization rate of 26% or higher and final disposal rate less than 25%; achieved a circular utilization rate of 50% and a final disposal rate of 11%.</li> <li>2021: Aims to achieve a circular utilization rate of 30% or higher and a final disposal rate of less than 20%</li> </ul>	<p><b>Major Activities</b></p> <ul style="list-style-type: none"> <li>Categorizing general/specified wastes according to the Wastes Control Act and treating wastes via a contracted disposal company</li> <li>Real-time control of waste transfer through the Allbaro system</li> </ul> <p><b>Achievements &amp; Future Initiatives</b></p> <ul style="list-style-type: none"> <li>2020: The goals were the circular utilization rate of 17.28% and the final disposal of 21.99%; achieved results were 37.34% and 14.58%, respectively</li> <li>2021: Objective Aims to achieve the circular utilization rate of 18.5% or higher and final disposal of less than 21.99%</li> </ul>	<p><b>Major Activities</b></p> <ul style="list-style-type: none"> <li>Establish a waste management system that can check the amount of waste by type and location, and reduce waste based on the feedback from relevant departments depending on the status of separate collection</li> <li>Operate a material display stand and expanded recycling of selected materials</li> </ul> <p><b>Achievements &amp; Future Initiatives</b></p> <ul style="list-style-type: none"> <li>2020: Aimed to achieve a circular utilization rate of 30% or higher and a final disposal of less than 30%. Achieved a circular utilization rate of 72% and a final disposal of 12%.</li> <li>2021: Aims to achieve a circular utilization rate of 48% or higher and a final disposal of less than 22%</li> </ul>

## Activities to minimize the environmental impact of the workplace

Category	HHI	HMD	HSHI
Chemical Substance Management	<p><b>Major Activities</b></p> <ul style="list-style-type: none"> <li>Identifying hazards and risks through the in-house procurement system (HIPRO) before warehousing, obtaining licenses before handling hazardous substances, or using alternative substances</li> <li>Establishment of legal treatment facilities for storing and using chemicals</li> <li>Hazardous chemical manager inspects treatment facilities at least once a week</li> </ul> <p><b>Achievements &amp; Future Initiatives</b></p> <ul style="list-style-type: none"> <li>2020: Achieved 100% pass rate in the regular inspections of hazardous chemical treatment facilities; replaced some chemical substances with low-volatile eco-friendly substances</li> <li>2021: Aims to increase the number of self-inspections on hazardous chemical treatment facilities by 5%; to improve raw materials and processes to reduce emissions, and to continuously invest in pollution-prevention facilities</li> </ul>	<p><b>Major Activities</b></p> <ul style="list-style-type: none"> <li>Enhancing transparency and safety through annual regular surveys on the chemicals handled</li> <li>Mandatory placement of the MSDS at sites and training for all employees</li> </ul> <p><b>Achievements &amp; Future Initiatives</b></p> <ul style="list-style-type: none"> <li>2020: Acquired the relevant licenses and permits for the first handling of hazardous chemicals; 2-hour hazardous chemical safety training was provided for all in-house employees annually.</li> <li>2021: Aims to introduce alternative products that do not contain newly specified hazardous chemicals; to revise related procedures by reflecting amendments to the related laws in order to intensify chemical control.</li> </ul>	<p><b>Major Activities</b></p> <ul style="list-style-type: none"> <li>Establish the e-system for the purchase, use, and discharge of chemicals, and excavate alternatives for hazardous chemicals and purchase eco-friendly products</li> <li>conduct periodic inspections of related facilities to prevent environmental and safety accidents caused by chemical substances</li> </ul> <p><b>Achievements &amp; Future Initiatives</b></p> <ul style="list-style-type: none"> <li>2020: Reduced 13% in chemical emissions compared to 2019</li> <li>2021: Aims to reduce 10% in chemical emissions compared to 2020</li> </ul>
On-Site due Diligence/Regular Inspection	<p><b>Major Activities &amp; Achievements</b></p> <ul style="list-style-type: none"> <li>Periodic on-site inspection for the proper operation of related facilities in each environmental field</li> <li>Daily worklog recording/checkup: in case of an abnormality, immediate action is taken through consultation with the relevant departments</li> <li>Periodic inspection of hazardous chemicals handling facilities (once a year)</li> </ul>	<p><b>Major Activities &amp; Achievements</b></p> <ul style="list-style-type: none"> <li>Daily worklog recording/checkup: in case of abnormality, immediate action is taken through consultation with the relevant departments</li> <li>Improvement of air pollutant emission facility capabilities by establishing an integrated monitoring system for painting and blasting factories and by identifying a real-time operation status</li> </ul>	<p><b>Major Activities &amp; Achievements</b></p> <ul style="list-style-type: none"> <li>Operate the group chat room of TeamUP (HSHI's messenger) as a reporting system which is report and share them to prevent environmental pollution incidents</li> <li>Remedy trouble and improve troubleshooting skills through simulations for each scenario of environmental emergencies</li> </ul>
Environmental Investment Activities and Achievements	<p><b>Major Activities &amp; Achievements</b></p> <ul style="list-style-type: none"> <li>Replacement of Regenerative Thermal Oxidizer (RTO)</li> <li>Replacement of old boilers and installation of NOx burners</li> <li>Facility improvement for application of solvent-free paints (fundamentally-improved paint application to reduce VOC emissions)</li> </ul>	<p><b>Major Activities &amp; Achievements</b></p> <ul style="list-style-type: none"> <li>Planned investment in facilities to reduce environmental impacts such as installation of VOCs reduction devices in main and outside factories, replacement of dust collector bag filters, and replacement of old boilers (18 cases in total, about KRW 3.8 billion was allowed in budget)</li> </ul>	<p><b>Major Activities &amp; Achievements</b></p> <ul style="list-style-type: none"> <li>The amount invested in the environment in 2020 was approximately KRW 16 billion, and an average annual investment between 2019 and 2020 was KRW 17 billion, an increase of KRW 10 billion from the year 2018.</li> <li>Minimizing environmental pollution by installing new environmental pollution prevention facilities such as VOC reduction equipment, bag filters, activated carbon, and wastewater treatment facilities and using eco-friendly paints to preemptively respond to stricter regulations</li> </ul>
Environmental management training & environmental accident response training	<p><b>Major Activities &amp; Achievements</b></p> <ul style="list-style-type: none"> <li>Periodic training on chemical substances for workers</li> <li>Legally appointed personnel such as hazardous chemical handlers/managers and environmental engineers have completed legal training</li> <li>Establishment of in-house standards and manuals for systematic response to environmental accidents, and regular training for marine pollution accidents</li> <li>Organizing "HHI Dolphin," a national response team that takes voluntary control measures in the event of a marine pollution accident: conducting response training to enable the maritime police to take a prompt first response to a marine pollution accident</li> </ul>	<p><b>Major Activities &amp; Achievements</b></p> <ul style="list-style-type: none"> <li>Completion of legal training for hazardous chemical handlers/managers and environmental engineers</li> <li>Review and revision of the relevant procedures for prevention of marine pollution (marine pollution control procedures)</li> <li>Preparation and response training to better respond to marine pollution accidents (once a year)</li> <li>Training for the related workers to prevent marine pollution</li> <li>Training on chemical substances (with MSDS, etc.) for workers</li> </ul>	<p><b>Major Activities &amp; Achievements</b></p> <ul style="list-style-type: none"> <li>Conduct the training to cultivate EMS (Environment Management System) experts through external environmental certification institutions</li> <li>Conduct the training to upgrade the job capability for employees who operates the facilities to prevent air and water pollution</li> <li>Regular response training based on the departmental risk assessments and prepared standards for each environmental pollution case</li> <li>Perform the marine inspection and debris cleaning</li> <li>Prevent marine pollution and collect marine floaters through a real-time water surface cleaner</li> <li>Response marine pollution incidents in advance through a private-government marine pollution response team</li> </ul>
Environmental cleanup activities and eco-friendly management activities of the ecological environment	<p><b>Major Activities &amp; Achievements</b></p> <ul style="list-style-type: none"> <li>Carrying out various environmental protection activities such as "one company, one river revitalization" and coastal nature cleanup activities in collaboration with other companies and competent authorities</li> <li>As part of eco-friendly management activities of the ecological environment, the ballast water treatment equipment has been developed/certified, and is currently in operation (to prevent disturbance of the ecosystem)</li> </ul>	<p><b>Major Activities &amp; Achievements</b></p> <ul style="list-style-type: none"> <li>Participating in the "one company, one river revitalization" campaign in conjunction with the related organizations and conduct regular local odor patrol activities</li> <li>Operation of an autonomous marine control team ("HMD Autonomous Control Team") and participation in marine pollution control activities</li> </ul>	<p><b>Major Activities &amp; Achievements</b></p> <ul style="list-style-type: none"> <li>Annual waste collection activities from March to October</li> <li>Marine environment purification activities using marine pollution control ships and with diving club members</li> <li>Designated as an exemplary Green Wheel Business Site by the Ministry of Environment in 2010 as we expanded an infrastructure such as cradles and roads to promote the use of eco-friendly means of transportation (bicycles, etc.)</li> <li>Provide a rest zone to local communities by establishing a green space around a wastewater treatment plant</li> </ul>

# Promoting Strong Labor-Management Relations Built on Mutual Respect and Trust

KSOE establishes a high-trust corporate culture through continuous communication. It aims to build a cooperative labor-management relationship based on respect for all stakeholders including employees.

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## Human Rights Management

KSOE and its shipbuilding subsidiaries respect the dignity and human rights of all stakeholders in direct and indirect relationships and aims to implement human rights management based on such efforts.

### Management System

Vision

Realizing a society that embraces diversity and respects all stakeholders

Objective

Establishing of the human rights management system and spread a culture of respecting human rights

Strategy

Protecting the human rights of employees

Respect for diversity and non-discrimination

Supply chain human rights protection policy

Responsible supply chains of minerals from conflict-affected and high-risk areas

### Policies and Progress

#### Grievance Handling System

Running the Grievance Handling Program is mandatory in KSOE and its shipbuilding subsidiaries: each affiliate should appoint at least two responsible committee members (from management and labor). The appointed members check and review the details and facts in relation to the grievances they received, regardless of the sector or field. Based on the review result(s), a disciplinary action is taken and necessary assistance is provided to the victim.

STEP 1

#### Receipt of a grievance

- Receive all grievances related to the company from employees or external stakeholders
- Grievance reception desk: Employee representative body, intranet, hotline, offline, etc.
- Meetings for each position held at least once a quarter: Managers, production managers, production team leaders, personnel without titles, etc.

STEP 2

#### Check/review the grievance

- Receipt and Review by Grievance Handling Committee
  - Check details and facts
  - Listen to the victim's wishes
  - Review the action plan according to the checked details

STEP 3

#### Notify the review result

- Notify the review results and listen to the victim's opinions
- \* Re-examine the measures to be taken when the victim is dissatisfied with the review result.

STEP 4

#### Completion of grievance handling

- Training, disciplinary action against violators, provision of necessary help, infrastructure improvement, and policy/procedural improvement related to grievance handling, as needed
- Establish and reflect the improvement measures to prevent the recurrence of the same issue

**Grievance Handling Process**

KSOE and its shipbuilding subsidiaries receive grievances from employees through various online/offline channels to remedy any violation of human rights. If the risk of violation is identified, the company pursues improvement in the related areas to protect employees' human rights. In 2019, there was no case of discrimination based on nationality, age, gender, academic background, etc. reported through four channels including the employee representative body.

Channels	Type of grievance	Grievance handling rate (no. of cases handled/received)			
		KSOE	HHI	HMD	HSHI
Employee representative body	Wage/benefits, institution/system, organizational culture, work hours, infrastructure, environmental safety, etc.	100%(5/5)	100%(46/46)	100%(14/14)	100%(29/29)
Intranet	HR/compensation/education, general affairs/welfare, business, safety-health, IT, etc.	100%(77/77)	100%(1,027/1,027)	100%(21/21)	No case
Hotline	Workplace bullying, etc.	No case	100%(7/7)	No case	100%(2/2)
Offline	Grievance	Grievances reported through dialogue with the management at each department or personal counseling are not tallied as they are immediately processed upon reporting or delivered to the department in charge.			

**Supply Chain Human Rights Protection Policy**

KSOE and its shipbuilding subsidiaries have complied with the Code of Conduct it enacted for suppliers to ensure that its suppliers protect the human rights of every worker and treat their workers with dignity and respect.

<b>Voluntary employment</b>	<ul style="list-style-type: none"> <li>· Maintain reasonable employment according to the labor contract</li> <li>· Prohibit use of unethical or exploitative labor</li> </ul>
<b>Children and young workers</b>	<ul style="list-style-type: none"> <li>· Do not use child labor</li> <li>· Establish a procedure to verify the age of workers</li> </ul>
<b>Working hours management</b>	<ul style="list-style-type: none"> <li>· Control the maximum working hours based on local laws</li> <li>· Allow at least one paid day off every 7 days</li> </ul>
<b>Wages and benefits</b>	<ul style="list-style-type: none"> <li>· Pay the minimum wage, overtime pay and statutory allowances according to the local laws</li> <li>· Run the welfare benefits system to provide a pleasant work environment and improve the quality of life</li> </ul>
<b>Humane treatment</b>	<ul style="list-style-type: none"> <li>· Prohibit any harsh and inhumane treatment or threat</li> <li>· Respect workers' privacy and provide appropriate confidentiality measures to protect personal information</li> </ul>
<b>Prohibition of discrimination and harassment</b>	<ul style="list-style-type: none"> <li>· Ban harassment in the workplace (take appropriate measures upon request of the victim)</li> <li>· Prohibit discrimination/harassment based on race, color, gender, gender identity, disability, etc.</li> </ul>
<b>Endorsement of freedom of association</b>	<ul style="list-style-type: none"> <li>· Endorse the right to form and join a labor union</li> <li>· Create an environment for communication with the management and sharing of concerns</li> </ul>

**Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas**

KSOE and its shipbuilding subsidiaries strive to fulfill its corporate responsibility and control over the non-use of the conflict minerals. The KSOE group has recently conducted the surveys among its partner companies on the use of responsible minerals, and now is in the stage of preparing a declaration on non-use of conflict minerals. Trade in minerals or raw materials that may cause environmental or human rights issues in conflict (high-risk) countries such as Indonesia and Africa is strictly prohibited. As we respect the recommendations made by the international organizations to prevent the social and environmental problems caused by mineral mining, we actively participate in responsible mineral procurement activities as well.

(OECD Due Diligence, Five-Step Framework for Risk-Based Due Diligence in the Mineral Supply Chain)

<b>Step 1</b>	Establish a policy for the use of responsible minerals, and structure internal management to support the supply chain due diligence.
<b>Step 2</b>	Identify the scope of risk assessment in the supply chain, and assess the risks in the supply chain by creating a supply chain diagram.
<b>Step 3</b>	Re-evaluate the identified risks, and establish and implement the measures for improvement and risk reduction.
<b>Step 4</b>	Carry out the independent third-party audit of the supply chain due diligence at the identified points in the supply chain.
<b>Step 5</b>	Monitor the results of due diligence within the supply chain and disclose the status of responsible mineral purchases, including the integrated reports.

**Collective Agreements for Implementation of Human Rights Management**

**Article 59. Parental leave**

1. In accordance with the Equal Employment Opportunity and Work-Family Balance Assistance Act, the company allows parental leave if requested, and the parental leave period shall be included in the number of years of service.
2. The company shall not give any disadvantages to or unfairly treat union members in terms of the wages or promotions on the grounds of parental leave.
3. The wages during parental leave shall be in accordance with the relevant laws and regulations.
4. An eligible union member may apply for a reduction in working hours instead of parental leave.
5. Other details shall be governed by the relevant laws.

**Article 60. Prevention of sexual harassment in the workplace and prohibition of violence**

1. In accordance with Article 12 of the Equal Employment Opportunity and Work-Family Balance Assistance Act, any form of sexual harassment by employers, superiors, and/or workers is prohibited in the workplace. In the event of sexual harassment or sexual assault, the company shall investigate the case, if requested by the victim or the union that has obtained the consent of the victim. The offender shall be referred to the disciplinary committee.
2. In order to prevent sexual harassment and sexual violence in the workplace, the company shall provide training on prevention of sexual harassment in accordance with Article 13 of the Equal Employment Opportunity and Work-Family Balance Assistance Act.

**Article 61. Honorary Employment Equality Supervisor**

1. In accordance with Article 24 of the Equal Employment Opportunity and Work-Family Balance Assistance Act, an Honorary Employment Equality Supervisor shall be appointed.
2. A person recommended by both the company and the labor union shall be requested to be appointed as the Honorary Employment Equality Supervisor.
3. A separate counseling room shall be set up for the activities of the Honorary Employment Equality Supervisor. The hours required to complete the necessary education or training or the hours required for counseling shall be paid for.



Code of Conduct

Article 6.  
Responsibility  
Towards Employees

- Respect for Employees
  - We shall recognize all Employees' inherent value and respect their individual rights and dignity.
  - We shall create a work environment where all Employees feel dignity and pride in their work performance.
  - To prevent sexual harassment and bullying within the workplace, we shall provide appropriate educational training for all Employees.
- Equal Treatment
  - We shall provide all Employees with an equal opportunity to develop their talents and allocate tasks impartially based on their capability.
  - We shall not discriminate all Employees based on gender, nationality, religion, academic background, hometown, age and/or any other factors that are not related to their duty.
- Human Resources Development
  - We shall respect our Employees' autonomy and creativity and support their self-development.
  - We shall establish a system necessary to carry all our Employees' duty and personal development and also provide an environment where it can be executed.
- Safe Working Environment
  - We shall make our best endeavors to prevent accidents at work and shall ensure all Employees work in a clean and safe working environment.
  - We shall hold regular health and safety inspection of our facilities and provide regular safety training to all Employees in order to secure all Employees' safety at work.

Article 7.  
Employees' Basic Ethics

- Prevention of Sexual Harassment and Bullying in the Workplace
  - All Employees shall recognize the illegality of sexual harassment and bullying at work which discourage the victims' working motivation and lower their productivity, and shall not commit any acts which are bullied and sexually harassed in nature.
  - All Employees shall put in the effort to prevent infringing on human rights. All Employees shall actively participate in prevention activities to eradicate sexual harassment and workplace bullying.

Article 8.  
Respect and Protection  
of Human Rights

- Respect for Human Rights
  - Company and employees shall respect the dignity and human rights of its members as well as its suppliers, business partners, and all the interested parties in the community, and shall practice human rights management based on this principle.
- Duties to Protect and Respect the Human Rights
  - We set up the strategies and policies of human rights management in order to respect the human rights of all the interested parties and to prevent any infringement, and share this with all the relevant parties. In particular, we try to protect the general principles of human rights including the following cases.
    - We support and observe the basic principles of protection and respect of human rights implemented by the relevant labor laws in each county, the United Nations Universal Human Rights Declaration and its substantive guidelines, and the Fundamental Rights and Principles of the International Labor Organization Declarations.
    - We prohibit any form of child labor and forced labor based on our support for the United Nations Universal Human Rights Declaration.
    - We give everyone a fair and equal chances not to be discriminated on the grounds of race, nationality, gender, educational background, religion, age, disability status, birth place, marital status, gender identity, and so on.
    - We protect and observe motherhood and children and provide healthy and safe working conditions.
    - We observe all the relevant labor laws, respect the autonomy in the management of our suppliers and business partners, and try to spread human rights management to them.
- Human Rights Due Diligence
  - We take the appropriate measures to establish the strategies and policies of human rights management including but not limited to the following.
    - We evaluate the effect and risk on human rights.
    - We perform necessary due diligence to implement human rights management.
    - We establish the appropriate plans to listen to the opinions of our members and all the interested parties.
    - We take corrective measures and announce the result.

# Labor- Management Relations

KSOE and its shipbuilding subsidiaries strive to establish sound business ethics and advanced labor-management relations rooted in the related laws and regulations. We understand each company's labor union is an important partner to the management and endeavor to promote cooperative growth between the labor and the management based on mutual respect and trust.

## Labor- Management Council, Collective Bargaining and Labor Dispute Regulations

KSOE holds quarterly labor-management council meetings based on the terms and conditions of the collective agreement concluded in 2018. The labor union (metal labor union) has prepared the related systems and procedures so that collective bargaining can be requested based on the provisions of the collective agreement. In the case of refusal or negligence of collective bargaining without a justifiable reason, or where there is no room to reach an agreement, mediation can be requested through the procedure for filing a labor dispute.

## Activities and Achievements by Entity

### HHI

HHI establishes the work environment of the mutual cooperation and harmonization based on advanced labor-management culture through the win-win cooperation. By doing so, we enhance our competitive edge.

#### Management Status Briefing

Under the collective bargaining agreement, each company is obliged to inform the labor union of the major management changes. The labor-management council regularly shares the company's management status as well. From 2020, at the time of quarterly earnings announcement, a Management Status Briefing convened by the CEO is separately held using the in-house CATV channel in an attempt to share the company's management status and various pending issues. Through follow-up briefing sessions by each division, we promote a more active formation of consensus and communication within the organization.



#### Labor-Management Relations Training

HHI provides labor-management relations training to help employees understand the importance of sound labor-management relations and reinforce communicative capabilities. In 2020, face-to-face training was conducted only for the production team leaders, due to COVID-19, who prioritize communication and cooperation in the field; by focusing on training to enhance labor-management relations and boost leadership, we have broadened our perspective as a manager and bolstered mutual empathy and communication within the organization. In 2021, we plan to offer an advanced leadership training program to help different generations emphasize with each other and respond to the rapidly changing internal/external environment.

**Meeting with CEO**

We endeavor to create a culture of communication by having a regular talk session convened by CEO. Through these occasions, we can form a consensus on the company's management status and future directions. In 2020, the Meeting with CEO was held 17 times with 417 people; this regular talk session is likely to continue in 2021.

**Creating a Culture of Praise**

To create a culture of praise among employees and revitalize the organization, we have run the "Praise Points" and "Hidden Hero Mobile Reward" systems since 2016. In 2020, by having a Praise Relay event, we created a culture of collaboration and praise at the production site, contributing to enhancing the work efficiency

**HMD**

HMD strives to create a positive organizational culture based on mutual understanding and trust; to this end, we encourage the labor and management to actively share the required information.

**Management Status Briefing**

HMD holds a Management Status Briefing every year to transparently share the previous year's performance, this year's objective, overall business environment, and the long-term development direction with all employees. In 2020, the Briefing was held on January 10th with the key stakeholders: Managers, labor union, and the representatives of partner companies. Then, due to COVID-19, on January 13th, the recorded briefing was broadcast to all employees through the in-house CATV.

**Sharing the latest information on the labor-management relations**

HMD publishes 'HMD News' on a regular basis to cover/deliver a range of news, including major company news and employees' stories. In 2020, in order to improve communication with the employees, HMD News focuses on the labor law, labor-management issues, status of collective bargaining, and other promotional materials; it is published and provided to managers twice a month (every other week), serving as a good communication channel.

**Organizational Revitalization**

The councils for different positions in the production group (team leader, class leader, and group leader) were formed for proactive organizational activities. We have held regular monthly meetings with each council, held united events in the first and second half of the year, and performed active communication activities. By doing so, consensus was increased, suggestions and difficulties of field employees were resolved, and a positive organizational culture was induced by improving organizational management and counseling skills. Through this, consensus was increased, suggestions and the difficulties of field employees were resolved, and organizational management and counseling skills were improved; a positive organizational culture was induced in this way.

**Labor-Management Relations Training**

HMD provides labor-management relations training for employees so that they can recognize the importance of establishing labor-management relations on their own and strengthen the communication capabilities between labor and management. On June 1st and 2nd, a leadership seminar for managers was held to create a healthy organizational culture by cultivating the right leadership. On June 11th, for the effective organizational management and training to strengthen a sense of responsibility, a workshop was held with the managers of departments to help them cultivate empathy and communication skills.

**Mentoring Program**

HMD operates a mentoring program for employees to help them enhance their job competencies, adapt to an organizational culture, and maintain a work-life balance. The one-on-one mentor and mentee relationships between junior and senior employees contribute not only to developing the job skills of junior personnel but also in promoting a voluntary cooperative culture.

**HSHI**

HSHI concentrates our efforts on laying a foundation of a healthy organizational culture so that a pleasant and productive corporate atmosphere can be settled.

**Management Status Briefing**

HSHI notifies the labor union in advance when the major management issues occur. The labor and management agreed to hold a management status briefing at least once a year in order to continue a discussion on the long-term company development plan during collective bargaining in 2018. Accordingly, two management status briefing sessions were held and shared with employees through in-house broadcasting; by doing so, we were able to raise the awareness of the management objective to achieve.

**Publication of Newsletters**

HSHI publishes 'Samho News' once a week to deliver a range of news, including company news and employees' stories. The newsletter serves as the key channel for information sharing and communication for all its members.

**Organizational Revitalization**

HSHI held the Team Sports Event in the first /second half of 2020 to promote mutual bonds and form a positive organizational culture. After COVID-19, we will be more aggressively planning the events to revitalize the organizational culture.

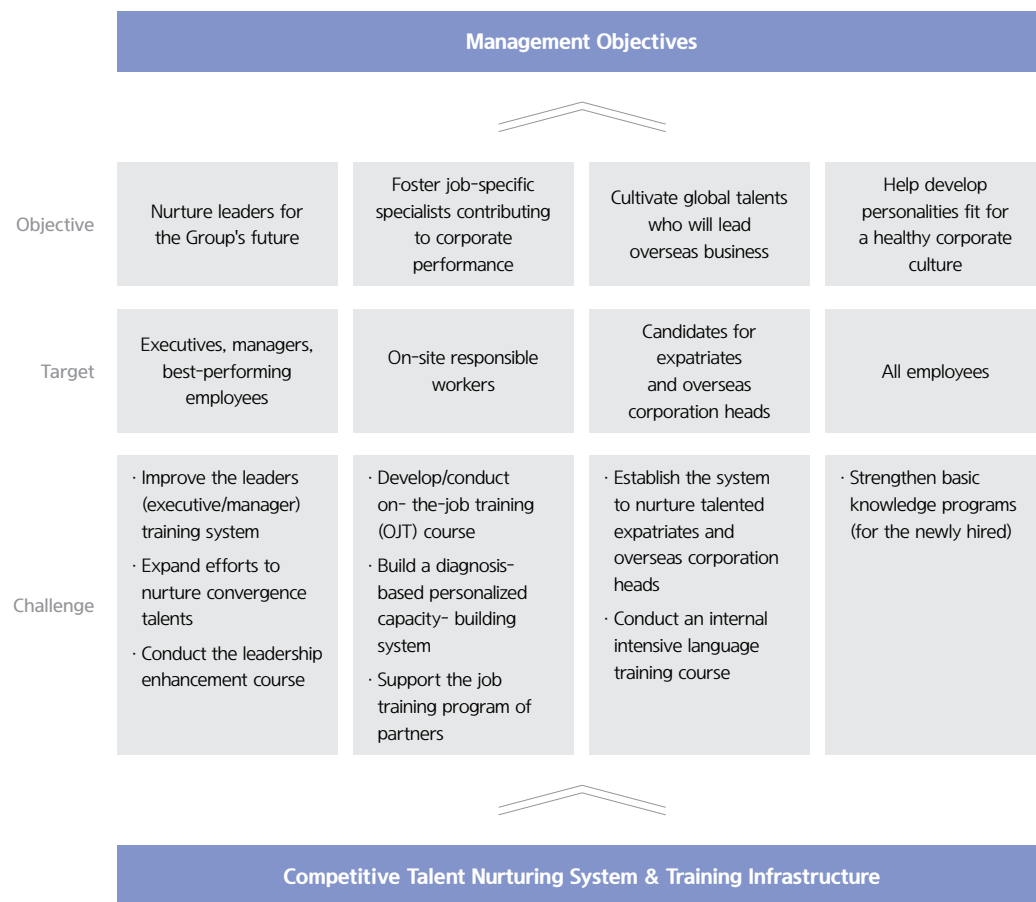
**Psychological Counseling Room and Mental Health Program**

HSHI runs an in-house counseling room to boost the health and happiness of its employees. Professional counselors are available in the counseling room to provide professional counseling services to the employees, especially on various psychological difficulties (e.g. stress at work/home, interpersonal relationships, marital conflict, and problems with children)

# Learning & Development

KSOE and its shipbuilding subsidiaries endeavor to secure business competitiveness and success through employee competency enhancement focused on nurturing next-generation leaders, convergence talents and job-specific specialists. In particular, in 2021, to spread the Digital Transformation (DT) culture, we have provided a range of new training programs centering on cultivating DT talents. By providing rich educational content to all employees, we emphasize the importance of continuous self-development and make sure that personal development leads to growth of the company through organizational support.

## Management System



# Training Programs

KSOE and its shipbuilding subsidiaries have developed training programs to help all employees in various positions to harness their full capabilities at their job based on the characteristics and roles by position. They focus on expanding training courses based on the actual needs of departments and business issues to strengthen the employees' job expertise, while systemizing training procedures for executives and encouraging voluntary learning. We also plan to establish training programs to enhance the technical work competency of our employees through the Technology Transfer System and the Job Improvement Training for the workers in technical departments.

## Leadership Development Program

The role of leaders is getting more important to flexibly respond to the rapidly-changing business conditions and efficiently manage the organization. In this regard, to nurture next-generation leaders, we have newly established two training courses: i) a 5-step HHI Group Leader Course (HLC) for office workers, and ii) a 2-step HHI Group Technical Leader Course (HTLC) (also known as "Production Manager Nurturing Course") for production technical staff. With this two-track training program, we will further concentrate on the leadership building of all occupational groups.

## Nurturing of Convergence Talents

We have provided the program to nurture convergence talents with consilience competency and business insights across the Group affiliates. The program helps talented employees with humanities/business majors to learn the engineering basics. Starting from 2021, we have expanded the program to include new employees with different majors: we provide training on Business Management 101 to those with science/engineering majors, and training on Engineering 101 to those who studied humanities/business.

## Human Resources Development System

Job Title			Training for Different Ranks	Leadership Training		DT Training	Convergence Talent Development	Job Expert Development	Global Talent Development	Others
Executives			Newly-appointed Executives	HLC V	Executive Capacity Building Training	DT Leadership Special Lecture				
Lead Researcher	Lead Engineer	Head of Dept. (Production Head)		HLC IV	New Dept. Head			Collective professional training, Field autonomous job training, Consortium training, Cyber training, Micro learning	Language training and studying abroad for expatriates, corporation heads, and other candidates Studying abroad system for employees	Life design, Organizational Revitalization
		Deputy Head of Dept. (Production Deputy Head)		HLC III	New Manager	Advanced Developer Course Intermediate Developer Course	Electrical and mechanical cross-training			
		Manager (Production Manager)		HLC II		DT Planner Course DT Agent Course DT Entry Course DT Mind-Set Training				
Senior Researcher	Senior Engineer	Assistant Manager (Production Asst. Manager)		HTLC II, M/B	New Production Team Leader					
Researcher	Engineer	Employee	2nd-year training, organization adaptation training	M/B						
		(from 4th annual hires group)	Mentoring	Jr. M/B						
New Hire			University graduates, experienced workers, Meister high school graduates				Basic engineering, Basic management			

**Notes**

- ※ HLC : HHI Group Leader Course
- ※ HTLC : HHI Group Technical Leader Course
- ※ J/B : Junior Board for official workers(engineers, researchers)
- ※ M/B : Master Board for Production Technical Staffs
- ※ Jr. M/B: Junior Master Board for Production Technical Staffs
- ※ DT : Digital Transformation



**DT Talent Development**

The newly-programmed DT talent training in 2021 is a two-track course consisting of “Spread of DT Culture” and “Nurture of DT Technical Talent.” The course is designed to strategically cultivate DT talents in each occupational group/job type. By raising awareness on the importance of DT across the group, we induce early establishment of an efficient work culture. We also help the employees to grow into competitive talents capable of developing new businesses with the latest DT technologies such as AI, Big Data, and IoT.

DT Training Programs		Trainees	Training Goal/Content
Spread of DT Culture	All employees	DT Mind-Set	All office workers, researchers, and production managers Introduction to DT technology and its use cases Raising awareness of DT among all employees to induce transformation
	Leading group	DT Expert Lecture	Common leadership DT Trend Insight
		DT Leadership Training	Newly-appointed position DT Leadership Development
Nurture of DT Technical Talent	Business Implementation	DT Beginner Training	4th Grade/ Assistant Manager Understanding DT/Introduction to Big Data Analysis
		DT Agent	Business practitioner Developing DT task implementation ability
	Tech Development	DT Planner	Business manager Deriving DT tasks and cultivating planning skills
		Intermediate Developer	Researcher/ Developer Acquiring the latest DT/AI technologies
	Advanced Developer	Intensive AI, Deep Learning, Voice Recognition, etc.	

**Nurturing of Job-Specific Specialists**

We provide various types of online/offline training courses to strengthen job competency. Online courses on languages, common competencies and Job-specific training are offered on the Hi eCampus (HHI cyber education portal); the trainees may also take various qualification tests and use micro-learning content as well. We have focused on strengthening the competitiveness of human resources by developing customized training courses based on the actual needs of departments to enhance job performance and nurturing in-house instructors.

**Support for External Training**

For capacity building of employees, we provide talented employees with return-guaranteed training opportunities. HHI selects talented employees and helps them obtain a master’s or doctorate degrees at leading universities at home and abroad, while HMD supports job-related training and self-development for core talents in each area. Other programs include support for studying at general graduate schools after work.

**Employee Technology Empowerment Activities and Performance**

**Core Skill Transfer Program**

We have operated Core Skill Transfer Program to transfer key manufacturing skills in a systematic way. HHI evaluated and certified the transfer of 70 core skills in 2020. For 57 core skills, we provided video clip manuals for skill acquisition and established a management program where an appointed transfer manager in each department supports the transfer activities within the department. In addition, in order to prevent the loss of common production skills, amid an increase in the number of retirees, we have been operating a General Skill Transfer Program as well since the second half of 2020; a total of 455 general production skills have been transferred so far.

\* Core Skills: If these skills are lost, the applicable production process may be stopped. Critical and advanced skills that can be performed by only a few people  
\* Skills commonly used in the job performance (all skills other than the core skills registered in HHI’s production technology standards)

**Job Improvement Training for Production technicians**

Job improvement trainings are provided to the manufacturing engineering workers of HHI, HDM, and HSHI. In 2020 alone, 3,675 technicians completed 238 courses.

**Beneficiaries of the employment-related training programs**

In an effort to preemptively secure technical talent, we provide employment-linked vocational training programs for scholarship students of the meister high schools including Hyundai Technical High School. Our systematic training programs such as field training help them acquire basic skills and develop along the way a sense of belonging to HHI Group.

**National Human Resources Development Consortium Business**

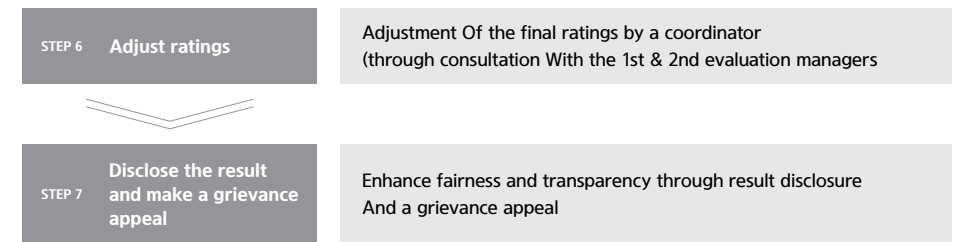
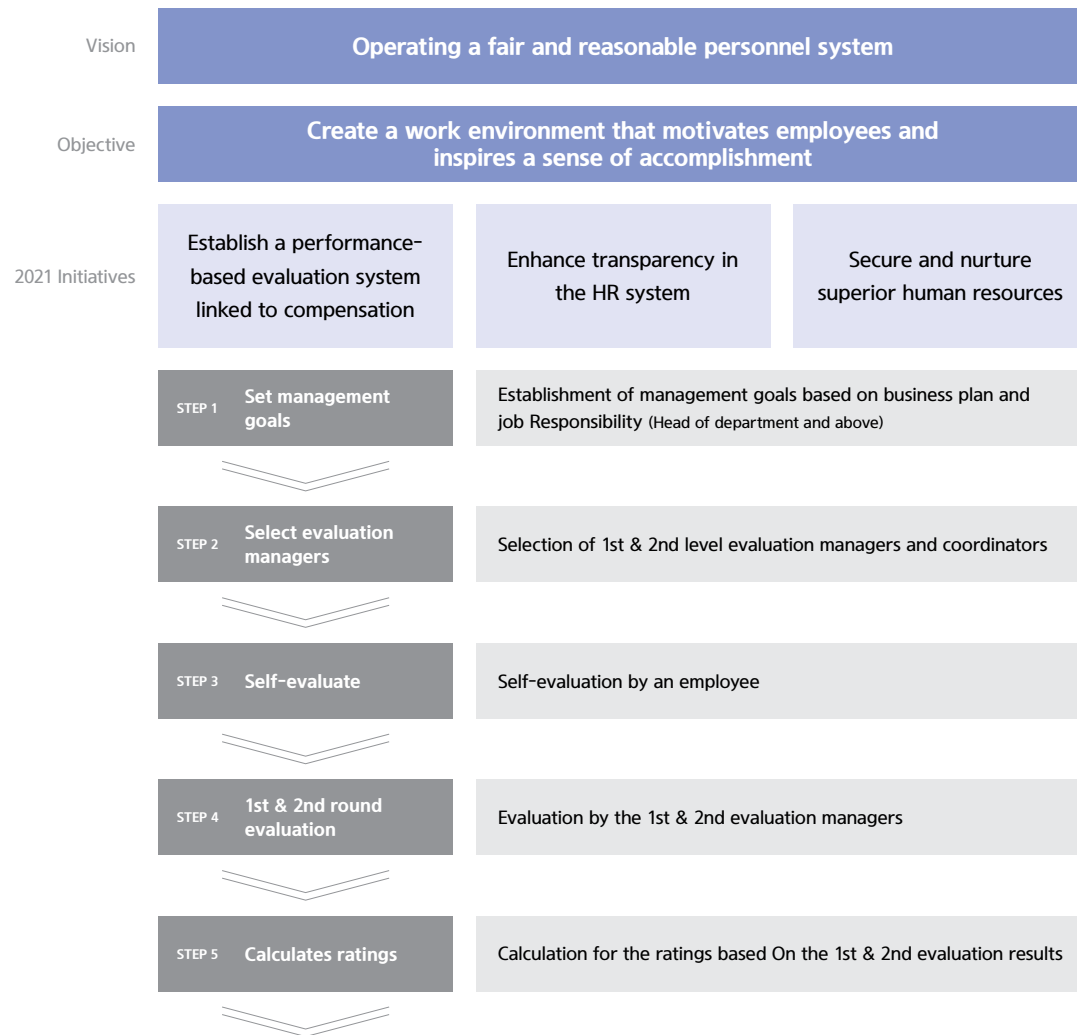
To enhance the skills of workers of partner companies and nurture new technicians, HHI, HMD, and HSHI have been engaging in the National Human Resources Development Consortium with Technical Education Institute, partner companies, Ministry of Employment and Labor, and Human Resources Development Service of Korea for the 17 consecutive years since 2002. In 2020, a total of 2,808 individuals completed training, which made the most of our outstanding instructors, facilities, and equipment to produce 238 new technicians.

# Evaluation & Compensation

Through a continued effort to improve the personnel management system, KSOE and its shipbuilding subsidiaries have successfully established and operated a transparent and fair performance evaluation and compensation system. In order to increase fairness and the acceptability of employees, we are upgrading the data-based personnel evaluation system and expanding the scope of its application. Various rewards are provided to motivate employees and promote a sense of achievement in a positive work environment.

## Management System

We conduct performance evaluations on every employee semiannually. The results are used as the basic data for regular performance management, which is to ensure objectivity and fairness of the evaluations. We provide detailed feedback on the evaluations, and operate an objection system by which the evaluated employees can raise an objection. The persons holding the positions of department/team head or higher are subject to the Management by Objectives (MBO) process and evaluated for actual achievements. Multi-Dimensional leadership diagnosis is also conducted once a year to produce preliminary data used to assign positions.

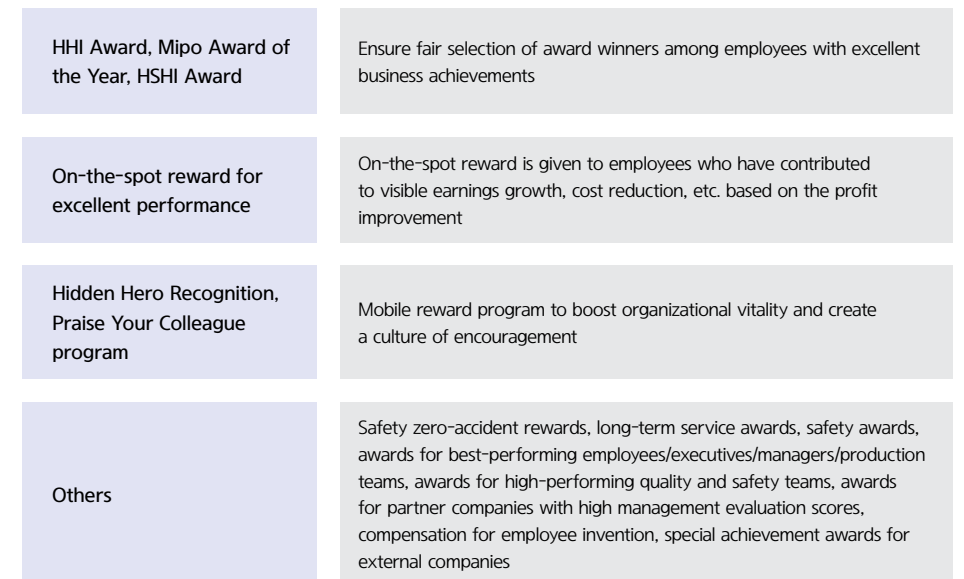


## Compensation System

We reflect inflation rates in salary settlements to help our employees lead a stable life. The persons in managerial or higher positions are subject to a performance-based salary system that provides different compensation based on the evaluations of a personal/organizational performance. This is to create a proactive and challenging work environment. To those under the assistant-manager level, monthly salaries, bonuses, and incentives are paid. In 2021, KSOE changed the bonus payment period in an effort to help its members lead a stable life: bonuses used to be paid on a quarterly basis or on national holidays, but now are paid on a monthly basis. In the compensation system, the same standard is applied to the male and female employees. We operate a fair compensation system and strive to close the wage gap between non-regular and regular employees by converting temporary female office workers to permanent positions.

## Reward Policy

Under the principle that every achievement should be rewarded, KSOE and its shipbuilding subsidiaries operate the on-the-spot reward program for an excellent performance. Various reward systems are in place at each affiliate with the aim to foster a culture of harmony and encouragement. In addition, to enhance R&D productivity and secure future business growth engines, we separately operate a research incentive system for researchers.



## Employees' Quality of Life

KSOE and its shipbuilding subsidiaries operate a benefits program under the principle of providing practical supports, based on the impartial and fair management system, for various needs of their employees. We help employees maintain the work-and-life balance by offering systematic support ranging from a work culture of the company to housing, family, leisure activity support and retirement preparation.

## Management System

Vision	Realization of a Differentiated Welfare Policy Centered on Employees					
Objective	Implementing of an individualized welfare policy that can meet various needs of the employees along with external welfare programs					
2021 Initiatives	<b>Housing &amp; Living</b>	<b>Family</b>	<b>Leisure Activities</b>	<b>Medical Service</b>	<b>Retirement Planning W</b>	<b>Work Culture</b>
	<ul style="list-style-type: none"> <li>· Loan interest support</li> <li>· Housing support for single employees</li> </ul>	<ul style="list-style-type: none"> <li>· Incentives for family events</li> <li>· Encouragement for maternity/parental leave</li> <li>· Nursing room, in-house childcare facilities</li> <li>· Tuition for children</li> </ul>	<ul style="list-style-type: none"> <li>· Vacation facilities</li> <li>· Comprehensive leisure town</li> <li>· Paid leave</li> <li>· Self-development leave</li> </ul>	<ul style="list-style-type: none"> <li>· Medical expense support</li> <li>· Medical checkup for family</li> </ul>	<ul style="list-style-type: none"> <li>· Retirement planning consulting</li> <li>· Retirement pension program</li> <li>· Personal pension support</li> </ul>	<ul style="list-style-type: none"> <li>· PC-Off program</li> <li>· Flexible working program</li> <li>· Workplace bullying prevention program</li> </ul>

## Major Activities & Achievements

### Expanding Self-Development Support

KSOE and its shipbuilding subsidiaries support the growth of our employees as part of an effort to create sustainable business performance and secure future growth engines. We provide training programs in various areas to help employees pursue self-development and improve their job skills. We also provide support for talented employees in obtaining professional qualifications and implement the job rotation system to nurture next-generation leaders. To enhance the employee engagement in work, employees can take self-development block leave and a sabbatical month to refresh themselves.

### Retirement Planning Consulting

We offer retirement planning consulting to help employees maintain a healthy and stable life even after retirement. During the consulting session, participants learn about asset and health management and share information on starting a business or a new job for a new chapter of their life. We carry out a preliminary survey of pre-retirees to identify their future plans and develop training programs accordingly. We also help retirees find a new job by holding a job fair in cooperation with in-house partners.

### Promoting Work-Life Balance

We shape an organizational culture that adheres to the 52-hour work per week with an enhanced work efficiency for work-family balance. We have a PC-Off system that automatically shuts down PCs of all individuals at a fixed time. KSOE has increased the work immersion of its employees by introducing a selective work system. KSOE has also put in place motherhood protection and childcare support measures to help mitigate the burden of childbirth/childcare and ensure a work-family balance, such as extendable targets of maternity leave, guaranteed parental leave, shorter work hours during child-rearing, and a Happy Mom Package.

### Strengthening Workplace Bullying Prevention Program

We have changed our company policies and established the Grievance Committee in accordance of the Act on Workplace Bullying enforced in July 2019 to ban workplace bullying. All managers conducted self-diagnosis and received the related education. When a related case is reported, it is handled with strict adherence to the specified procedures.

## Key Programs

KSOE	Tuition for children, in-house childcare facilities, selective working hours system, smart work, medical checkup for family, family vacation facilities, long service leave
HHI	Tuition for children, in-house childcare facilities, smart work, medical checkup for family, family vacation facilities, long service leave
HMD	Tuition for children, in-house childcare facilities, flexible working hours system, smart work, medical checkup for family, family vacation facilities, long service leave, family participation programs (family camp, etc.)
HSHI	Tuition for children, medical expenses, mortgage loan interests, in-house childcare facilities, flexible working hour system, smart work, medical checkup for family, family vacation facilities, long service leave, family participation programs such as family camps, psychological/legal counseling system, free lunch, in-house cafe (opened 2nd store), etc.

# Demonstrating Our Commitment to Global Corporate Citizenship

KSOE pursues a society of shared happiness under the core values of love, sharing and happiness. We will make a better future by creating shared values with strategic social contribution activities.

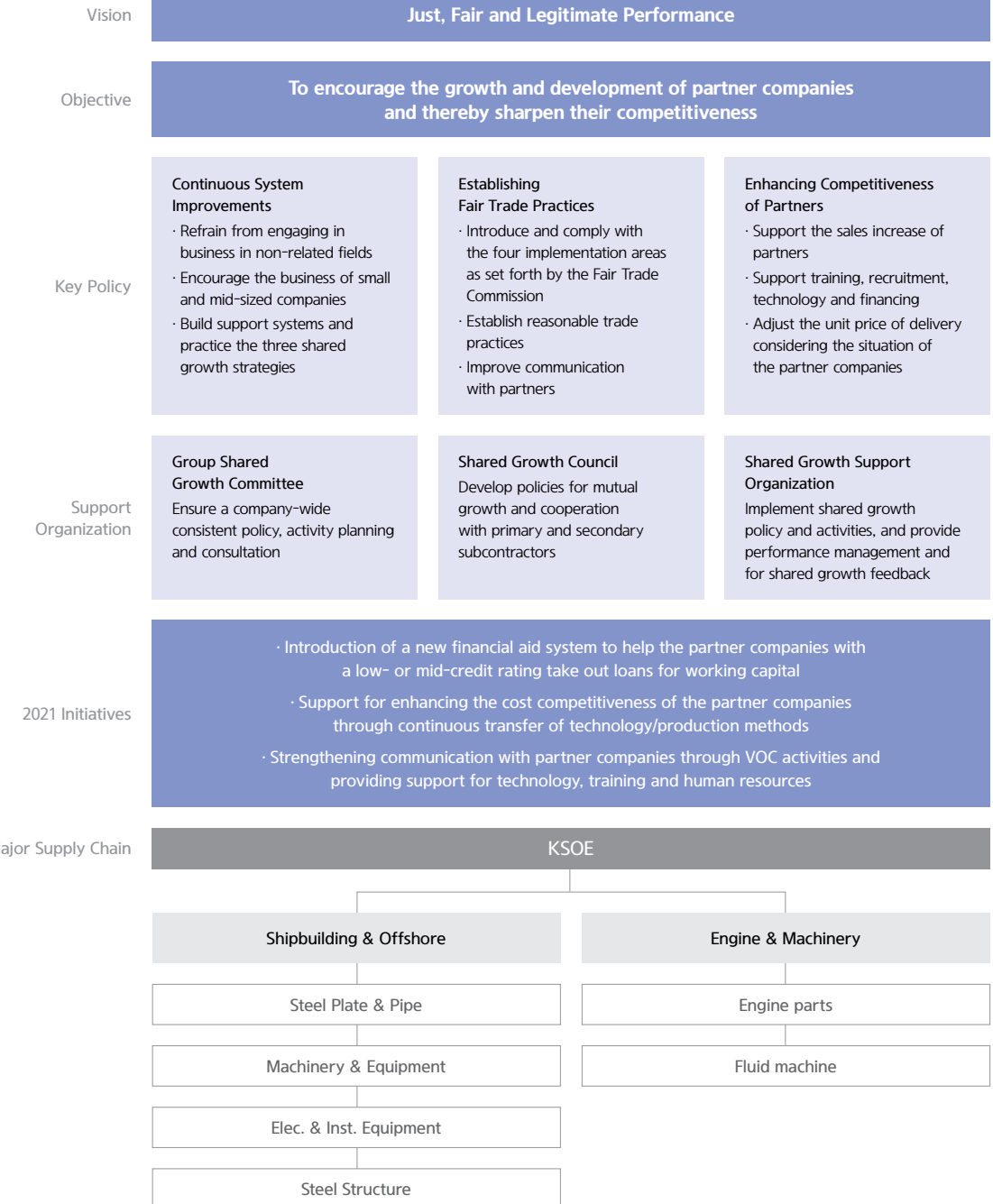
125 Supply Chain Management

130 Social Contribution

## Supply Chain Management

KSOE and its shipbuilding subsidiaries pursue shared growth with partner companies in order to secure sustainable competitiveness and lay the foundation for a fair society. Support for financing, education, recruiting, technology and management will continue to be provided to partner companies in order to reinforce their growth and competitiveness, creating a healthy corporate ecosystem where everyone can grow hand-in-hand.

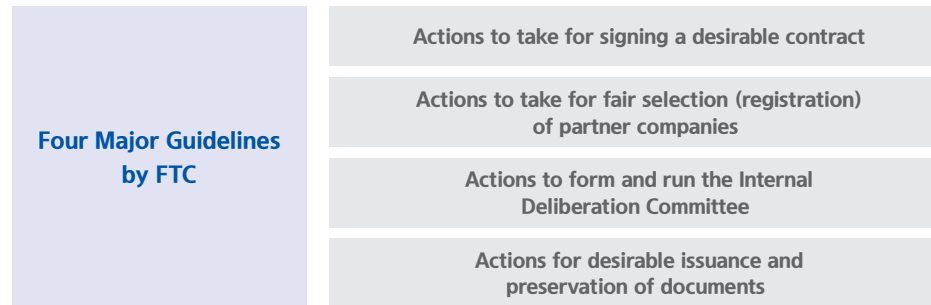
### Management System





## Supply Chain Operating Philosophy

The KSOE's shipbuilding subsidiaries have introduced /implemented the supply chain operation philosophy (transparency, legality, and fairness) as well as the four guidelines of the Fair Trade Commission (FTC) in order to establish transparent and reasonable trade practices and contribute to setting a fair subcontract transaction order. Through regular supply chain inspections and communication with partner companies, we can secure opportunities to supplement or improve purchasing policies. We endeavor to operate a sustainable supply chain together with partner companies.



### G-HiPRO

KSOE's shipbuilding subsidiaries established the Global Hyundai Integrated Procurement System (G-HiPRO) in order to enhance transparency and fairness of the contract process. G-HiPRO's electronic bidding system transparently discloses our procurement in quotes, technical review, bidding and internal review, improving efficiency across the entire contract process from contract signing, delivery, issuance of the transaction statement to payment.

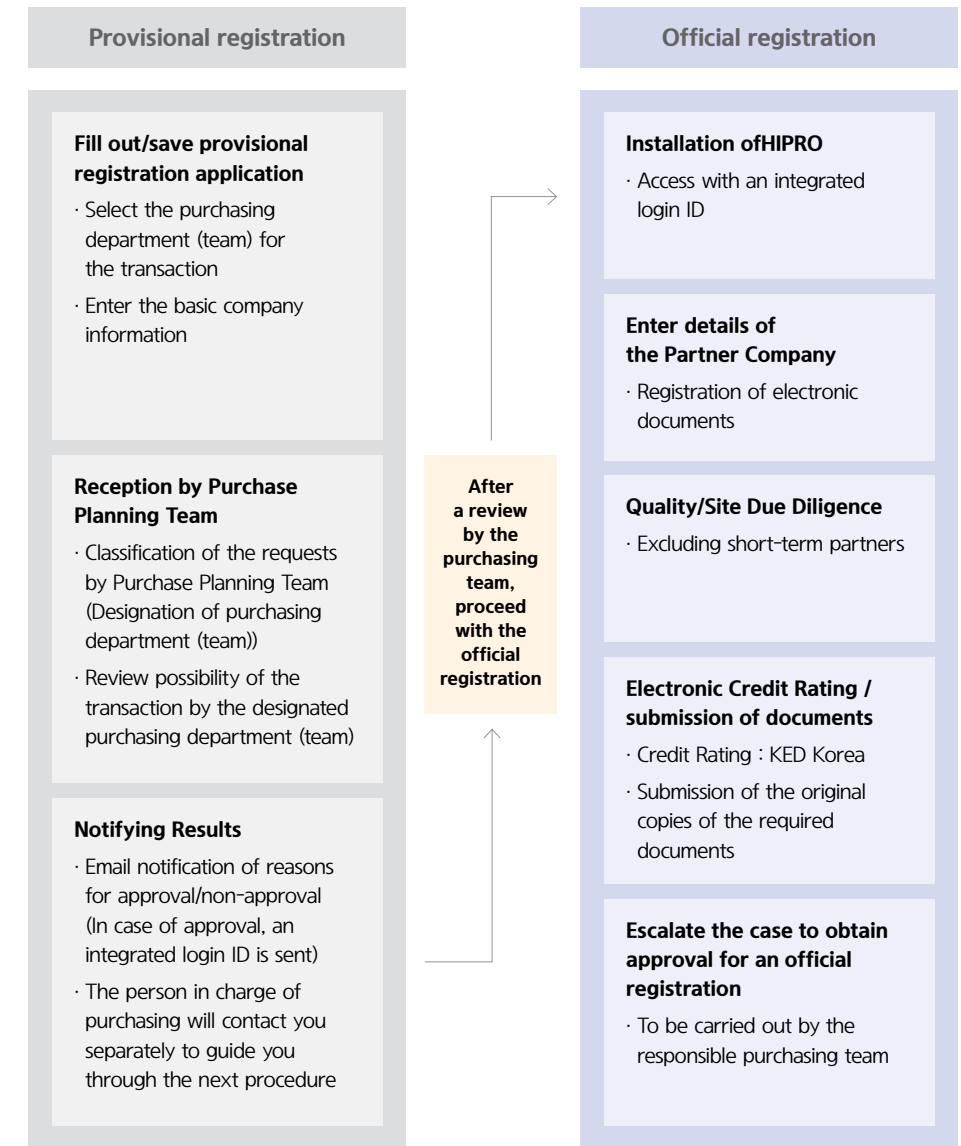
In particular, to reinforce compliance management and practice of business ethics, we sign a basic material trade contract with partner companies based on the standard shared growth agreement used in the shipbuilding industry. By providing regular training to employees, we aim to create a procurement environment where subcontracts are concluded in a desirable manner. Sustainability management is judged on the basis of a regular credit rating, annual quality evaluation, and delivery/cooperation evaluation, etc. To the partner companies with excellent evaluation scores, we present excellent cooperation awards, preferential opportunities to participate in localization development, and financial incentives.

### Shared Growth Council

Category	HHI	HMD	HSHI
Main Communication Channels with Partner Companies (frequency)	<ul style="list-style-type: none"> <li>New year's meeting with partner companies (annual)</li> <li>Council meetings with partner companies</li> <li>Workshop for CEOs of partner companies (annual)</li> <li>HHI Partners Association Meeting (quarterly)</li> </ul>	<ul style="list-style-type: none"> <li>New year's meeting with partner companies (annual)</li> <li>Council meetings with partner companies</li> <li>Workshop for CEOs of partner companies (annual)</li> <li>HMD Partners Association meeting (quarterly)</li> </ul>	<ul style="list-style-type: none"> <li>New year's meeting with partner companies (annual)</li> <li>Management status briefing (annual)</li> <li>Workshop for CEOs of partner companies (annual)</li> <li>CEO's visit to partner companies (semimonthly/ 1st half of the year)</li> <li>Department-Level meetings (annual by each dept./2nd half of the year)</li> </ul>

## Registration Process of Partner Companies

KSOE and its shipbuilding subsidiaries seek to secure competitiveness in sustainable management by pursuing fair trade and a win-win cooperation with partner companies. Registration of new partner companies is completed when they pass the management, quality, and finance criteria in compliance with internal regulations after self-diagnosis through G-HiPRO. We intend to maintain transparency and fairness in our collaboration with partner companies by clarifying the criteria and reasons for cancellation of registration.



## Major Activities & Achievements

### Financial Support for Partner Companies

KSOE and its shipbuilding subsidiaries manage the Shared Growth Fund created at the HHI Group level, partially supporting their interest payments of loans. We intend to contribute to securing the financial soundness of partner companies by supporting the Win-win Production Finance as well as issuance of guarantees for working capital loans. Furthermore, starting from 2011, partner companies have been paid fully in cash for material costs, which is enhancing their liquidity. In addition, we introduced a system (Nicewinc) to monitor cash payments between primary and secondary subcontractors to prevent any issues that may arise from doing business with secondary subcontractors and to help primary subcontractors improve their payments to secondary subcontractors.

### Support for Safety Management Capacity

HHI helps the partner companies build their own safety management capacity in line with a growing legal and social requirement for disaster prevention: the role of the partner companies in this regard is being emphasized as well. To this end, the "Partner Safety Management Capacity Building Program" is organized/implemented by the Safety Management Office or by each safety department. In addition, we began applying the in-house partner safety manager appointment support system (effective since 2017) as of January 2020. While maintaining the existing system that pay variable subsidies based on the qualifications of the appointees, additional subsidies are provided according to the length of service: this is to help partners secure professional human resources (safety managers).

### Safety Management Support Program for Partner Companies

#### Supporting Safety Management System

- Expand the partner safety manager appointment support system
- Partners are required to be recognized as the "excellent business site selected through risk assessment" by KOSHA
- Joint safety inspection on partner companies (implemented by each business division)

#### Improving the CEOs' Safety Awareness

- Safety meeting with CEOs of the partner companies
- Verifying representative VOCs from partner companies

#### Strengthening Safety Managers' Ability to Execute

- Technical instruction regarding safety and health management (implemented by each business division)
- Regular meeting with Safety Managers (implemented by each business division)
- Awards for excellent safety managers at partner companies

#### Enhancing Communication on Safety Issues

- Partner's safety and health council (implemented by each business division)
- Partner's safety manager introductory/regular training and mentoring (implemented by each business division)

### Support for Finding New Markets and Sales Growth

We introduce our partner companies to customers by jointly venturing into overseas markets, attending renowned trade shows at home and abroad and holding business meetings with SMEs and large companies to support their sales growth. HMD supported seven partner companies with their entry into the Vietnamese market (one in 2019) through its overseas branch, Hyundai Vietnam Shipbuilding, and the cumulative sales reached around KRW 250 billion. HSHI placed additional orders to partner companies amid a falling order volume in the second half of 2019 by shifting some orders originally planned for 2020 to help them secure a stable revenue stream.

## Social Contribution

KSOE and its shipbuilding subsidiaries have been conducting various social contribution activities to be admired by all, under our management philosophy of contributing to the national and social development. For the vision for our social contribution activities with the slogan of "A Better World, A Brighter Future." We will give the marginalized a helping hand, boost the local economy and nurture the future generations through participative contribution activities to involve all personnel in sharing, sustainable contribution activities to shape the future together with the Group, empathizing contribution activities to pursue the values of social responsibility and sincerity.

## Management System



## 1% Salary Donation Campaign

In 2011, Hyundai Oilbank initiated this donation campaign, for the first time as a Korean conglomerate, by establishing a foundation with the donated funds by its employees; according to the scheme, the employees donate 1% of their salaries. As other affiliates increasingly joined the campaign, the Group launched "HHI Group 1% Nanum Foundation" in 2020. In the same year, thanks to the active participation of the executives and employees of KSOE and its shipbuilding subsidiaries, the foundation was able to raise KRW 4.6 billion in donations and carry out a project to support the underprivileged. The HHI Group 1% Nanum Foundation has also launched a Donor-Proposed Project to actively reflect the opinions of the donors (employees); for the selected proposal, up to 50% of the donations can be allocated.

<b>Donations</b>	· Employees: KRW 857,782 thousand · Corporate: KRW 700 million
<b>Donor-Proposed Projects</b>	· KSOE: 3 projects                      · HMD: 2 projects · HHI: 3 projects                         · HSHI: 2 projects
<b>Major Donor-Proposed Projects</b>	· Ulsan Orphanage Sponsorship (HMD) · 2021 Hope Sharing Campaign (KSOE, HSHI, etc.)

## Cultivation of Shipbuilding Manpower

### Support of Self-reliance for Protection-terminated Children

In an effort to continue the support of their self-reliance for children for whom legal protection has terminated, HHI offers a training opportunity in its own educational institute (Technical Training Institute). After learning knowledge and skills at the institute, the trainees are offered work at one of the HHI's partner companies.

<b>Technical Training</b>	· HHI: Support for self-reliance and technical training for 7 youths who are no longer protected · HMD: Planned to join in 2021 · HSHI: Planned to join in 2021
<b>Collaborative Organizations</b>	· HHI Group 1% Nanum Foundation, Korea Child Welfare Association

### Cultivating Future Shipbuilding Talents

The Group recognizes the students attending in universities as the core of future competitiveness. To discover and nurture outstanding talents for the shipbuilding industry, the Group offers a range of scholarships and runs industry-academic cooperation programs. Through these efforts, we have nurtured experts for the different sectors of the shipbuilding business (e.g. R&D and production). Scholarships and job offers are provided to the selected excellent students.

<b>Records of scholarship and training program</b>	· HHI Scholarships: 3 students in master's/doctoral courses (KSOE) · The Department of Heavy Industry Convergence Technology, Ulsan University: 4 graduates (KSOE, HHI) · Ulsan University Industry-Academia Scholarship: 2 undergraduate students (HHI) · Hyundai Technical High School Scholarship: 19 Students (HHI)
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## Care for the Underprivileged

**Provision of Pool Wheelchairs** Pool access wheelchairs are essential for disabled people to safely access swimming pools and showers. Although the pool wheelchairs must be provided in accordance with relevant laws and regulations, many facilities do not have them. KSQE provided the pool access wheelchairs to Seongnam Hanmaeum Welfare Center to assist with the rehabilitation of the disabled.

**Details**

· 10 pool access wheelchairs (worth KRW 19 million)

**Support for the Welfare Blind Zone** In an effort to provide emergency relief and help resolve the welfare blind spots, HHI has continued its emergency welfare support project for families in crisis since April 2016

**Details**

· HHI: KRW 36 million to children from 27 families in need  
 KRW 11 million for emergency living expenses to families in crisis

**Kimchi-making for Neighbors in Need** KSQE and HHI hold a kimchi making event every year to help neighbors who cannot prepare kimchi for the winter. This year, however, we were not able to hold the event due to COVID-19, so delivered ready-made kimchi instead.

**Details**

· KSQE: About KRW 10 million for 300 households  
 · HHI & HMD: About KRW 34 million(HHI) and 8 million(HMD) to 1,100 households and 42 social welfare facilities

## Life with the Local Community

**Creation of Book Cafes** KSQE opened a book cafe Sodam Sodam at the Ulsan Dong-gu General Social Welfare Center in an effort to revitalize the cultural activities of local residents in Dong-gu, Ulsan. The 215-square-meter book cafe is located on the first floor of the welfare center, and equipped with a large front bookshelf, open bookcases, a seating area, and a cafe.

**Area**

· KSQE: 215 square meters on the first floor of Ulsan Dong-gu Social Welfare Center (KRW 27.35 million)

**Silver Car for Senior Citizens in Dong-gu, Ulsan** We provided a Silver Car to Dong-gu, Ulsan to help the elderly with reduced mobility in June 2020.

**Details**

· KSQE/HHI: 100 Silver Cars (worth KRW 15.5 million)

**Blood Donation Campaign** We waged a group blood donation campaign to contribute to stabilization of the blood supply during these COVID-19 times.

**Records**

**A total of 2,152 employees donated blood**  
 · KSQE: 69  
 · HHI: 1,266  
 · HMD: 652  
 · HSHI: 165



## Support for Self-reliance of Future Generations

### Improvement of the Educational Environment

For local students, HHI conducted a project designed to provide funds for the improvement of school conditions: a total of 39 elementary, middle, and high schools as well as special-education schools in the region benefited from the project.

#### Details

- HHI: Delivered KRW 30 million to selected 5 schools in support (the subsidy is used for improving the educational environment of the students, such as replacement of old teaching aids, purchase of teaching materials, and facility maintenance)

### Sponsoring Ulsan Orphanage

HMD performed a range of social contribution activities tailored to the beneficiaries by collecting in advance the support items needed by the Ulsan Orphanage. The 1% salary donation funds were used.

#### Details

- HMD: Delivered KRW 43.2 million to 120 children at Ulsan Orphanage (used for events, gifts, children's pocket money, etc.)

## Establishment of Communication Channels with the Local Community

### "One Company-One Village" Sisterhood Ties

HHI and HSHI have set up sisterhood ties with rural villages, respectively, in order to realize the shared growth and coexistence between rural and urban areas.

#### Activities

- HHI: Apple harvest in Dongmyeong Village, Miryang (Nov. 14)
- HSHI: Purchase of salt from Shinan Island (KRW 16.56 million)

### Discovering and Fostering Startups in Ulsan

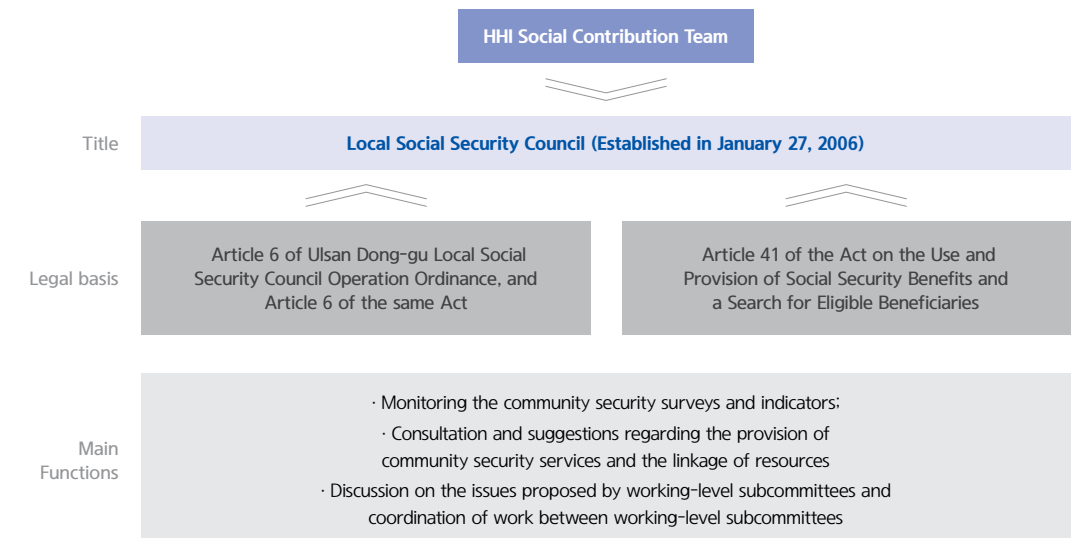
HHI has run a (shipbuilding/offshore business) startup discovery and fostering program with the Ulsan Center for Creative Economy & Innovation (CCEI) to help revitalize entrepreneurship in the Ulsan region. For the selected startups, HHI provides a range of support including technical mentoring, demonstration assistance, field application, and market development.

#### Records

- HHI: Discovered 6 startups

### Activities as a Member of the Local Social Security Council

Through the sessions of the Local Social Security Council held three times a year, we listen to the voices of the local community, participate in the planning stage, and deliberate on the plan. Under the principle of inclusivity and professionalism, the Council consists of the appointed members (representatives from the public sector) and members from the private sector and other related fields. Currently, the Social Contribution Team of HHI serves as a member of this council. The main functions of the Council include consultations and suggestions on the provision of local social security services and the linkage of resources.



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# Summary of Consolidated Statements of Financial Position

(Unit: KRW 1M)

Title of Account	47th reporting period	46th reporting period	45th reporting period
Summary of Consolidated Statements of Financial Position	(as of Dec. 2020)	(as of Dec. 2019)	(as of Dec. 2018)
Current assets	13,001,433	12,545,989	12,316,693
Cash and cash equivalents	3,703,410	2,225,143	3,041,786
Trade and other receivables	1,045,149	1,442,649	1,477,334
Contract assets	4,761,935	4,729,633	3,677,787
Inventories	1,252,995	1,318,326	1,009,063
Other current assets	2,237,944	2,830,238	3,110,723
Non-current assets	12,242,758	12,509,384	12,413,206
Investments in associates and joint ventures	460,240	458,658	403,980
Long-term trade and other receivables	128,597	112,101	125,061
Investment property	243,193	248,108	144,828
Property, plant & equipment	9,970,539	9,946,724	10,269,011
Intangible assets	117,284	115,422	89,483
Other non-current assets	1,322,905	1,628,371	1,380,843
<b>Total assets</b>	<b>25,244,191</b>	<b>25,055,373</b>	<b>24,729,899</b>
Current liabilities	9,511,529	8,941,941	9,410,253
Non-current liabilities	3,311,437	3,187,117	2,208,682
<b>Total liabilities</b>	<b>12,822,966</b>	<b>12,129,058</b>	<b>11,618,935</b>
Capital stock	353,866	353,866	353,866
Capital surplus	2,400,507	2,483,377	2,483,377
Hybrid securities	-	-	428,589
Capital adjustments	(8,478,316)	(8,478,316)	(8,448,228)
Accumulated other comprehensive income	1,211,159	1,027,409	1,020,901
Retained earnings	15,419,080	16,180,566	16,043,717
Non-controlling interests	1,514,929	1,359,413	1,228,742
<b>Total equity</b>	<b>12,421,225</b>	<b>12,926,315</b>	<b>13,110,964</b>

(Unit: KRW 1M)

Title of Account	47th reporting period	46th reporting period	45th reporting period
Summary of Consolidated Statements of Comprehensive Income	(For the 12 months ended Dec. 31, 2020)	(For the 12 months ended Dec. 31, 2019)	(For the 12 months ended Dec. 31, 2018)
Total Revenue	14,903,658	15,182,553	13,161,046
Operating Profit (Loss)	74,367	290,168	(481,365)
Net profit from continuing operations (loss)	(835,178)	213,081	(644,987)
Net profit from discontinued operations	-	-	191,377
Net Profit (Loss)	(835,178)	213,081	(453,610)
Equity attributable to owners of the parent	(833,787)	164,079	(489,060)
Non-controlling interests	(1,391)	49,002	35,450
Total comprehensive income (loss)	(553,318)	179,700	(551,775)
Equity attributable to owners of the parent	(577,737)	128,753	(581,614)
Non-controlling interests	24,419	50,947	29,839
Earnings per parent share (loss) (KRW)	(11,791)	2,183	(7,855)
Earnings per share from continuing operations (loss) (KRW)	(11,791)	2,183	(10,434)
Earnings per share from discontinued operations (KRW)	-	-	2,579



# Key Performance Indicators

## Enhancing Corporate Value Through Sustainable Growth

### R&D <sup>1</sup>

Category	Unit	2018	2019	2020
R&D expenses	KRW 100M	708	842	852
R&D expenses relative to revenue	%	0.5	0.6	0.6
R&D personnel	Headcount	457	507	513
No. of patent applications <sup>2</sup>	Case count	432	396	416
No. of patent applications of environmentally friendly technologies <sup>2, 3</sup>	Case count	201	151	277
No. of intellectual property right applications <sup>2, 4</sup>	Case count	587	565	513

1 Inclusive of KSOE and its shipbuilding subsidiaries

2 As of the application date

3 Patent applications of technologies for low environmental footprint such as SOx and VOCs reduction equipment and LNG-applied equipment, counted separately from other applications

4 Inclusive of patents, model utility rights, design rights, and trademark rights

### Quality Management <sup>1</sup>

Category	Unit	KSOE		HHI			HMD			HSHI		
		2019	2020	2018	2019 <sup>2</sup>	2020	2018	2019	2020	2018	2019	2020
Evaluation of sub-contractor's quality system <sup>3</sup>	Head-count	- <sup>4</sup>	8	409	206	209	271	485	503	271	276	267
Personnel who completed quality training course (including sub-contractor's employees)	Head-count	19	6	137 <sup>5</sup>	82 <sup>5</sup>	31 <sup>5</sup>	678 <sup>6</sup>	983 <sup>6</sup>	341 <sup>6</sup>	146	164	165
Rate of worksites certified to ISO 9001	%	100	100	100	100	100	100	100	100	100	100	100

1 Scope: All domestic business establishments

2 Total number of employees decreased due to the split-off in 2019.

3 For HHI: Total number of sub-contractors evaluated.

4 KSOE has no in-house or outside partner companies in 2019

5 For HHI tallies, only the number of persons who completed quality courses at Hyundai Learning Center were counted.

6 Inclusive of one-time quality training

## Upholding Fair and Transparent Business Practices

### Compliance Management <sup>1</sup>

Category	Unit	KSOE		HHI			HMD			HSHI <sup>3</sup>		
		2019 <sup>2</sup>	2020	2018	2019	2020	2018	2019	2020	2018	2019	2020
Compliance training sessions	Head-count	14	47	58	23	99	2	4	32	-	1	45
Compliance training participants	Number	449	551	3,223	1,361	3,513	185	195 <sup>4</sup>	797	-	170	1,255
Department in charge of compliance audit	Function	1	43	6	4	92	0	7	29	-	26	43
Legal consulting related to fair trade	Case count	57	11	195	59	87	2	3 <sup>4</sup>	0	-	2	4
Legal consulting related to corruption prevention and financial sanction	Case count	15	8	79	10	29	1	0	1	-	0	0
Other legal consulting	Case count	152	638	409	605	579	244	261	386	-	181	181
Violations of Improper Solicitation and Graft Act	Case count	0	0	0	0	0	0	0	0	-	0	0

1 Scope: All domestic business establishments

2 Period: June 1, 2019 ~ December 31, 2019

3 Disclosed since 2019

4 Changed from Integrated Report 2020 to correct typographical errors.

### Business Ethics <sup>1</sup>

Category	Unit	2018	2019	2020	
Employees	Business ethics training (offline)	Head-count	2,953	1,392	480
	Business ethics training (online)	Head-count	18,072	16,626	9,074
	On-Site hearing on business ethics	Head-count	708	242	633
Partner Companies	Business ethics training <sup>2</sup>	Head-count	264	99	3
	On-Site hearing on business ethics	Head-count	412	17	993

1 Including KSOE and its shipbuilding subsidiaries

2 Including group/cyber training



## Greater Management Transparency

Indicator	Unit	KSOE		HHI			HMD			HSHI		
		2019	2020	2018	2019	2020	2018	2019	2020	2018	2019	2020
Outside Director Attendance Rate	%	82.2	97.8	91.7	100	100	94.5	100	100	100	100	96.7
No. of senior managers <sup>1</sup>	Number	32	34	99	90	89	19	22	23	20	21	24
No. of C-suite executives <sup>2</sup>	Number	10	13	40	30	24	4	5	4	4	4	6

<sup>1</sup> Associate Executive Directors or higher ranks

<sup>2</sup> Head of discipline or higher ranks

## Pursuing Safe and Environmentally Friendly Business Practices

## Safety Management

Category	Unit	KSOE		HHI			HMD			HSHI		
		2019 <sup>1</sup>	2020	2018	2019	2020	2018	2019	2020	2018	2019	2020
Accident rate	%	-	0.32	0.25	0.17	0.22	0.26	0.18	0.14	0.25	0.19	0.22
Direct management	%	-	0.32	0.363	0.253	0.33	0.36	0.43	0.20	0.522	0.579	0.60
Partner companies	%	-	0	0.104	0.080	0.09	0.19	0.05	0.10	0.094	0.050	0.09
Fatalities	Head-count	-	0	1	1	4	0	0	0	0	0	0
Direct management	Head-count	-	0	1	0	2	0	0	0	0	0	0
Partner companies	Head-count	-	0	0	1	2	0	0	0	0	0	0
Frequency rate of accidents resulting in sick leave <sup>2</sup>	-	-	0.69	1.20	0.83	1.01	1.38	0.97	0	1.06	1.02	1.19
LTIFR <sup>3</sup>	-	-	0.69	2.13	2.81	2.88	2.07	3.20	0	2.97	2.78	3.42
Spot rewards cases for best safety practices	Case count	-	No operation	47,860	59,815	91,236	No operation	141	5,520	980	2,658	4,780
Reward amount	KRW 1000	-	-	239,300	299,075	474,215	-	705	27,600	4,900	13,290	23,900
Safety/health training attendees	Head-count	-	629	377,504 <sup>5</sup>	383,389 <sup>5</sup>	421,826	104,275	106,238	101,922	128,992	148,894	160,483
Emergency drills	Case count	-	30	54	66	30	8	9	10	13	13	14
% of safety/health training target that has actually received training <sup>4</sup>	%	-	98	-	98	98	-	97	98	93	94	97

<sup>1</sup> Since the split-off in June 2019, the no. of deaths due to industrial accidents is 0, the accident rate is 0%; there is no separate production site.

<sup>2</sup> Per 1 million hours worked

<sup>3</sup> Per 1 million hours worked (including non-accidental injuries)

<sup>4</sup> HHI and HMD: disclosed from 2019

<sup>5</sup> Changed from Integrated Report 2020 because of the change of data calculation criteria

**Health Management**

Indicator	Unit	KSOE		HHI <sup>1</sup>			HMD			HSHI		
		2019	2020	2018	2019	2020	2018	2019	2020	2018	2019	2020
Company-Provided medical service users <sup>1</sup> (including repeated visits)	Head-count	109	88	86,140	94,843	79,878	9,685	10,941	14,558	45,620	53,638	74,127
Smoking cessation clinic participants <sup>2</sup>	Head-count	0	-	96	138	-	59	57	-	106	119	-
Occupational Illness Frequency Rate (OIFR) <sup>3</sup>	%	Not managed	Not managed	0.3 <sup>4</sup>	0.6 <sup>4</sup>	0.5	0.3	0.5	0.9	1.0	1.2	1.7

- 1 Visits to the oriental medical clinic, In-House hospital or health promotion center
- 2 No operation due to COVID-19
- 3 Limited to hearing loss and musculoskeletal disorders
- 4 Changed from Integrated Report 2020 because of the change of data calculation criteria

**Environmental Management**

Category	Unit	KSOE	HHI <sup>5</sup>			HMD <sup>5</sup>			HSHI <sup>6</sup>		
		2020	2018	2019	2020	2018	2019	2020	2018	2019	2020
Direct energy (fuel) consumption	TJ	61	2,647	2,620	2,724	637	667	625	827	1,225	1,250
Indirect energy (electricity) consumption	TJ	79	5,805	6,182	6,268	2,094	2,179	2,064	2,780	2,834	3,098
Renewable energy (wind power) production <sup>1</sup>	TJ	0	23.6 <sup>11</sup>	21.8 <sup>11</sup>	14.4	0	0	0	0	0	0
Total energy consumption	TJ	136	8,452 <sup>11</sup>	8,802 <sup>11</sup>	8,986	2,726	2,842	2,686	3,607	4,059 <sup>11</sup>	4,348
Energy consumption per revenue <sup>2</sup>	TJ/ Total Revenue (KRW 100M)	0.001	-	0.161 <sup>7</sup>	0.108	0.113 <sup>11</sup>	0.095 <sup>11</sup>	0.096	0.138 <sup>11</sup>	0.116 <sup>11</sup>	0.111
Energy savings <sup>3</sup>	TJ	0	35.8 <sup>11</sup>	32.3 <sup>11</sup>	108.2	20.9	60.1	280.0	10.1	26.4	429.6
Direct (Scope 1) emissions	tCO <sub>2</sub> e	3,138	203,516	209,537	218,914	44,678	50,036	48,090	72,451	103,021 <sup>11</sup>	102,969
Indirect (Scope 2) emissions	tCO <sub>2</sub> e	3,827	282,026	300,247	304,446	101,710	105,833	100,265	135,046	137,666	150,470
Total GHG emissions	tCO <sub>2</sub> e	6,963	485,537	509,780	523,352	146,381	155,864	148,352	207,497	240,687 <sup>11</sup>	253,439
GHG emissions reduction	tCO <sub>2</sub> e	0	1,740	1,666 <sup>11</sup>	22,190	2,713	7,781	13,588	1,306	3,419	26,437
GHG emissions per revenue <sup>2</sup>	tCO <sub>2</sub> e/ Total Revenue (KRW 100M)	0.046	-	9.342 <sup>7,11</sup>	6.296	6.086 <sup>11</sup>	5.196 <sup>11</sup>	5.313	7.921 <sup>11</sup>	6.900 <sup>11</sup>	6.469

Category	Unit	KSOE	HHI <sup>5</sup>			HMD <sup>5</sup>			HSHI <sup>6</sup>			
		2020	2018	2019	2020	2018	2019	2020	2018	2019	2020	
Air pollutants	Dust	Ton	0	56	53	39	12	16	7	15	15	14
	NOx	Ton	0	0.720 <sup>11</sup>	0.552 <sup>11</sup>	0.442	12	13	10	15	17	16
Water	Water usage	Ton	31,963 <sup>4</sup>	3,652,864 <sup>11</sup>	3,396,966 <sup>11</sup>	3,056,618	994,098	1,205,127	1,016,309	2,334,270 <sup>11</sup>	2,111,810 <sup>11</sup>	1,966,629
	Water usage per revenue <sup>5</sup>	Ton/ Total Revenue (1M)	0.214 <sup>4</sup>	-	0.622 <sup>7,11</sup>	0.368	0.413 <sup>11</sup>	0.403 <sup>11</sup>	0.364	0.891 <sup>11</sup>	0.605 <sup>11</sup>	0.502
Water pollutants	Wastewater	Ton	43 <sup>4</sup>	3,849	5,854 <sup>11</sup>	20,403	1,247	1,180	1,028	798	688	1,046
	Biochemical oxygen demand (BOD)	Kg	Not managed	29 <sup>11</sup>	13 <sup>11</sup>	49	6	3	4	4	2	4
	Chemical oxygen demand (COD)	Kg	Not managed	31 <sup>11</sup>	19 <sup>11</sup>	75	6	6	10	2 <sup>11</sup>	3	5
	Suspended solid (SS)	Kg	Not managed	8	7 <sup>11</sup>	20	7	22	4	1	1	1
Waste <sup>8</sup>	General waste (reclamation)	Ton	0	1,781	169 <sup>11</sup>	44	368	714	621	5,851	6,335	6,509
	General waste (incineration)	Ton	20 <sup>4</sup>	27,475	28,955	31,635	8,847	10,984	10,193	7,977	10,223	10,698
	Designated waste (reclamation)	Ton	0	147	724	594	0	19	0	1	1	0
	Designated waste (incineration)	Ton	8 <sup>4</sup>	1,833 <sup>11</sup>	1,968 <sup>11</sup>	2,198	399	573	547	1,540	1,338	1,607
Recycling <sup>6</sup>	Recycling	Ton	2 <sup>4</sup>	30,914 <sup>11</sup>	34,984 <sup>11</sup>	36,013	19,379	21,145	19,554	40,508 <sup>11</sup>	45,176 <sup>11</sup>	58,086
	Recycling rate <sup>7</sup>	%	7 <sup>4</sup>	50	52	51	67	63	63	72	72	76
Environmental investment <sup>8</sup>	KRW 100M	0.4	355	603	913	63	139	38	83	180	160	
Violation of environmental laws/ regulations	Case count	0	0	0	0	0	0	0	0	0	0	

- 1 All new renewable energy (wind power) produced are sold out, not consumed.
- 2 Standalone basis: disclosed from 2019 due to inappropriateness of a simple parallel comparison with previous figures calculated using revenue recorded before the split-off.
- 3 (HHI) Switch to LED lights, etc. (HMD) Switch to LED lights, dual pressure control for air compressor system, etc., (HSHI) Energy savings through air compressor control system, etc.
- 4 Ulsan Research Building + Test Building
- 5 Main plant in Ulsan
- 6 Main plant in Mokpo
- 7 (HHI) HHI's water usage in 2019 is based on a single year; total revenue is based on 6 months after split-off
- 8 (HHI) Main plant in Ulsan and offshore business
- 9 (HHI) Including of the main plant in Ulsan & offshore business and Neancheon/Neancheon piping/Neancheon piping No. 3 plant in Gyeongju
- 10 Scope for energy and GHG data: All domestic business establishments
- 11 Changed from Integrated Report 2020 because of the change of data calculation criteria

## Promoting Strong Labor-Management Relations Built on Mutual Respect and Trust

### Personnel Status <sup>1</sup>

Category	Unit	KSOE		HHI			HMD			HSHI		
		2019	2020	2018	2019	2020	2018	2019	2020	2018	2019	2020
Total employee	Head-count	652	655	14,785	13,863	13,423	3,114	3,094	3,066	3,664	3,681	3,636
Permanent employee (male)	Head-count	517	517	13,718	13,366	12,695	3,034	2,981	2,950	3,533	3,491	3,460
Permanent employee (female)	Head-count	73	107	491	497	402	43	48	46	34	32	35
Temporary employee (male)	Head-count	10	9	301	277	137	19	27	25	65	110	93
Temporary employee (female)	Head-count	52	22	275	294	189	18	38	45	32	48	48
Average years of service (male)	Year	6.6	5.9	15.9	15.5	17.6	17.0	17.1	17.9	17.9	18.2	19.2
Average years of service (female)	Year	5.2	5.9	9.8	9.6	17.2	9.4	6.8	7.1	8.5	7.6	7.5
Average salary per person (male)	KRW 1,000	72,904	67,474	66,701	67,725	69,409	76,269	80,510	70,346	75,078	80,424	79,303
Average salary per person (female)	KRW 1,000	43,513	47,077	45,448	40,247	43,388	51,510	43,795	41,737	46,073	41,364	45,658
Non-affiliated employee (male)	Head-count	0	0	11,330	11,566	11,917	4,989	5,073	4,456	-	8,545	8,204
Non-affiliated employee (female)	Head-count	8	7	1,345	1,452	1,543	654	681	619	-	1,261	1,254

<sup>1</sup> Scope: All business establishments

### Labor-Management Relations <sup>1</sup>

Category	Unit	KSOE		HHI			HMD			HSHI		
		2019 <sup>2</sup>	2020	2018	2019	2020	2018	2019	2020	2018	2019	2020
Rate of employees eligible or collective bargaining <sup>3</sup>	%	100	100	100	100	100	100	100	100	100	100	100
Employees eligible for labor union membership	Head-count	127	61	8,668	8,177	8,009	2,090	2,116	2,022	2,666	2,607	2,624
Union members	Head-count	44	5	8,541	8,004	7,711	2,090	2,116	2,022	2,316	2,308	2,302
Union membership rate	%	34.6	8.2	98.5	97.9	96.3	100	100	100	86.9	88.5	87.7
Labor-Management Council sessions	Case count	3	3	4	4	4	4	4	4	2	2	4
Proposals submitted to Council	Case count	9	5	40	59	52	21	12	19	13	20	29
Management status briefing sessions	Case count	Not performed	Not performed	4	0 <sup>4</sup>	4	3	2	1	1	2	2
Labor-Management relations training sessions <sup>5</sup>	Case count	- <sup>6</sup>	0	3	15	19	31	11	14	5	5	3
Training participants	Head-count	- <sup>6</sup>	0	1,492	1,583	486	2,922	317	571	205	456	184
Strikes	Case count	0	0	21	33	8	0	2	0	1	4	5
Strike force	Head-count	0	0	13,269	43,401	5,860	0	205	0	247	394	799

<sup>1</sup> Scope: All business establishments

<sup>2</sup> Period: June 1, 2019 ~ December 31, 2019

<sup>3</sup> Wage system is not subject to collective bargaining.

<sup>4</sup> Briefing on the contemplated split-off (attended by all employees for four or more times)

<sup>5</sup> Training for practical management practice, new recruits training, etc.

<sup>6</sup> Conducted before the split-off, included in HHI's figures

Learning & Development <sup>1</sup>

Category	Unit	KSOE		HHI			HMD			HSHI	
		2019 <sup>2</sup>	2020	2018	2019	2020	2018	2019	2020	2019	2020
Participants in training (including repeated participation)	Head-count	1,092	1,292	16,802	19,451	11,158	15,228	10,778	9,352	10,105 <sup>8</sup>	12,252
Executives and employees in training (excluding repeated participation)	Head-count	- <sup>3</sup>	597	- <sup>3</sup>	- <sup>3</sup>	7,075	- <sup>3</sup>	- <sup>3</sup>	1,006	- <sup>3</sup>	1,668
Rate of executive and employees completed training	%	- <sup>3</sup>	89.5	- <sup>3</sup>	- <sup>3</sup>	53.8	- <sup>3</sup>	- <sup>3</sup>	32.9	- <sup>3</sup>	45.9
Training time per employee	Hour	28	20	29	28	16	36	30	20	27 <sup>8</sup>	35
Training time per employee(male)	Hour	30	22	- <sup>4</sup>	27	16	- <sup>4</sup>	30	20	- <sup>5</sup>	- <sup>5</sup>
Training time per employee (female)	Hour	20	10	- <sup>4</sup>	45	15	- <sup>4</sup>	25	13	- <sup>5</sup>	- <sup>5</sup>
Total training hours	Hour	19,079	13,465	427,816	389,205	213,415	112,205	92,096	61,171	96,292 <sup>8</sup>	126,070
Investment in training	KRW 10M	18	14	343	230	200	123	87	27	130	57
Fostering leaders	Head-count	36	32	132	1,691	1,324	63	79	89	72	25
Nurturing of convergence talents	Head-count	2	0	16	65	46	3	5	3	4	6
Nurturing of job-specific specialists	Head-count	93	54	858	2,583	4,020	416	582	579	340	46
New hires training	Head-count	233	92	614	889	251	78	168	53	79	31
Nurturing of global talents	Head-count	0	1	35	7	10	0	0	0	145 <sup>8</sup>	237
Other programs <sup>6</sup>	Head-count	85	0	1,372	2,771	68	280	100	75	2,408	2,398
Beneficiaries of the employment-related training programs	Head-count	-	-	119	79	- <sup>7</sup>	17	5	5	71 <sup>8</sup>	30
Production technicians of job improvement training programs	Head-count	-	-	4,017	2,269	3,224	1,104	637	214	124	237
Trainees (incumbent job improvement training for partner companies)	Head-count	-	-	763	806	426	649	450	600	1,998	1,782
Trainees (prospective recruits nurturing training for partner companies)	Head-count	-	-	Not per-formed	212	181	44	137	69	95 <sup>8</sup>	33

1 Scope: All business establishments

2 Period: June 1 - December 31, 2019

3 This is an unaggregated indicator and has been disclosed since 2020.

4 This is an unaggregated indicator and has been disclosed since 2019.

5 This is an unaggregated indicator and has been disclosed from the next year.

6 Training to promote communication among production workers, competency training for in-house instructors, etc.

7 Not performed due to COVID-19

8 Changed from Integrated Report 2020 because of the change of data calculation criteria

Evaluation and Compensation <sup>1</sup>

Category	Unit	KSOE <sup>2</sup>		HHI			HMD			HSHI				
		2019	2020	2018	2019	2020	2018	2019	2020	2018	2019	2020		
Percentage of employees evaluated for performance	All	%	87.0	93.1	84.7	92.2	93.3	93.9	93.8 <sup>3</sup>	95.2	93.5	91.7	90.4	
	Male	Knowledge workers	%	87.3	93.5	97.8	96.4	97.8	98.3	96.6 <sup>3</sup>	98.4	89.2	87.5	88.2
		Production Workers	%	-	-	85.2	90.1	90.9	91.8	92.7	93.6	93.9	94.4	92.5
	Female	Knowledge workers	%	84.5	90.0	93.5	91.8	94.8	89.5	80.5	90.9	33.9	26.6	28.3
		Production Workers	%	-	-	62.2	84.1	71.4	100	100	100	100	93.8	100
	Wages	KRW 100 M		373	510	11,828	10,070	8,920	2,360 <sup>3</sup>	2,459 <sup>3</sup>	2,131	2,732	2,929	2,856

1 Scope: All business establishments

2 No production workers

3 Changed from Integrated Report 2020 because of the change of data calculation criteria



Employees' Quality of Life <sup>1</sup>

Category	Unit	KSOE		HHI			HMD			HSHI				
		2019 <sup>5</sup>	2020	2018	2019	2020	2018	2019	2020	2018	2019	2020		
Loan interest support amount	KRW 100 M	3	6	113	69	117	20.2	21.3	20.3	12.0	11.9	12.8		
Employees on maternity leave <sup>2</sup>	Male	Head-count	14	0	511	473	357	81 <sup>7</sup>	81 <sup>7</sup>	58	94	70	54	
	Female	Head-count	5	7	34	26	25	2 <sup>7</sup>	6 <sup>7</sup>	2	5	4	2	
Employees on parental leave	Employees in scope <sup>3</sup>	Male	Head-count	208	208	4,811	4,523	4,017	989 <sup>7</sup>	899 <sup>7</sup>	830	1,155	1,103	972
		Female	Head-count	30	5	85	57	40	8 <sup>7</sup>	9 <sup>7</sup>	5	11	14	14
	Employees taking leave	Male	Head-count	2	7	157	272	245	22	21 <sup>7</sup>	46	78	65	47
		Female	Head-count	6	9	34	27	20	6	8 <sup>7</sup>	8	4	4	2
	Employees having returned to work	Male	Head-count	2	3	126	283	243	13	14	27	71	68	52
		Female	Head-count	6	7	23	31	20	3	3	5	2	3	3
1+ year continued service <sup>4</sup>	Male	%	- <sup>6</sup>	0	77.0	59.6	89.9	50.0 <sup>7</sup>	84.6 <sup>7</sup>	78.6	93.8	87.3	94.2	
	Female	%	- <sup>6</sup>	50	50.0	63.2	70.8	75.0 <sup>7</sup>	66.7 <sup>7</sup>	66.7	100	100	66.7	
Average continued service period	Year		6.3	5.9	15.7	18.1	17.6	16.9	16.4	17.6	17.7	18.1	18.9	
Retirement planning consulting attendees	Head-count		0	0	425	507	68	63	53	75	37	50 <sup>7</sup>	66	
Retirement Pension System	DB	KRW 100 M	231 <sup>7</sup>	319	6,194 <sup>7</sup>	6,977 <sup>7</sup>	7,217	1,435 <sup>7</sup>	1,571 <sup>7</sup>	1,804	1,401 <sup>7</sup>	1,671 <sup>7</sup>	2,092	
	DC	KRW 100 M	0	0	0	0	0	0	0	0	0	0	0	
Personal pension support amount	KRW 100 M		3.2	1.5	32	33	32	7.4	7.3	7.2	6.3	- <sup>8</sup>	- <sup>8</sup>	
In-House employee benefits fund	KRW 100 M		78	81	- <sup>9</sup>	- <sup>9</sup>	- <sup>9</sup>	63	63	63	69	69	74	

1 Scope: All business establishments  
 2 Inclusive of prenatal/postnatal leave and paternity leave  
 3 All employees with children aged eight or younger, inclusive of those on parental leave  
 4 The percentage of workers staying at work at the end of the year after returning from parental leave in the previous year

5 Period: June 1, 2019 ~ December 31, 2019  
 6 No employees worked for one year or longer as the company was established on June 1, 2019.  
 7 Changed from Integrated Report 2020 because of the change of data calculation criteria  
 8 Personal pension incorporated into basic pay from 2019  
 9 No data because Internal Labor Welfare Fund isn't divided from KSOE

Demonstrating Our Commitment to Global Corporate Citizenship

Supply Chain Management <sup>1</sup>

Indicator	Unit	HHI			HMD			HSHI		
		2018	2019	2020	2018	2019	2020	2018	2019	2020
Share Growth Fund execution size	KRW 100M	1,446	1,570	1,738	536	546	433	543 <sup>6</sup>	546	660
Share Growth Fund raising size <sup>2</sup>	KRW 100M	3,536	3,086	3,086	690	690	690	810	810	810
Cash payment	%	100	100	100	100	100	100	100	100	100
Early payment	KRW 100M	1,965	2,212	1,297	1,350	1,116	384	659	901	534
Trainees from partner companies	Head-count	920	1,204	1,399	548	883	747	1,838	1,033	1,807
Partner companies in total <sup>3</sup>	No.	469	466	416	250	250	250	250	250	250
Shared Growth ratings <sup>4</sup>	Grade	Excellent	Good	Moderate	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Regular risk assessment of partner companies <sup>5</sup>	%	100	100	100	100	100	100	100	100	100

1 Scope: All business establishments  
 2 Deposit balance : HHI (KRW 124.2 billion), HMD (KRW 27 billion), HSHI (KRW 27 billion)  
 3 Based on the signing of the fair trade agreement  
 4 The year denotes when the announcement of the grade was made.  
 5 Financial/quality risk assessment  
 6 Changed from Integrated Report 2020 because of the change of data calculation criteria

Social Contribution

Indicator	Unit	KSOE	HHI			HMD			HSHI		
		2020	2018	2019	2020	2018	2019	2020	2018	2019	2020
Expenses of social contribution	KRW 1,000	74,100	395,532	410,366	373,258	155,955	162,609	68,487	354,551	69,385	78,455
Total volunteering time	Hour	559	10,059	12,897	11,662	2,480	1,692	3,982	1,830	1,120	2,744
Total salary donation value	KRW 1,000	92,907	117,156	108,201	441,443	30,007	28,926	327,841	15,141	15,016	141,511
Salary donation participants	Head-count	227	15,296	13,959	12,790	2,618	2,424	2,307	2,525	2,506	2,857

# Independent Auditor's Report

## Independent Auditor's Report on Consolidated Financial Statements

Attn: Shareholders and the board of directors of KSOE

Mar. 16, 2021

### Audit Opinion

We have audited the consolidated financial statements of KOREA SHIPBUILDING & OFFSHORE ENGINEERING CO., LTD. and its subsidiaries (collectively referred to as the "Group"), which comprise the consolidated statement of financial position as of December 31, 2020, and the consolidated statement of comprehensive loss, consolidated statement of changes in equity and consolidated statement of cash flows for the year then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of the Group as of December 31, 2020, and its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with Korean International Financial Reporting Standards ("KIFRS").

### Basis for Audit Opinion

We conducted our audit in accordance with Korean Auditing Standards ("KGAAS"). Our responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the consolidated financial statements section of our report. We are independent of the Group in accordance with the ethical requirements that are relevant to our audit of the consolidated financial statements in the Republic of Korea, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

### Responsibilities of Management and the Governing Body for Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with KIFRS, and for such internal control as management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, management is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's financial reporting process.

### Auditor's Responsibilities for Auditing the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with KGAAS will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with KGAAS, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

The engagement partner on the audit resulting in this independent auditor's report is Sang Hoon Jeon.

111, Yeouigongwon-ro, Yeongdeungpo-gu, Seoul, Republic of Korea  
Ernst & Young Han Young  
Park Yonggeun CEO



March 16, 2021

This report is effective as of March 16, 2021, the independent auditor's report date. Accordingly, certain material subsequent events or circumstances may have occurred during the period from the independent auditor's report date to the time this report is used. Such events and circumstances could significantly affect the accompanying consolidated financial statements and may result in modification to this report.

# GRI Content Index

## GRI Universal Standards

### GRI 102: General Disclosures 2018

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## GRI Topic Specific Standards

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GRI 103: Management Approach	103-1	Explanation of the material topic and its Boundary	40~41
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GRI 103: Management Approach	103-1	Explanation of the material topic and its Boundary	40~41
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# SASB Index

Category	SASB Code	Accounting Metric	Unit	HHI	HMD	HSHI
				2020	2020	2020
Energy Management	RT-EE-130a.1	Total energy consumed	TJ	8,992	2,686	4,348
		Percentage grid electricity	Ratio(%)	69.71	76.84	71.88
		Percentage renewable	Ratio(%)	0	0	0
Employee Health & Safety	RT-IG-320a.1	Total recordable incident rate (TRIR)	Ratio(%)	0.205	0.144	0.238
		Fatality rate	Ratio(%)	0.014	0	0
		near miss frequency rate (NMFR)	Ratio(%)	0.047 <sup>1</sup>	Not managed	19,026 <sup>2</sup>
Fuel Economy & Emissions in the Use-phase	RT-IG-410a.1	Sales-weighted fleet fuel efficiency for medium- and heavy-duty vehicles	gal/1,000ton-mile	N.A	N.A	N.A
	RT-IG-410a.2	Sales-weighted fuel efficiency for non-road equipment	gal/hr	N.A	N.A	N.A
	RT-IG-410a.3	Sales-weighted fuel efficiency for stationary generators	W/gal	N.A	N.A	N.A
	RT-IG-410a.4	(1) Nitrogen oxides (NOx)	g/kWh	Marine Engine Tier II 12.8 Tier III 2.2 HiMSEN Engine Tier II 8.6 Tier III 1.9	N.A	N.A
		(2) Particulate matter (PM) for: a. marine diesel engines, b. locomotive diesel engines, c. on-road medium- and heavy-duty engines, and d. other non-road diesel engines	g/kWh	Not managed <sup>3</sup>	N.A	N.A
Materials Sourcing	RT-IG-440a.1	Description of the management of risks associated with the use of critical materials	Reporting currency	N.A	N.A	The unit cost impact and risk management by raw-material (ironstone, copper, nickel, crude, etc.) price and exchange fluctuations
Remanufacturing Design & Services	RT-IG-440b.1	Revenue from the remanufactured products and remanufacturing services	Reporting currency	N.A	N.A	N.A
Activity Metrics	RT-IG-000.A	Number of units produced by the product category	Number	T/K 2 ships SHTTLE T/K 2 ships LNGC 7 ships LPGC 7 ships VLCC 5 ships VLOC 5 ships CNTR 5 ships LNG FSRU 1 ships  <b>TOTAL 34 ships</b>	PC선 43 ships LPGC 2 ships ROPAX 1 ships CONT 20 ships B/C 4 ships  <b>TOTAL 70 ships</b>	T/K 9 ships LNGC 6 ships VLCC 6 ships VLOC 2 ships CNTR 3 ships B/C 2 ships  <b>TOTAL 28 ships</b>
	RT-IG-000.B	Number of employees	Number	13,423	3,066	3,636

1 Regarded safety accidents with human injury and physical damage as a near miss  
 2 Regarded the accident which wasn't direct but any accident can be occurred by worker's negligence, on-site facilities' defect, etc. as a near miss  
 3 Be being carried out 'a. Marine Diesel Engines' project by HHI, but isn't managed PM (particulate matter)

# Third-Party Assurance Statement

## Introduction

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

## Scope and Standards

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

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

- GRI Sustainability Reporting Standards
- Universal standards
- Topic Specific Standards
  - Management approach
  - GRI 201: Economic Performance
  - GRI 205: Anti-Corruption
  - GRI 302: Energy
  - GRI 305: Emissions
  - GRI 306: Effluents and Waste
  - GRI 403: Occupational Health and Safety
  - GRI 416: Customer Health and Safety
- SASB Sustainability Disclosure Topics & Accounting Metrics

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

## KMR's Approach

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

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

## Limitations and Recommendations

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

## Conclusion and Opinion

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

### Inclusivity

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

### Materiality

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

### Responsiveness

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

### Impact

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

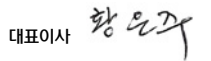
## Reliability of Specific Sustainability Performance Information

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

## Competence and Independence

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

June 2021 Seoul, Korea



# Membership Status & Information Disclosure Activities

## Membership Status

- Korea Chamber of Commerce & Industry
- Korea Offshore & Shipbuilding Association
- Korea Defence Industry Association
- Korea Enterprises Federation
- Munsan Industrial Complex Committee
- Society of Naval Architect of Korea
- Korea Society of Ocean Engineers
- Korea Specialty Contractors Association
- Korea Association for Space Technology Promotion
- Korean Society of Mechanical Engineers

## Information Disclosure Activities

Disclosure Channels		Main Contents
HHI Group Website	<a href="http://www.hyundai-holdings.co.kr/">http://www.hyundai-holdings.co.kr/</a>	Introduction of the Group & major subsidiaries, media center, IR, recruitment
KSOE Website	<a href="http://www.ksoe.co.kr/">http://www.ksoe.co.kr/</a>	Introduction of the company, sustainable management, media center, IR
HHI Website	<a href="http://www.hhi.co.kr/">http://www.hhi.co.kr/</a>	Introduction of the company, business areas, PR, sustainable management, shared growth
HMD Website	<a href="http://www.hmd.co.kr/">http://www.hmd.co.kr/</a>	Introduction of the company, facilities, business areas, customer service, PR, recruitment, IR
HSHI Website	<a href="http://www.hshi.co.kr/">http://www.hshi.co.kr/</a>	Introduction of the company, business areas, Social Contribution, online PR, news
HHI Group Business Ethics Website	<a href="https://ethics.hhigroup.kr/html/main.html">https://ethics.hhigroup.kr/html/main.html</a>	Group ethics management direction, ethics regulations, online report/counseling
HHI Group Webzine	<a href="http://www.hyundai-holdings.co.kr/magazine-h">http://www.hyundai-holdings.co.kr/magazine-h</a>	Monthly updates on recent developments at HHI Group
Financial Supervisory Service DART	<a href="http://dart.fss.or.kr/">http://dart.fss.or.kr/</a>	Various disclosures made either mandatorily as a listed company or voluntarily
Investor Relations	<a href="http://www.ksoe.co.kr/ir05">http://www.ksoe.co.kr/ir05</a>	Regular announcement of business performance and outlooks

The KSOE Integrated Report 2021 introduces sustainable management outcomes achieved by KSOE and its shipbuilding subsidiaries. To provide relevant information to stakeholders, core issues derived from our materiality assessment are reported on the basis of our Group's five management philosophies.

<b>Reporting Principles and Framework</b>	<ul style="list-style-type: none"> <li>· Global Reporting Initiative (GRI) Standards (Core)</li> <li>· Sustainability Accounting Standards Board (SASB)</li> <li>· International Integrated Reporting Council's (IIRC) integrated reporting framework</li> </ul>
<b>Reporting Boundary</b>	KSOE and its shipbuilding subsidiaries (HHI, HMD, and HSHI)
<b>Reporting Scope</b>	Overall economic (under K-IFRS), social and environmental aspects
<b>Reporting Period</b>	For the year ended December 31, 2020 (some of the achievements: January 2018 to March 2021)
<b>Reporting Frequency</b>	Annual (last report issued in June 2020)
<b>Reporting Assurance</b>	Third party's independent assurance (overall sustainability management, GHG emissions and energy consumption separately verified)

<b>Those Credited with Helping Issue This Report</b>	<ul style="list-style-type: none"> <li>· KSOE   IR Team, ESG Strategy Team, Technology Management Department, Quality Planning Team, Compliance Team, Business Ethics Team, Tax &amp; Administration Team, Consolidation Accounting Team, Management Support Team, Project Management Team, HR Management Team, CSR Planning Team</li> <li>· HHI   Shipbuilding &amp; Offshore Quality Management Dep't 1&amp;2, Performance Quality Management Dep't, Advanced Product Quality Management Dep't, Finance Team, Safety Planning Team, Health Management Team, Environment Management Team, Energy Planning Team, HRD Planning Team, Technical Education Instruction Team, Human Resources Support Team, Procurement Planning Dep't, Coexisting Cooperation Team, Social Contribution Team</li> <li>· HMD   Public Relations Team, Quality Management Dept., Accounting Team, Health, Safety and Environment Dep't, Facility Maintenance Dept., Employee Relations Team, HR Team, Material Purchasing Dept., General Affairs Team, Cost Management Team, Supply Chain Management Team</li> <li>· HSHI   Hull QM Dept., System QM Dept., Accounting Team, Safety and Health Dept., Maintenance Dep't, Industrial Relations Team, Human Resources Team, Human Resources Development Team, Materials Procurement Dep't, General Affairs Team</li> </ul>
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<b>Head Office Address</b>	75, Yulgok-ro, Jongno-gu, Seoul, ROK
<b>Contact Point</b>	Please contact our ESG Strategy Team for any questions or comments regarding this report.

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KSOE Integrated Report 2021 is available on our website (<http://www.ksoe.co.kr/en/>) as an interactive PDF for more convenient user experience.

