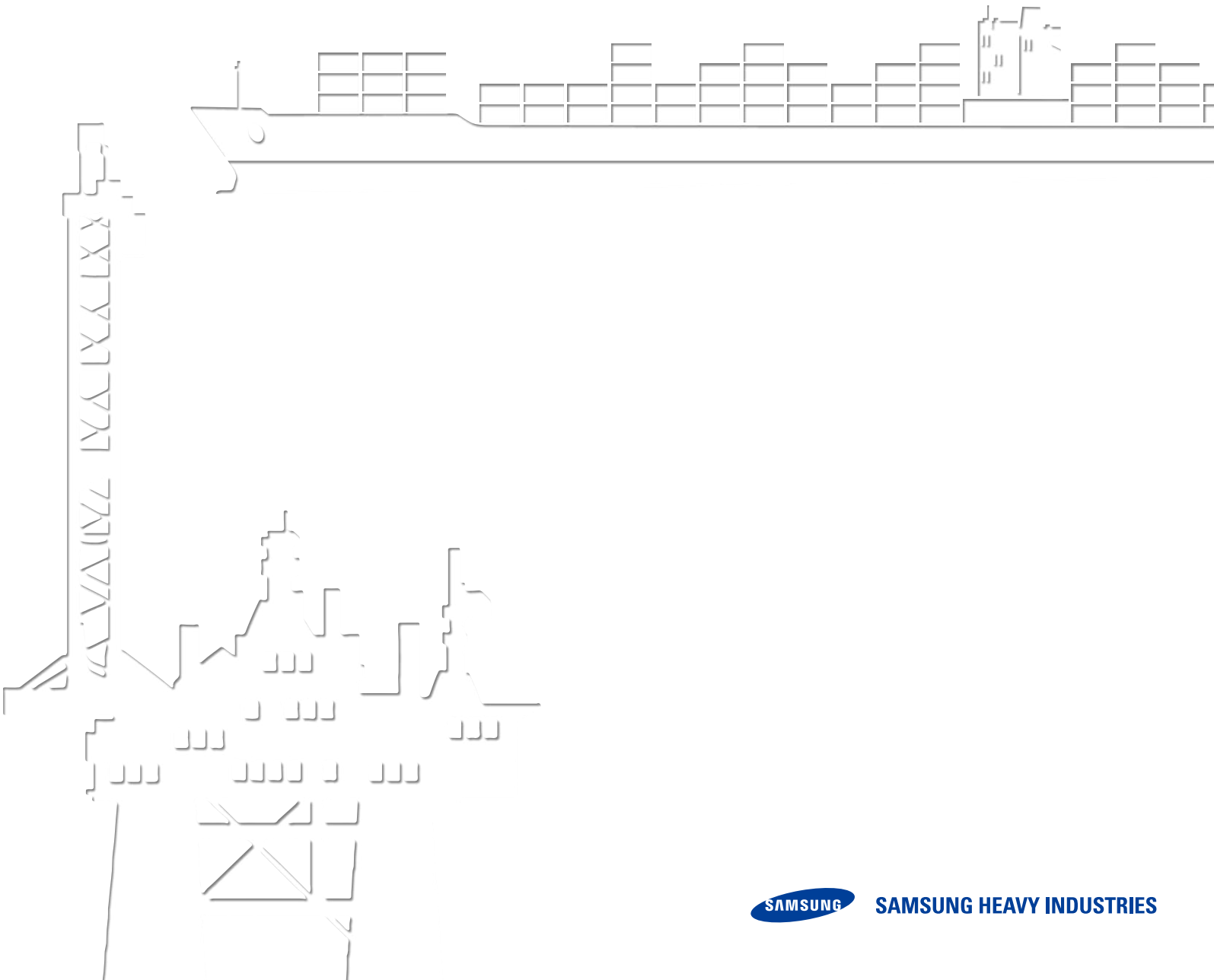
SAMSUNG HEAVY INDUSTRIES

SUSTAINABILITY REPORT 2016



SAMSUNG HEAVY INDUSTRIES

ABOUT THIS REPORT

Report Overview

Samsung Heavy Industries (hereinafter referred to as SHI or the company) has continued to publish a Sustainability Report since 2011 with the aim of informing its activities, achievements and future plans for its sustainable and healthy growth to its various stakeholders.

Reporting Period

This report covers the reporting period from 1 January, 2016 to 31 December, 2016, which is the base point of fiscal year. The report covers the recent 3-year quantitative performance to provide time-series trends and further significant sustainability issues of Q1 2017 to enhance timeliness of document.

Reporting Scope

The geographic scope of this report covers SHI's domestic worksite, including Geoje Shipyard, Hwaseong Plant, Pangyo R&D Center and Daedeok R&D Center. Moreover, the report includes 4 major overseas subsidiaries and offices to expand the reporting scope as of 2016.

Reporting Guidelines

The SHI Sustainability Report 2016 was written in accordance with the Core level of the GRI (Global Reporting Initiative) G4 guidelines and in consideration of the IR Framework of IIRC (International Integrated Reporting Council).

Third Party Assurance

This report was verified by Lloyd's Register Quality Assurance Ltd., a third-party assurance institution to confirm the reliability of report and boost stakeholder confidence.

SAMSUNG HEAVY INDUSTRIES

SUSTAINABILITY REPORT 2016

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OVERVIEW

Geoje Shipyard

SHI's Geoje Shipyard has gained recognition as Korea's shipbuilding and offshore production center on the basis of its superior shipbuilding method and production efficiency. In addition to obtaining certification in the top 3 international standards-ISO 9001 (Quality Management), ISO 14001 (Environmental Management), and OHSAS 18001 (Safety & Health Management), the shipyard strives to realize Smart Yard by utilizing ICT · IoT technology for the first time in Korea and developing a real-time ship monitoring system.

Major Production Facilities

Capacities

Shipbuilding : 70 vessels / year

Offshore : 250,000MT / year

Facility

Total Area : 4,000,000m^2

Quay : 7.9km (24 vessels)

Dry Dock

The size and number of Dry dock is the measurement criteria for construction capacity of a shipyard in general. SHI has three Dry docks at Geoje shipyard for ship building and repairing

Dock	Scale (length x width x depth)	Major Products
Dock No.1	283m x 46m x 11m	Tanker, LNG carrier, Drillship
Dock No.2	390m x 65m x 11m	LNG carrier, Drillship
Dock No.3	640m x 98m x 11m	Container ship, LNG-FPSO, VLCC

Floating Dock

SHI builds ships on the sea at floating docks where new construction methods including the terra-block technology are being applied to dramatically reduce construction time.

Dock	Scale (length x width)	Major Products
Green Dock No.1	270m x 52m	Tanker, Drillship, FPSO
Green Dock No.2	400m x 55m	Tanker, LNG carrier
Green Dock No.3	400m x 70m	Container ship, VLCC, LNG FPSO
Green Dock No.4	420m x 70m	Container ship, VLCC, LNG FPSO
OFD*	157m x 131m	Offshore facilities only

* Offshore Floating Dock

MESSAGE FROM THE CEO

Dear stakeholders who trust and value Samsung Heavy Industries,

Samsung Heavy Industries experienced severe hardship in 2016. Because of global economic uncertainty, continued low oil prices, and an oversupply of ships and drilling facilities, the business faced a prolonged economic slump with fewer contracts, which has resulted in business loss and lower sales. SHI faced even more difficulty when the government carried out industrial restructuring. SHI is determined to overcome these challenges. With this 7th Sustainability Report, SHI transparently presents its economic, social, and environmental activities and performances to stakeholders.

To make up for massive loss during the past few years, SHI established a Management Efficiency Plan to raise 1.5 trillion KRW by selling off its unproductive assets and downsizing; the goal has been exceeded. Moreover, SHI issued new stocks worth 1.1 trillion KRW, securing the required operating capital. SHI also secured liquidity by improving its financial structure with drastically reduced debt ratio.

With rapid political and economic changes globally, such as a new US president, the spread of neo-protectionism, a slowdown of China's growth, and the inauguration of a new government in Korea, the dominant view of experts is that economic uncertainty is likely to continue in 2017 and the shipbuilding and offshore industry is unlikely to get back on track in a short period of time. Nevertheless, SHI has become stronger after overcoming countless hardships in the past 42 years. SHI will focus all its efforts on ensuring steady work by continuing its Management Efficiency Plan, improving production efficiency, reducing costs, and developing customized products. Furthermore, SHI will firmly lay foundations for all employees to remain committed to basic skills, including but not limited to safety and quality enhancement. Last but not least, I would sincerely request your unwavering support and trust towards SHI.

Thank you.

Dae Young PARK
CEO of Samsung Heavy Industries

Company Profile

Overview

Established in 1974, Samsung Heavy Industries (SHI), which won contracts to build 1,127 ships and offshore production facilities as of December 2016 from top-tier global shipping companies of which 1,038 ships were delivered aims to become the world's leading company in high (or cutting-edge) technology, production efficiency, and the high value-added ship sectors.
In the offshore industry, SHI has achieved an unparalleled technology competitiveness for FPSOs and demonstrates outstanding turnkey production capacity in topside engineering and building, the core competency in offshore facilities.

General Information

Based on 2016 Business Report

Company Name	Samsung Heavy Industries Co., Ltd.
Date of Foundation	August 5, 1974
CEO	Dae Young PARK
Number of Employees	11,897
Head Office	23, Pangyo-ro 227beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do
Telephone	+82-31-5171-7000
Website	www.samsungshi.com

Management Philosophy & Company Mission

Management Philosophy

SHI contributes to humanity by producing and providing the best products and services based on human talents and technology.

Company Mission

SHI enhances customer satisfaction and quality of life by providing reliable, environment friendly, economical and convenient ships and facilities.

5 Core Values

People
SHI places heavy value on human resources as it believes that talents are crucial to the company.

Excellence
SHI strives to become the world's best with consistent passion and unbeatable and challenging spirt.

Change
SHI proceeds with unyielding transformation and innovation founded on a widespread awareness of a possible crisis.

Integrity
SHI strictly complies to the law and ethics with commitment and proper manners.

Co-prosperity
SHI strives to add positive values to its local community, nation and mankind.

Management Principles

1 SHI complies with the law and code of ethics

2 SHI maintains a healthy organizational culture.

3 SHI respects its customers, stockholders and employees.

4 SHI cares for the environment, safety and health.

5 SHI is a socially responsible corporate citizen.

Global Network

Samsung Heavy Industries operates 4 worksites across Korea, and an global network of 8 offices, 2 subsidiaries, 1 J/V, and an engineering center.

Domestic

Pangyo R&D Center

23, Pangyo-ro 227beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do

Daeduk R&D Center

217, Munji-ro, Yseong-gu, Daejeon

Geoje Shipyard

80, Jangpyeong 3-ro, Geoje-si, Gyeongsangnam-do

Hwaseong Plant

1339, Hyohaeng-ro, Hwaseong-si, Gyeonggi-do (Banweol-dong)

Overseas

Overseas Subsidiaries

China SHI Ningbo Co., Ltd.
SHI Rongcheng Co., Ltd.
India SHI India Engineering Center
Nigeria Overseas J/V: SHI-MCI FZE

Overseas Office

North America Houston Office
Europe London Office, Oslo Office, Athens Office
Middle East Dubai Office
Africa Lagos Office
Asia Singapore Office, Tokyo Office, India Engineering Center

Overseas Subsidiaries and Offices

In systematic cooperation and communication with its offices around the world, SHI strengthens its competitiveness including global management, stable material procurement, high cost competitiveness, efficient shipbuilding supply and increasing productivity.

China

Rongcheng Co., Ltd

Ningbo Co., Ltd.

Rongcheng Co., Ltd.

Rongcheng Co., Ltd., which began manufacturing ship blocks in 2007, operates in close connection with the head office and builds various types of ship blocks such as container ships, LNG carriers, and arctic shuttle tankers. The plant recently expanded its production line to offshore platforms including FPSO and FLNG, which require high technical skills.

Ningbo Co., Ltd.

Established in 1995, the Ningbo plant has continued its growth after the implementation of Geoje Shipyard's production system with annual production capacity of six ships on a scale of 50,000 tons. The plant has produced differentiated products based on the same safety and quality management system as that of head office.

Overview of Rongcheng Co., Ltd.

Date of Establishment	March 3, 2006
No. of Employees	2,318
Functions	Production of ship blocks and offshore facilities
Annual production capacity	500,000 tons

Overview of Ningbo Co., Ltd.

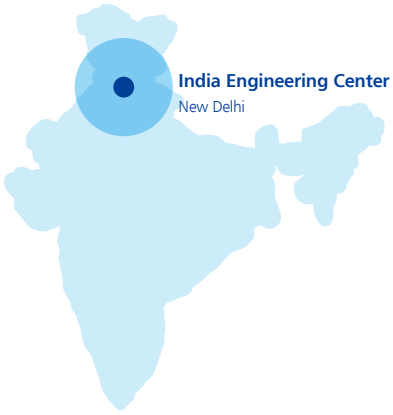
Date of Establishment	December 22, 1995
No. of Employees	2,106
Functions	Shipbuilding and production of ship blocks with iron structures
Annual production capacity	300,000 tons

India

India Engineering Center

The India Engineering Center, established in 2007 as a base for leading global engineers to design offshore facilities and support head office projects, had a total of 185 employees as of 2016. The center continues to strengthen its engineering capabilities by taking part in engineering Teekay FPSO and Egina PKG3.

India Engineering Center



Overview of India Engineering Center

Date of Establishment	June 12, 2007
No. of Employees	185
Functions	Design and engineering support for offshore production facilities

Nigeria

SHI-MCI FZE

The Nigeria Corporation, which began its operation in 2011, won a US $3 billion FPSO contract from the Nigerian National Petroleum Corporation (NNPC) and Total Upstream Petroleum Nigeria. Setting up a joint venture with Lagos Deep Offshore Logistics Base (LADOL) in accordance with contracts' local content regulations, SHI is building a professional offshore facility and parts of the upper structure of a FPSO.

SHI-MCI FZE

Overview of SHI-MCI FZE

Date of Establishment	October 5, 2011
No. of Employees	1,199
Functions	Perform Egina FPSO projects

Business Overview

SHI seeks customer satisfaction and leads the industry with its advanced technology and high added value standing on the basis of its overseas subsidiaries and offices.

Business Area

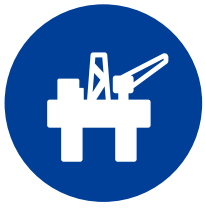
Shipbuilding & Drilling Industry

SHI is recognized for its advanced technology and quality for producing ships according to the demands of ship owners and assembling and attaching engines and fittings.
SHI remains the global market leader with advanced technology and high value-added products such as LNG carriers.

Major Products

- Drillship
- Oil Tanker
- Arctic Shuttle Tanker
- Container Ship
- LNG Carrier
- LNG-FSRU
- Passenger Ship

Offshore Industry



SHI has built the highest number of construction performance of FPSO in the world, and it continues to grow in the offshore business including fixed offshore platforms and floating offshore structures, based on its high level of safety and technical expertise. Moreover, SHI is entering new markets by developing FLNG which produces LNG at sea.

Major Products

- LNG-FPSO
- Crude Oil Production & Storage Facility
- Floating Offshore Structure
- Fixed Offshore Platform
- Floating Offshore Production Unit

Technology Development

SHI engages in various research projects under the objective of 'achieving business-related development of products and technology, improving performance and reducing costs to enhance product competitiveness, and maximizing efficiency of engineering and production by converging ICT.'

Geoje Automated Production Research Center
ICT Convergence Center

Daedeok Shipbuilding & Offshore Research Center

Pangyo R&D Center
Energy Plant Research Center

Key Products

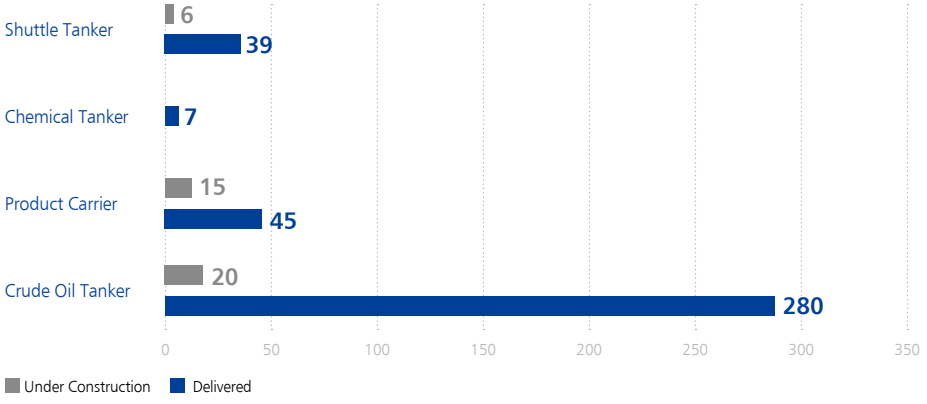
Tanker

Tankers are divided into crude oil tankers that transport crude oil, product tankers that transport refined oil products, and shuttle tankers that transport crude oil produced from FPSO to the terminal on land.
The shuttle tanker is a high value-added ship equipped with an automated position control system that utilizes satellites to safely come alongside the crude oil production facility offshore.

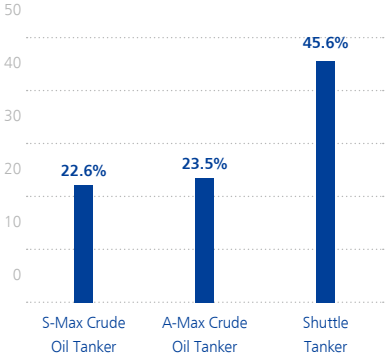
Major Products

- Crude Oil Tanker
- Product Carrier
- Chemical Tanker
- Shuttle Tanker

Performance by Ship



Market Share by Ship



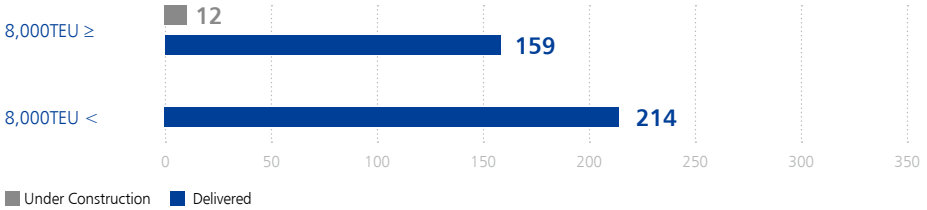
Container Ship

SHI began constructing 6,200TEU container ships in 1999. Since then, the company has led the way in increasing the size of container ships by winning orders for 13,000TEU and 19,000TEU container ships.
With the successful delivery of the largest container ships in the world, a 20,150TEU container ships in March 2017, SHI opened the era of 20,000TEU class container ships.

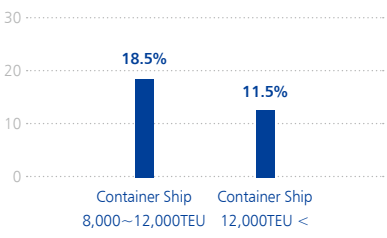
Major Products

- Container Ship

Performance by Ship



Market Share by Ship



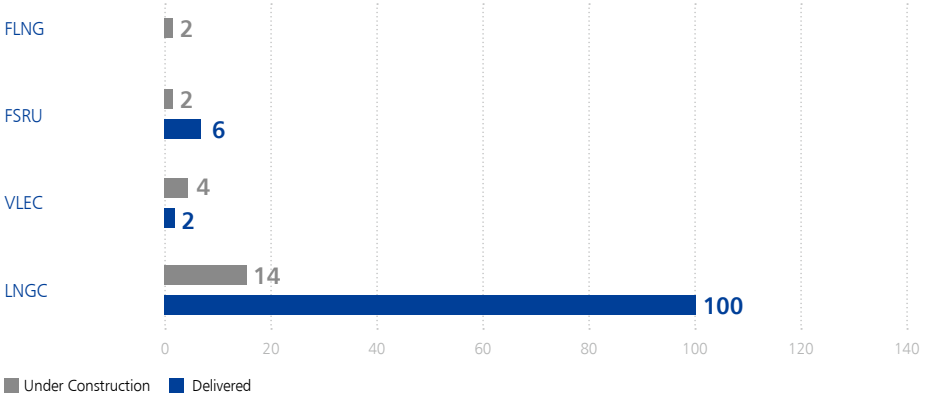
Gas Chain

The LNG carrier is a ship that transports liquefied natural gas at -163℃. The key element is a special hatch that can maintain an extremely low temperature.
The FLNG (floating LNG production unit) is a facility that refines natural gas drilled offshore and liquefies, stores and loads and unloads the refined natural gas to an LNG carrier. The FLNG is considered to be facility with comprehensive innovation technology in the offshore plant industry.

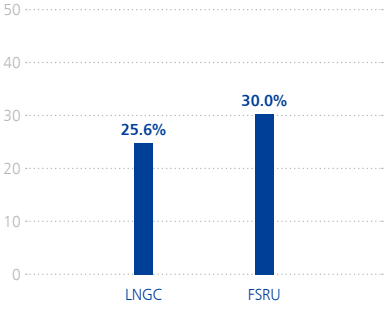
Major Products

- LNG
- VLEC
- FSRU
- FLNG

Performance by Ship



Market Share by Ship



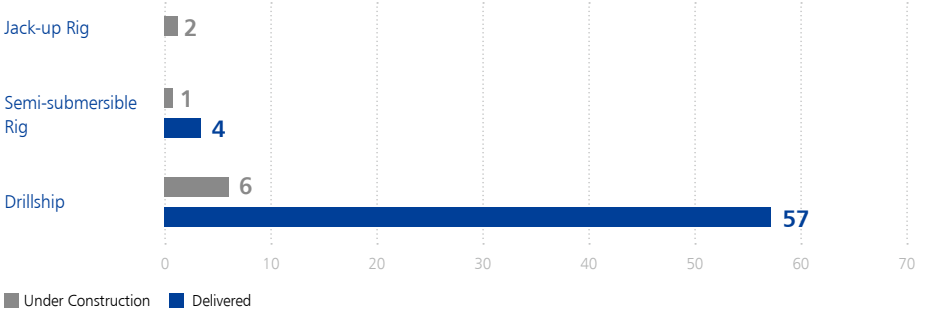
Drilling Unit

The drillship is a ship-type drilling facility for crude oil and natural gas offshore where the water is deep or waves are high. The ship requires advanced technology and engineering capacity.
From 1996 to 2016, SHI concluded contracts for 63 large-sized drillships, recording a 42% market share, the highest in the world.

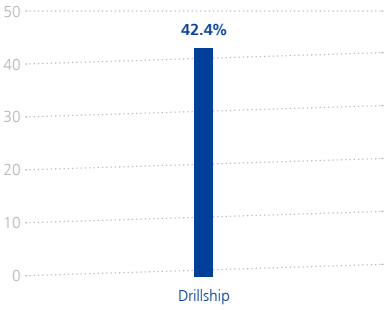
Major Products

- Drillship
- Semi-submersible Rig
- Jack-up Rig

Performance by Ship



Market Share for Drillship



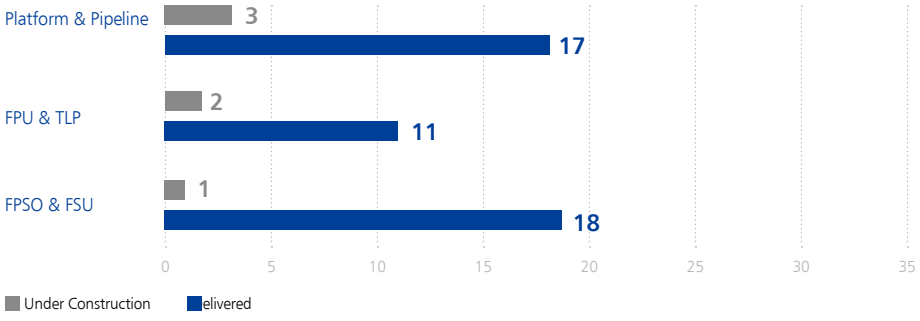
Production Unit

The floating production storage and offloading ship (FPSO), also known as the oil refinery offshore and the floating production unit (FPU) are offshore facilities used for the rapid development of oil fields in deep sea, for the development of small and mid-sized oil fields, or for the drilling of natural gas. SHI won a contract for central processing facility (CPF) in 2012 that is going to be listed in the Guinness Book of Records as the largest CPF, with a weight of 110,000 tons.

Major Products

- FPSO & FSU
- Platform & Pipeline
- FPU & TLP

Performance by Ship



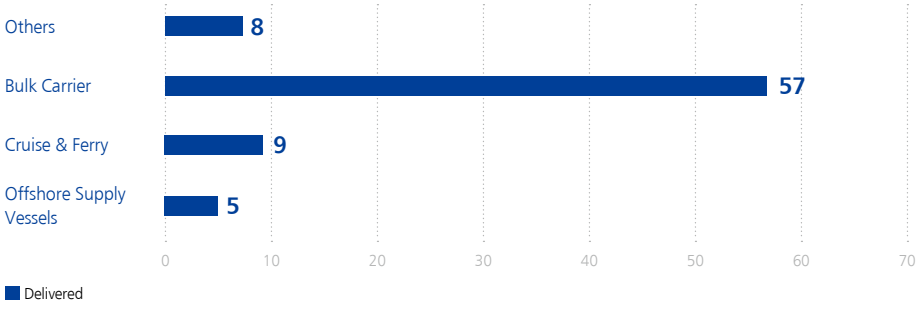
Other Vessels

Geoje shipyard introduced the excellent technical skills to the world when it succeeded to build the first field development ship (FDS) in 2000 in Korea which had only 3-4 shipyards available to build multi-purpose FDS. The wind turbine installation vessel delivered in 2015 is a jack-up facility that has an independent generator. It can sail at over 12 knots and has a deck of over 5,000m^3, a 1,500 ton crane and 105m leg making it capable to install large-sized wind turbines in waters of 65m deep.

Major Products

- Wind Turbine Installation Vessel (WTIV)
- Field Development Ship
- Cruise & Ferry
- Bulk Carrier
- Others

Performance by Ship



Business Process and Functions by ship

Production Process

- Both shipbuilding and offshore
- Shipbuilding only
- Offshore only

01 Engineering

Design engineering blueprints for ships and offshore plants

02 Steel Cutting

Accumulate and cut steels needed to build ships and offshore plants

03 Assembly

Weld together the cut steels to product blocks for ships and offshore plants

04 Outfitting Design

Ship Outfitting Design-Install pipes, wirings and other fitting components on ship and offshore plant blocks on block-assembly stage

05 Painting

Paint blocks to prevent rusting

06 Loading

Loading-Load finished blocks

Hinge Turnover

Prepare to install facilities by flipping over the offshore plant deck

07 Launching

Set ship afloat by filling the dock with water

Load Equipment onto Dock

Load equipment onto dock-Load and install equipment to the upper deck of the offshore plant

08 Quay Work

Apply interior design and install equipment to the inside of a ship

Launch Lower Substructures

Set afloat the substructure of a ship that supports the upper deck

09 Test Driving

Assess the performance of a ship

Load & Connect Dock Module

Load and connect dock module to substructure

10 Naming Ceremony

Organize and hold ceremony to name ship

Test Driving & Delivery

Deliver ship after test driving to assess offshore plant

Ship & Offshore Plant Function

Shipbuilding

Container Ship

The containership loads containers to its holds and decks and transports them according to a prearranged course.

Drillship

The drillship drills crude oil in deep sea or violent sea.

Offshore

Floating, Production, Storage and offloading vessel

Floating, Production, Storage and Off-loading vessel (FPSO) is a high-priced offshore structure used for the rapid development of oil fields in deep sea, and for the development of small and mid-sized oil fields.

Very Large Ethane Carreir

The very large ethane carrier (VLEC) transports liquefied ethane extracted from natural gas such as shale gas.

Oil Tanker & Ice Breaking Tanker

Tankers are divided into crude oil tankers that transport crude oil, product tankers that transport refined oil products and shuttle tankers that transport crude oil product from offshore production units like the FPSO.

LNG Carrier

The LNG carrier transports liquefied natural gas at a carriage temperature of -163℃.

Floating, Storage, Regasification Unit

The floating storage regasification unit (FSRU) transports, stores and regasifies LNG and supplies the gas to consumers on land using pipelines.

Field Development Ship

The Field Development Ship (FDS) performs various activities offshore including the installation of oil pipelines and pipes in the ocean floor, and crane jobs.

Wind Turbine Installation Vessel

The wind turbine installation vessel (WTIV) fixes its jack-up legs in the seabed and installs wind turbines.

Passenger Ship

The passenger ship travels between prearranged ports to transport passengers. It can be either be a ferry and/or a cruiser.

Floating LNG

The Floating LNG (FLNG) is a facility that drills natural gas, refines and liquefies natural gas, and stores and unloads LNG. The FLNG is an environmentally friendly facility as there is no need to install undersea pipes.

Jack-up Rig

The jack-up rig is a drilling facility used to develop oil fields in the continental shelf. The facility fixes its jack-up legs in the seabed and drills crude oil or natural gas.

Floating Offshore Structure

The floating offshore structure is used to drill oil wells and produces oil in the deep sea.

Governance

Board of Directors

As of 31 December 2016, the Board of Directors, the highest decision-making body of SHI, consists of 7 members (3 internal directors and 4 external directors) to enhance decision-making accountability and agenda transparency. The Board of Directors promotes innovation and efficiency in management through its 5 subcommittees, which are listed in the table below.

Subcommittees

Subcommittee	No. of Directors		Key Role
	Internal	External	
Executive Committee	3	-	Deliberates on overall corporate operations excluding issues commissioned by the Board of Directors and agenda defined in legislations and Articles of Association
Internal Trade Committee	-	3	Pre-deliberates of major internal transactions to ensure business transparency and to build trust among stakeholders
Remuneration Committee	1	2	Pre-deliberates the remuneration of registered directors to ensure transparency and secure objectivity of the remuneration of registered directors
External Director Recommendation Committee	2	3	Recommend suitable candidates for the external director position in a fair and independent manner
Audit Committee	-	3	Supervise and support activities that maximize corporate value through assessment and balance

BoD Members

	Name	Gender	Director Status	Date of Appointment	Term
Internal Director	Dae Young PARK	Male	CEO(full-time), Board of Directors Chairman	March 18, 2016	3 Years
	Tae Heung CHUN	Male	Vice Presidents(full-time)	October 27, 2014	
	Hyo Seoup KIM	Male		March 13, 2015	
External Director	In Man SONG	Male	External Directors(part-time)	March 13, 2015	
	Jong Gye SHIN	Male		March 14, 2014	
	Jae Han RYU	Male		March 13, 2015	
	Bong Heum PARK	Male		March 18, 2016	

Subcommittee Members

	Name	Executive Committee	Internal Trade Committee	Remuneration Committee	External Director Recommendation Committee	Audit Committee
Internal Director	Dae Young PARK	●			●	
	Tae Heung CHUN	●		●	●	
	Hyo Seoup KIM	●				
External Director	In Man SONG		●	●	●	●
	Bong Heum PARK		●			
	Jong Gye SHIN			●	●	●
	Jae Han RYU		●		●	●

Operation of the 2016 Board of Directors

SHI held a total of 10 Board of Director meetings in 2016, deliberating on 33 solutions including the approval of the financial statement and business report, appointment of the Board of Directors chairman, and approval of financial transactions between affiliated companies. The participation rate of internal directors in 2016 was 97.5%, demonstrating that board members actively took part in the deliberation process.

Operation of Board of Members

	Structure	2016	2015	2014
Board of Directors	No. of Meetings	**10**	12	14
	No. of Resolutions	**33**	34	40
	Participation of External Directors(%)	**97.5**	93.8	96.7
Executive Committee	No. of Meetings	**57**	45	43
	No. of Resolutions	**79**	62	59
	Participation of External Directors(%)	**84.8**	80.6	77.4
Internal Trade Committee	No. of Meetings	**6**	6	7
	No. of Resolutions	**21**	20	17
	Participation of External Directors(%)	**94.3**	100	100
Remuneration Committee	No. of Meetings	**1**	1	-
	No. of Resolutions	**1**	1	-
	Participation of External Directors(%)	**100**	100	-
External Director Recommendation Committee	No. of Meetings	**1**	4	2
	No. of Resolutions	**1**	4	2
	Participation of External Directors(%)	**100**	87.5	100
Audit Committee	No. of Meetings	**4**	6	5
	No. of Resolutions	**12**	8	8
	Participation of External Directors(%)	**100**	100	100

Remuneration

Deliberated at the 2016 Board of Directors meeting, the annual salary limit for the Board of Directors, including registered directors and external directors, has been set at 10 billion KRW with 1.68 billion KRW actually being paid. Compensation for board members is deliberated at the board of directors meeting to strengthen transparency and ensure objectivity of the compensation. Specific details of the board of directors compensation can be found in the 2016 SHI Business Report.

2016 Board Members' Remuneration

Unit: KRW 1 Million

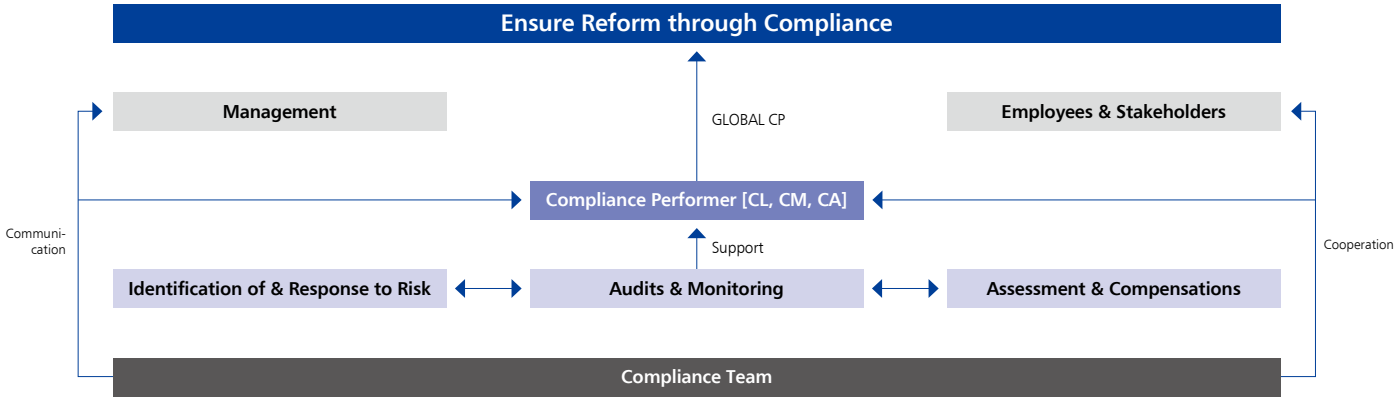
No. of Members	Remuneration Deliberated	Remuneration Executed	Average Remuneration per Member
7	10,000	1,678	240

Fair & Transparent Management

Compliance Management

SHI responds to legal risks that may come across in its business activities by voluntarily complying with legal and institutional regulations. Accordingly, SHI introduced a compliance program (CP) in 2010 and incorporates compliance management into company culture by carrying out initiatives such as aligning its exclusive organization of compliance.

Compliance System



Strengthen Prevention Measures

- Foresee a sensing & responding system
- Manage a process CP system
- Execute preventive measures & accept feedback
- Support the CP system to overseas subsidiaries & offices

Optimize Compliance System

- Organize a CP structure and improve its capacity
- Reorganize & maintain regulations, guidelines & portals
- Ensure efficiency of reports and inquiries
- Ensure compensations and restrictions

Ensure Awareness of Compliance

- Conduct educational sessions to prevent law violation
- Develop strategic PR activities
- Operate 'Compliance Day' each month
- Regularly assess and improve compliance stategy

Compliance Management Implementation Process

SHI's Compliance System consists of 5 stages: establishing a compliance management standard, organizing and conducting educational sessions, monitoring compliance with regulations and standards, assessing the compliance management standard, and then identifying improvements and reflecting them to business activities.

Compliance Management Implementation Process

Stage 1 Establish a Compliance Management Standard

Stage 2 Organize and conduct educational sessions on compliance

Stage 3 Audit and monitor compliance activities

Stage 4 Assess and report compliance status

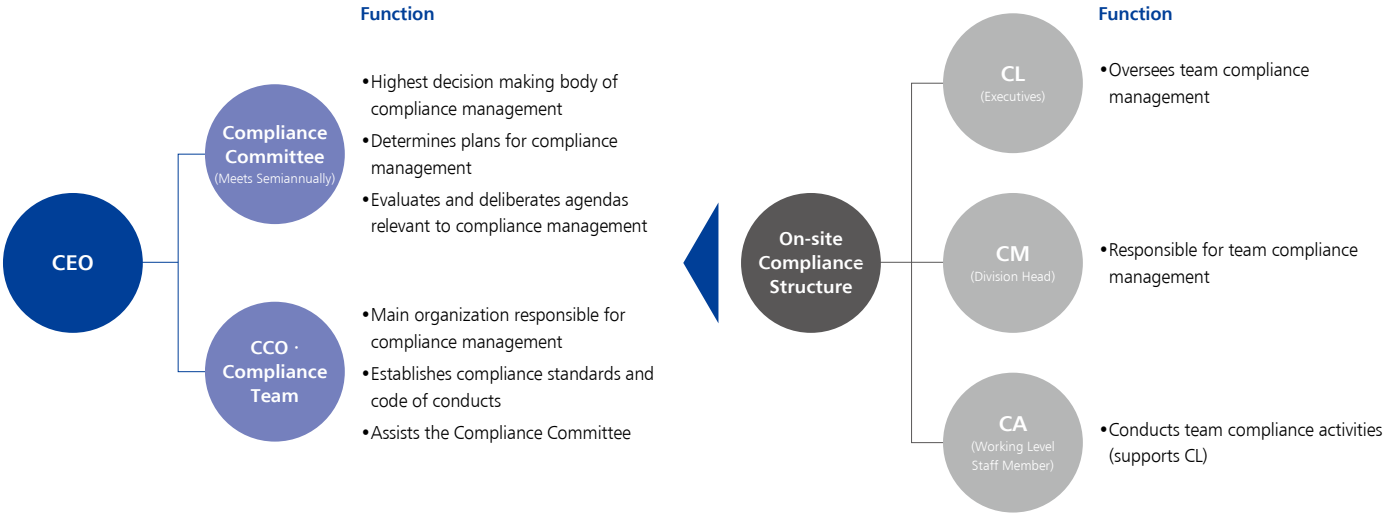
Stage 5 Deduct & introduce points of improvement to business

Compliance Team

SHI has a compliance Team to operate compliance programs in a systematic manner. The Compliance Team is responsible for compliance management including establishing CP standards, detailed guidelines, code of conduct and manuals, and organizing and conducting educational sessions for employees. The compliance committee meets semiannually and evaluates and makes decisions on key issues related to compliance management.

The committee also appoints executives, division heads, and working-level staff members as compliance performers (compliance leader, compliance manager, and compliance assistant) and recommends that they ensure compliance within each unit.

Compliance Team Structure



Code of Conduct

- We comply with the law and regulations for all our business activities and any type of violation ordered and/or approved shall not be condoned.
- In cases when violation is suspected, we shall refer to the compliance manual or consult in advance with the Compliance Team.
- We report to the compliance team upon any type of violation or any possibilities of violation.

Activities to Ensure Compliance Management

SHI puts compliance into practice by highlighting its principle via half-yearly compliance message by CEO and carrying out regular compliance training for the board member and the head of department. Moreover, it set every third Tuesday as the compliance day to encourage employees' attention and participation and eventually establish a culture of compliance. In 2016, SHI set subcontract and anti-corruption as priority area, aligned a standard for them, and developed a monitoring system. The monitoring system is planned to be applied to the entire company after completing revision and verification process in 2017.

Ethical Management

SHI enacted the ethics charter and employee code of ethics in order to fulfill its philosophy of 'contributing to mankind by creating leading products and services through talented employees and technology'. SHI strives to establish healthy business ethics and organizational culture with the goal of the world's leading company.

Ethics Charter

One SHI prioritizes customer satisfaction and strives for mutual prosperity on the basis of trust and respect as a partner for creating new values along with our employees, clients, partners, stockholders, the local community, nation, and the human society.

Two SHI respects the culture and customs of all the areas that we conduct business in and abide by regulations and ethics. SHI also fairly competes with its competitors.

Three SHI maintains its integrity by valuing autonomy, responsibility, creativity, and a challenging spirit, cultivating humanity and morality and complying with proper manners and etiquette.

Four SHI endeavors our best with integrity and diligence. SHI also creates a sound corporate culture based on humanity and respectful labor relationship.

Code of Ethics

Chapter 1 Ethical Management

1. Creating Leading Products & Services
2. Customer-Oriented
3. Fair Competition
4. Improving Quality of Life

Chapter 2 Respect for Shareholders

1. Protect the Assets of Shareholders
2. Transparent Information Management

Chapter 3 Customer Satisfaction

1. Respect for Customers
2. Response to Customers
3. Protection of Customers

Chapter 4 Coexistence with Business Partners

1. Mutual Respect
2. Fair Business Activities
3. Selection and Conclusion of Contracts with Business Partners

Chapter 5 Protection of the Environment, Safety, and Health

1. Environmentally Friendly Management
2. Safety Management

Chapter 6 Ethical Standards for Employees

1. Maintaining SHI's Reputation & Dignity
2. Autonomy, Creativity, and Challenge
3. Maintaining a Clean Organization
4. Responsibility
5. Respect for Intellectual Property Rights
6. Management and Security of Information
7. Fair Employee Relationship
8. Sound Corporate Culture
9. Political Activities

Chapter 7 Commitment of Employees

1. Respect for Humanity
2. Fair Personnel Affairs
3. Training and Protection of Employees

Chapter 8 Responsibility towards the Nation and Society

1. Corporate Obligations and Rights
2. Contribution to Social Development

Chapter 9 Obligation of Code of Ethics

Stakeholder Communications

SHI uses various channels to communicate with its stakeholders, including stockholders, investors, customers, business partners and employees, who have direct and direct influence on SHI business activities. Using its diverse communications channels such as public announcements on management information, sustainability reports and general stockholders' meetings, SHI engages in talks with its stakeholders to share core information relevant to business. SHI also puts much effort into applying the feedback and suggestion it receives to its business operations.

Interests and Communications Channels by Stakeholder

Stakeholder	Interests	Communications Channels	Activities
Stockholders & Investors	Improving SHI's values, such as financial performance, business strategy, technology development	General stockholders' meeting, SHI website ('Investor Relations' session), public announcements, conferences, meetings	SHI regularly shares issues relevant to its business operations, including its financial performance, through online and offline channels.
Customers	Customer satisfaction, product and service quality, communicating with customers	Customer satisfaction survey, Voice of the Customer (VOC) survey	SHI regularly communicates with its customers to better understand their needs and introduce places of improvement to its business operations.
Government	Code of ethics, compliance management, governance, tax payment, participation in public policies	Participating in government activities such as national projects, conferences, meetings	As a corporate citizen, SHI abides by the law and regulations, provides information requested by the government and makes suggestions on national policies.
Employees	Education programs, balancing life and work, welfare, internal communications, corporate culture	Internal board 'Sorisaem', briefings on management status, company newsletter, labor-management meetings	SHI shares its business strategies with its employees and strives to establish an environment where its employees can fully concentrate on their work through various channels.
Business Partners	Mutual growth programs, fair trade	Partners Council, online & offline channels	SHI operates a communications system with business partners to create synergy effects and puts much effort into applying suggestions made by them to its business operations.
Media	Sustainable management issues, such as financial performance, fair trade, compliance management and ethical management	SHI website ('Investor Relations' & 'PR Center' session), sustainability report	SHI puts much effort into quickly and accurately providing information relevant to its business operations.
Local Communities	Vitalizing the local economy, social responsibility, protecting and preserving the local environment	Local social responsibility activities, sisterhood relationships, social media	SHI regularly organizes social responsibility activities to communicate with local community and uses social media to communicate in real time.

Materiality Test

Materiality Test Process

SHI inspects and analyzes major issues that are crucial to its management activities and its stakeholders through a materiality test matrix developed in 2014 to systematically report its sustainability management activities. Based on a 4-stage materiality test, SHI objectively selected 5 core issues to ensure credibility and integrity.

STEP. 1

Composition of a Pool of 2016 Sustainability Management Issues

External Environment Analysis
- Media analysis
- Analysis of industry trends
- Benchmarking of similar industries

Internal Environment Analysis
- Interviews with people in charge of elevant divisions
- Analysis of internal documents including in-house newsletters

Analysis of International Sustainability Management Standards
- GRI guidelines
- ISO 26000
- DJSI questionnaire
- UNGC 10 principles

STEP. 2

Acceptance of Task Force Team Perspectives

- Evaluated the 25 sustainability issues
- Categorized the issues according to 5 core values of SHI

STEP. 3

Analysis of Materiality Test Results

Estimated the relevance between sustainability management issues and management activities and its influences on stakeholders

STEP. 4

Derivation of Core Issues

Confirmed the top 5 core issues derived from discussions with internal and external stakeholders

Sustainability Management Issues under 5 Core Values

People
- Talent training
- Attracting and maintaining talents
- Balance between life and work
- Safe Workplace
- Strong internal communications

Excellence
- Research & Development
- Customer satisfaction
- Quality management
- Strong responsibility towards SHI's products & services
- Maximizing market power

Change
- Enhancement of green management
- Development of new businesses
- Differentiation of corporate cultures
- Competitive Advantage through Innovation
- Response to Global CSR Issues

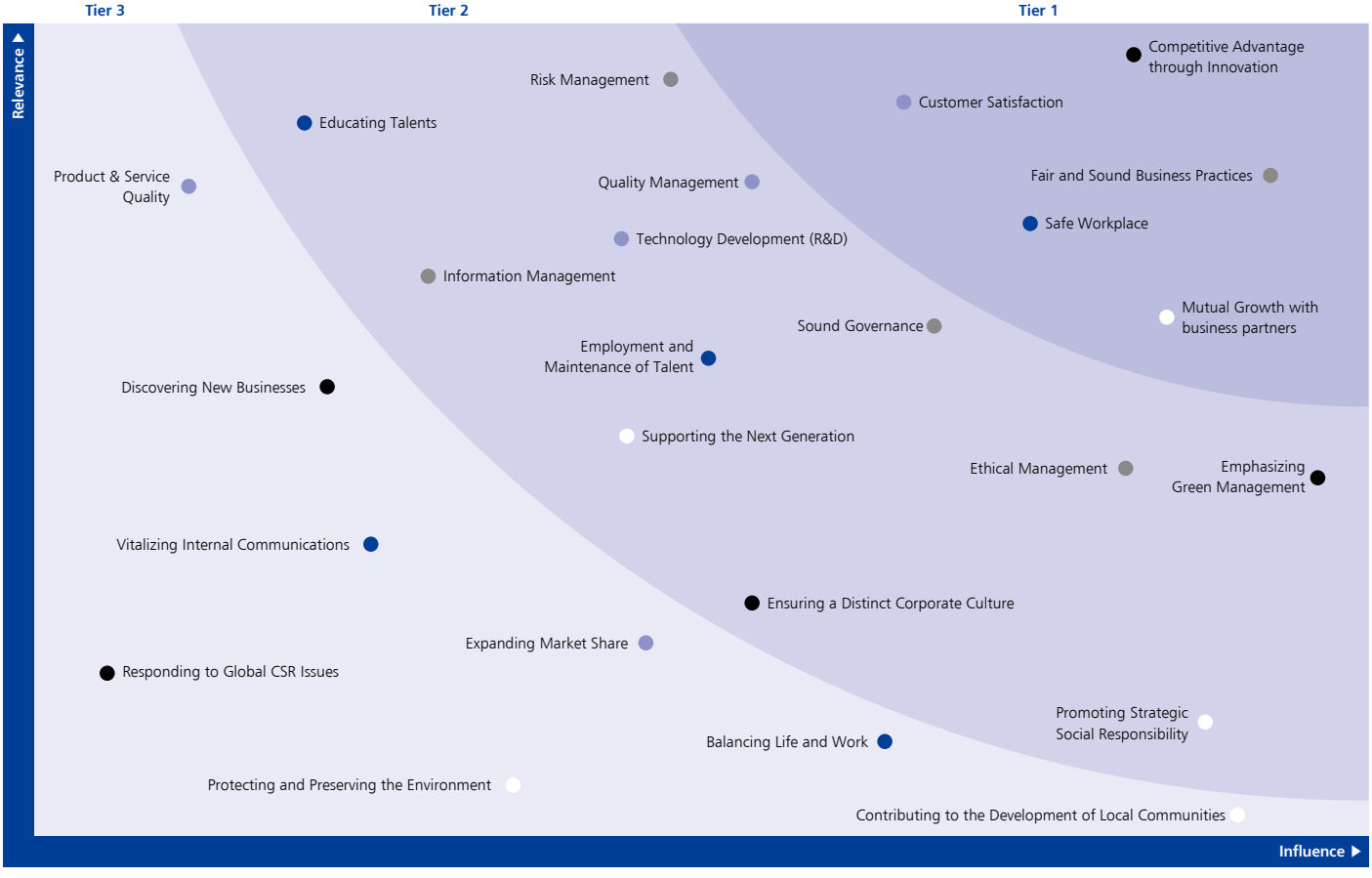
Integrity
- Enhancement of Ethical Management
- Information Management
- Compliance Management
- Risk Management
- Corporate Governance Soundness

Co-prosperity
- Mutual Growth with Partners
- Contribution to the Development of Local Communities
- Support for Future Generations
- Protection of the Environment

Materiality Test Metrix

In accordance to the trend to integrate the Sustainability Report and the Annual Report, SHI has been publishing an Integrated Report since 2014. SHI conducts its materiality assessment defined by the Integrated Reporting (IR) Framework of the International Integrated Reporting Council (IIRC) Analysis of International Sustainability Management Standards.
The final 5 core issues were selected among 25 general issues identified according to relevance with business operations and influence on stakeholders.

2016 Materiality Test Results



5 Core Issues	Direction of Business	Page
Competitive Advantage through Innovation	SHI promotes innovation at its worksites to overcome the slump and crises that the industry is experiencing	28~31
Fair and Sound Business Practices	SHI strives to ensure fair and transparent business operation as a corporate citizen.	32~34
Differentiated Customer Satisfaction	SHI strives to attain credibility from its customers by providing high quality products and services.	35~37
Safe Workplace	SHI strives to minimalize human and material loss through safety management and accident prevention.	38~42
Mutual Growth with business partners	SHI strives to solidify a fair trade culture and create synergy by supporting the growth and development of its business partners.	43~45

2016 MATERIAL ISSUES

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Safe Workplace 38
Mutual Growth with Business Partners 43

COMPETITIVE ADVANTAGE THROUGH INNOVATION

The Korean shipbuilding industry has witnessed serious difficulties in recent years in the face of an unprecedented slump as a result of the economic downturn. Consequently, the government demanded an extensive downsize of the industry. Based on the belief that innovation is key to survival, SHI made significant innovations with all sites and procedures.

Context

Against low seaborne trade volumes, oil prices are going down due to an oversupply of ships from continuous orders of global shipping companies and increase in shale gas production. Moreover, with China and Japan building their ships at home, it is expected that the Korean shipbuilding industry will continue to struggle in 2017.

SHI Approach

The company implements innovative activities at all production sites to handle difficult situations, and establishes strategies to accelerate its core competency in contract winning, engineering, and equipment. Furthermore, SHI strives to develop innovative, eco-friendly products with advanced ICT to ultimately gain industry recognition.

Innovative Production

SHI identifies and prioritizes its innovative production areas as follows: 'Cost Reduction,' 'Increase in Productivity,' and 'Reduction in Lead-Time and Customer Satisfaction.'

Objective		
SHI's Innovative Production		
Directive		
Cost Reduction	**Increase in Production efficiency**	**Reduction in Lead-Time & Customer Satisfaction**
Key Activities & Achievements of 2016		
VCC* Innovative Activities Reduced costs of carriers, including LNG carriers and container ships and offshore plants	**Innovative Production** Operates a TF team to increase productivity	**Operate All-source Situation Room** Manage in advance risks relevant to delivery by holding daily on board and weekly meetings on shipbuilding progress for projects due for delivery
Cost Reduction in Consumables Reduced usage by 30% and established a code-based management system	**Organize 1 Innovation Project per Business Partner** Raised production competitiveness of internal business partners by improving shipyard environment and expanding manufacturing automation	**Innovation in Supply Management for Materials** Established a 48-hour materials supply system linked with location-tracking system for materials
Innovation in Material Logistics Reduced costs by 20% by increasing load efficiency of storage facilities and by redesigning logistics layouts	**Support Innovation of External Business Partners** Established an ITC-based plant management system and supported innovations on-site	**Innovation of Construction Process** Improved work processes in all sectors from engineering, procurement, and outsourcing to production

*VCC(Value Chain Cost): All costs and inefficiency included in the construction process of purchasing, producing and shipbuilding from product engineering to delivery

Key Innovation Activities

2016 Management Strategy Conference

A management strategy conference was held in December 2015. CEO Dae Young PARK, executive members, and employees were present. Predicting that 2016 was going to be the most difficult year, the conference set solid resolutions for 'cost reduction and reinforced on-site management' and 'zero loss-time, waste elements, safety accidents, and quality deficiency,' and shared SHI's management objectives and innovation plans for 2016.

2016 Management Strategy Conference

New Appointment of the Head of Production and Foundation of Production Innovation Team

SHI appointed the new head of production and founded a Production Innovation Team in March. In an attempt to secure operational efficiency and productivity and to bring about innovation in the production process, the company launched radical reforms by retrenching overall costs throughout all business activities, such as purchasing, expenses, distribution, and management.

Innovation Inspection for Overseas Plants

Conference for Resolution of Management Difficulties

A conference by divisions including production, external procurement, and general affairs was held at the Geoje Shipyard for one month in January 2016 to address resolution of SHI's management challenges by sharing corporate visions and strategies to ensure successful projects.

Crisis Management Workshop & Production Manhour (MH) Compliance Conference

A Crisis Management Workshop was held in May with the purpose of overcoming SHI's difficulties through improved communication with employees. In June, a Production MH Compliance Conference was held to inspect the compliance status for production MH of teams and projects and to set production goals.

Crisis Management Workshop

Production Compliance Conference

1 Innovation Project per Business Partner Campaign

'1 Innovation Activity for 1 Subcontractor' began in March to support subcontractors with innovative activities required at production sites by improving working environments and inefficient processes at shipyards. As a result, productivity of 84 subcontractors increased in 2016. SHI plans to continue its support for further participation of its subcontractors.

Quality Innovation Meeting

A quality innovation meeting was held in March with the head of shipyards and executives and employees from Engineering, Procurement and Production functions. During the meeting, upcoming innovation items and strategies to enhance quality were shared, and execution plans were discussed.

Quality Innovation Meeting

Opening of Private LTE Network

SHI established its private LTE network to enable employees to wirelessly access business data anywhere within the Geoje Shipyard. The first virtual EPC-based network enables an LTE cable network in ships under construction that will be used as an infrastructure network to expand SmartWork and implement the Internet of Things (IoT).

Opening of Private LTE Network

Sharing of Innovative Best Practices

A contest for best practices for innovation was held in November and 350 employees, including the CEO and the head of Production, participated. The company-wide contest evaluated best practice case studies announced by 10 teams, including the engineering, procurement, and production teams.

Best Practice

Award	Case
Grand Prize (1st Place)	Effective and Efficient Cost Reduction in Production Consumables
Gold Prize (2nd Place)	Innovation in Advanced Hull Design Process
Silver Prize (3rd Place)	Competitive Advantage through Innovation in Storage Facilities
	Establishment of Following Process Control System

5S 3Right Patrol System

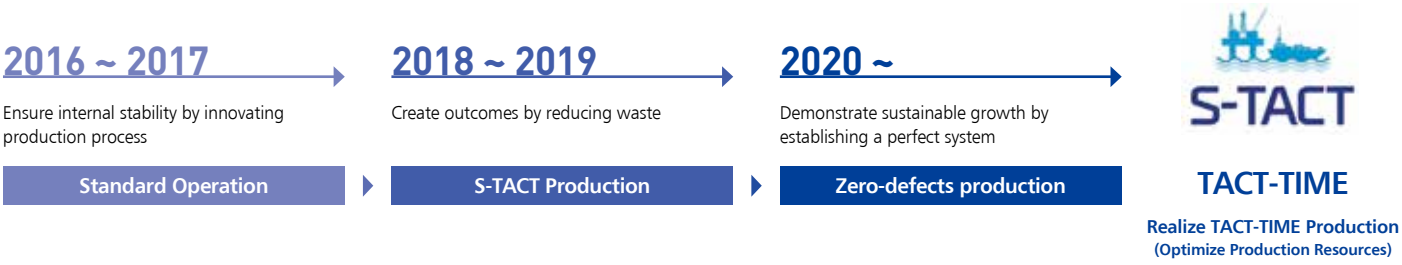
SHI began an onsite patrol system to settle and expand it 5S 3Right activities(5S: arrangement, order, cleaning, cleanliness, discipline /3Right: Right Goods, Right Quantity, Right Place) that it had introduced in 2015 to establish a clean and safe environment and to prevent safety accidents. The patrols requested that members of the production division and employees of business partners working on-site continue to take an interest in the 5S 3Right activities.

5S 3Right Patrol

Zero Waste Workplace through S-TACT

SHI established the S-TACT office in May 2016 to efficiently and systematically implement innovative activities. S-TACT is a unique process control method of SHI to seek a 'smooth flow of logistics to have no stock or re-work.' The ultimate goal of S-TACT is to establish the utmost system by 2019 to realize zero-defect production and become the leading shipyard in the world.

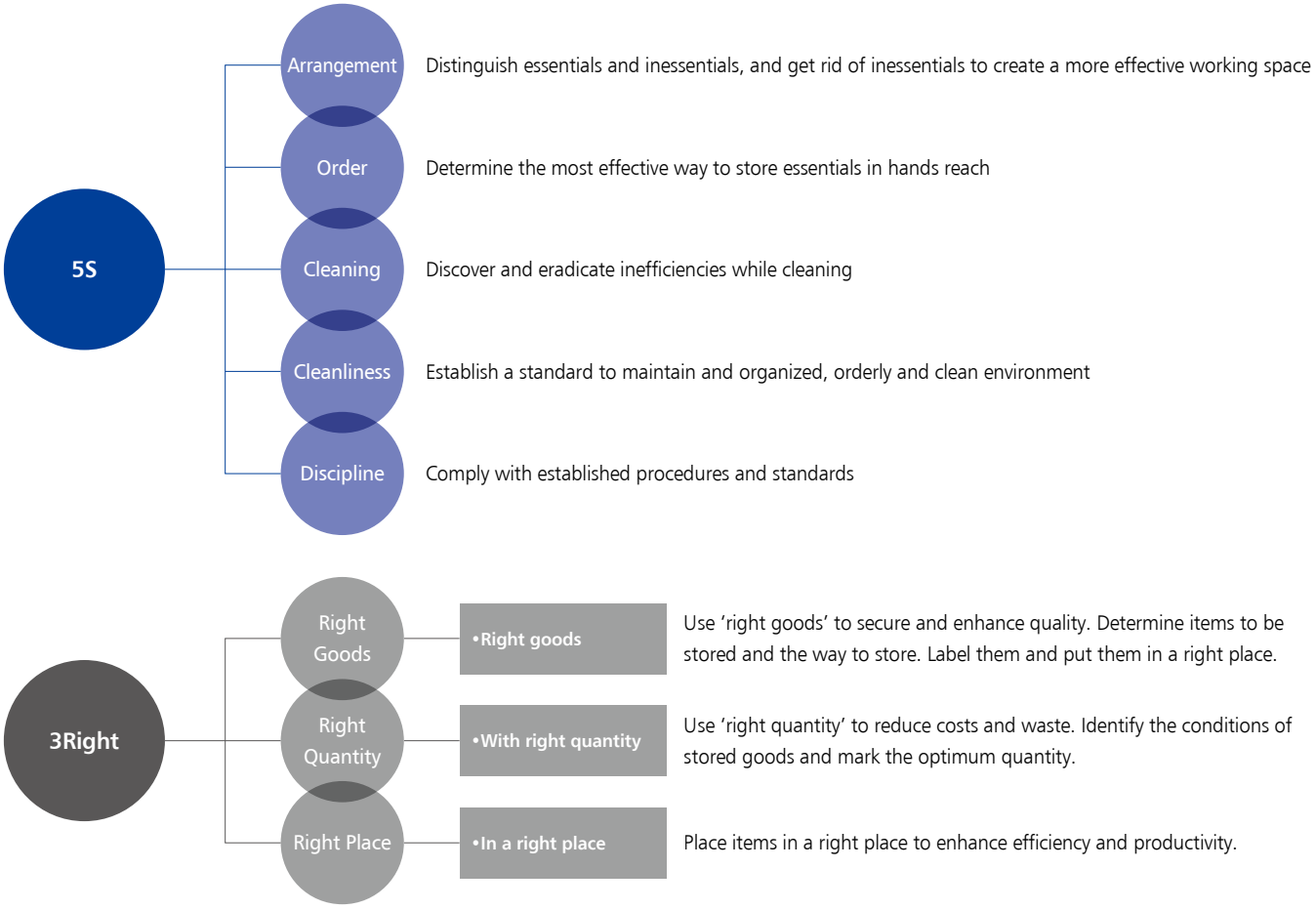
Mid-to-Long Term Objective of S-TACT



Clean Workplace by Adapting 5S 3Right to Everyday Work

SHI introduced a 5S 3Right system in 2015 to establish and maintain a clean workplace. The system has helped enhance productivity by establishing a safe, clean, and convenient working environment for shipyard employees.

Contents of 5S 3Right Policy



FAIR AND SOUND BUSINESS PRACTICES

SHI, which conducts business worldwide, respects and abides by the laws of each country, the guidelines of international organizations, and market order. SHI strives to be a trustworthy, permanent firm by abiding by the law and its code of ethics and protects its employees and the company from legal risks.

Context

The erosion of trust due to current management activities, security issues, and negative image on defective products mostly occur when a company does not comply with compliance management. Regulatory compliance must be a fundamental principle.

SHI Approach

Compliance is essential to strengthening a company's global competitiveness and sustainable management. SHI is committed to aligning its practices, systems, and management activities to internationally accepted standards.

Compliance Committee

A Compliance committee was convened in January and August. During the 2016 Compliance Committee, the committee consisting of 8 members appointed new committee members, reported compliance activities of 2015 and plans for 2016 to CEO and shared major compliance issues.

2016 Compliance Committee Achievements

Agenda	
First Half of 2016 (meeting on 29 January)	**Second Half of 2016 (meeting on 25 August)**
• Appointment of new members to the Compliance Committee	• Report regarding achievements of the first half of 2016 and items for enforcement in the latter half of 2016
• Report regarding compliance programs of 2015 and plans for 2016	• Sharing of major compliance issues (i.e. subcontracting, anti-graft law)
• Sharing of key issues (i.e. bid rigging)	

Key Activities

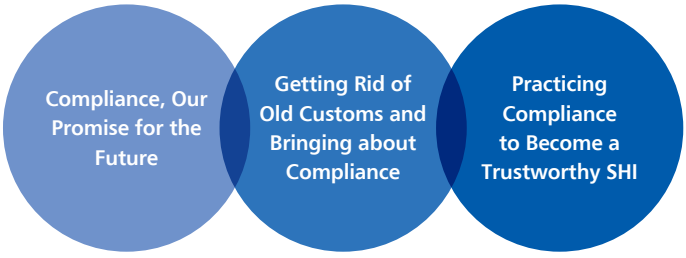
Compliance Day

SHI chose the third Tuesday of each month as Compliance Day to reinforce its message throughout the company. SHI determines a monthly theme, and implements associated team training. The theme varies from basic regulations applied to everyday life to regulations needed to carry out one's work.

Compliance Slogan Contest

SHI organizes a compliance slogan contest for consensus-making of employees on compliance. For one week in March 2016, SHI organized a contest where 1,050 slogans from 754 employees were submitted; 3 slogans were selected as the best.

2016 Compliance Slogan Contest Results



Compliance Inspector Policy

The compliance inspector policy was launched so that the compliance support team and relevant divisions may respond together with on-site investigations and requests for attendance by government organizations such as the Fair Trade Commission, Ministry of Employment and Labor, Korean Customs Service, and the National Tax Service. For compliance day in April 2016, SHI conducted team training on the Compliance Inspector Policy and 2 simulations at 4 of its workplaces on how to respond to spontaneous on-site visits from government organizations.

Compliance Training for Overseas Offices

SHI regularly performs audits and training at its overseas plants and offices to measure compliance and operational status and recommend improvements. In 2016, SHI expanded audits and training to include its Houston office and its Chinese subsidiaries in Ningbo and Rongcheng. SHI organized training on local trends and major compliance policies and provided improvement measures to 191 employees.

Major Compliance Audits in 2016

		Subject	Audit Period
Regular Audits	Bid-rigging	Sales	March
	Follow-ups on Improvement Measures	Results of compliance audits executed in 2015 (2 cases)	Every month since April
	Follow-ups on Corruption Preventions	All offices including overseas offices	September~ October
	Internal Subcontracting Status	Divisions working with Business Partners	October~ December
Special Audits	Personal Information	Geoje Shipyard, Pangyo R&D Center	April, June
	Overseas Office	Chinese subsidiaries in Ningbo and Roncheng, Houston Office	June, September, October
	Compliance Sheriff	Geoje Shipyard, Pangyo R&D Center, Suwon Plant, Daedeok R&D Center	April, September
	Management Cooperation	Seongdong Shipyard	April

Internal Report Channel

To discover and resolve internal compliance issues, SHI launched a Compliance Mailbox, an offline compliance report channel for all employees of SHI and its partners. The mailboxes are installed at 3 sites in the shipyard.

Compliance Education

SHI plans and organizes compliance training according to employee's duties and level of responsibility. Courses were divided into basic, intermediate, and advanced levels according to compliance management strategies, subjects, and the content. The basic-level training consists of regular themes for all employees. The intermediate-level training deepens understanding of employees in high-risk fields through compliance details and case studies. The advanced-level training provides opportunities for understanding compliance trends and strengthening employee's capacity to respond to compliance issues.

Compliance Training Courses

Level			No. of session	Attendance	Training Hours per Attendant
Basic	Target Subject	Compliance committee	2	16	0.5
		CL (Team Leaders)	5	493	0.5
		CM/CA	19	676	1.0
		Compliance Inspectors	8	31	1.0
	Target Stratum	Foreign Employees	3	239	1.0
		New Employees	3	235	1.0
	Corruption Protection		75	17,327	1.0
	Others (i.e. online training)		5	34,578	1.0
Intermediate	Cartel / Corruption Prevention		11	594	1.0
	Personal Information / Confidential Business Information		9	1,724	1.0
	Internal Subcontracting		5	414	1.0
	Special Training	Divisions Relevant to Major Compliance Issus	1	140	1.0
Advanced	Outside Training Courses / Seminars		27	35	5.5

Compliance Risk Management

High expectations are placed on corporate social responsibility, including fair trade, corruption prevention, and environment issues, with regulations becoming stronger and far more complicated. SHI introduced a Compliance Program to proactively recognize and systematically respond to regulatory changes in the dynamic global environment.

Key Issues & Risk Management Activities

Issue	Trends	Compliance Risk Management Activities
Anti-corruption	• Enforcement of anti-corruption regulations in Korea and abroad has become more common, with harsher penalties. (More than 100 countries, including Korea, have signed the Convention on Combating Bribery of Foreign Public Officials in International Business Transactions)	• Distributing corruption prevention regulations • Auditing whether employees comply with regulations and managing follow-up measures • Managing CP regulations on gifts
Cartel	• Increase in risk of bid rigging amongst competitors with the exchange of information due to the prolonged economic recession of the shipbuilding and offshore industry	• Reporting of meetings with competitors (CP report system) • Preventing any omissions during special audits
Environmental Pollution	• Proposal for plans of the Korean government to reduce green-house gas based on the United Nations Framework Convention on Climate Change • Assignment of pollution-reduction quotas to relevant companies including shipbuilders with the enforcement of the Emission Trading System (ETS) on 12 January, 2015	• Operating ETS Council and organizing regular council meetings
Internal Subcontracting	• Expansion of audits to include mid-sized subcontractors with the amendment of the subcontracting law and enforcement of audits on unfair subcontracting activities • Increase in subcontracting disputes	• Launching and operating a TF to improve internal subcontracting activities • Executing audits and establishing improvement measures

The Compliance Management Team continues to improve its risk identification and its response system under its Advanced Risk Management Policy. The team conducts semiannual audits, revitalizes its reporting system, operates an acceptance window for improvements, and identifies risks. SHI also has an inspector of the CP division to attended key management meetings to emphasize compliance and review minutes of the meetings. And SHI introduces its compliance management policy and shares case studies on compliance through its Compliance Management Letter and in-house newsletter to raise awareness of compliance risk management not only to its executives but to all its employees.

DIFFERENTIATED CUSTOMER SATISFACTION

SHI strives to be a leading company in the shipbuilding and offshore industry by providing a differentiated customer satisfaction service that will enable it to survive in this age of intense competition. To underpin values that will satisfy its customers, SHI listens to its customers' opinions and applies them to its management activities.

Context

With the depression of the shipbuilding and offshore industry and the global economic instability, customer satisfaction has become the core element that makes or breaks a business. Providing products and services that satisfy customer results in repeatable business and enhances a company's reputation.

SHI Approach

SHI not only understands the needs of its customers whose vessels are under construction or have been built, but deploys its engineers to visit production sites worldwide to provide services.

Customer Satisfaction Directives

SHI strives to go beyond customer expectations by providing environmentally friendly ships and facilities that demonstrate excellent economics and convenience. It continues to strengthen its technological competitiveness to encourage satisfied customers to place additional orders.

Customer Satisfaction Objectives and Values

Objective

On-time delivery, contribution to business profits by realizing prompt and committed service, customer satisfaction

Values

Trust	Openness	Performance
(Customer confidence)	(Open communication with colleagues)	(Maintenance of the best CS capacities)

Core Strategies

- Advanced risk management
- Dominant contract management
- Providing quick, accurate, and customer-oriented service
- Prepared response, prevention of recurrence

Customer Satisfaction Strategy

SHI established its core strategies of on-time delivery and customer satisfaction through immediate response to quickly resolve major issues that resulted from process delays due to the market downturn.

Key Customer Satisfaction Strategy

Objective

On-time delivery and customer satisfaction through immediate responses

Core Strategies

1. Expert Risk Management: Detecting and responding to risks in advance

SHI executes a stage-by-stage improvement plan to proactively detect and respond to project risks. SHI updates its database every month in the contract stage, standardizes its contents, and strengthens employees' project management capabilities by regularly organizing training for technology and preventing production delays.

2. Proactive Contract Management: Strengthening response ability through thorough contract management

SHI works with its customers to draft mutually acceptable contracts and continually reviews customer feedback. It understands and efficiently responds to any concerns related to a project.

3. Carefree Service : Immediate and customer-oriented service

SHI provides immediate and, customer-oriented service having established a Smart A/S system and strengthened its management of key performance indicators. SHI established an Early Warning System to closely monitor claims by projects and ship types on a daily basis. SHI also developed a customized service system, which includes a real-time monitoring system and a mobile-based system that collects feedback from owners of delivered ships.

4. In-advance Management: Thorough preparations on claims and strengthening of risk management in advance

SHI forms an exclusive TF team 6 months prior to delivery, reviews contracts with related divisions before and after winning contracts, and updates its database on repair history so that it can proactively respond to claims. Dispatching a TF to the division or to operation region if necessary helps claims to be handled more effectively.

Key Achievements

Immediate Response to Claims

SHI strives to reduce the time needed to resolve claims and improve its completion rate as part of its immediate customer-oriented service goals. In 2016, SHI recorded an average of 53 days to resolve client's claims, 18 days below its initial goal of 71 days. SHI prevented the cancellation of 3 OCR drillships and completed 4 large-scale A/S claims, preventing a loss of KRW 89 billion.

TF for Oil Drilling Ship Projects

SHI operates a TF team exclusively in responsible for oil drilling facilities including drillships and semisubmersible oil drilling ships to respond to cancellation of contracts due to a prolonged period of low oil prices.

CSI (Customer Satisfaction Index) Assessment under construction

SHI conducts CSI Assessments on partners' employees stationed at Geoje Shipyard to review their level of satisfaction on the shipbuilding process. In a CSI Assessment conducted in 2016 of 23 partners, SHI obtained a 67.6 point satisfaction level, and the results of the assessment are used to immediately resolve complaints and give recommendations of its customers.

CSI (Customer Satisfaction Index) Assessment after Delivery

SHI conducts a CSI Assessment to review the satisfaction of the quality and service of delivered ships. In 2016, 14 partners took part in the CSI Assessment providing a 75.3 point satisfaction level. Based on the results, SHI is doing its utmost to improve customer satisfaction, discover/resolve claims in advance, and enhance its products and services.

LPM (Lifetime Preventive Maintenance) Service

SHI operates a LPM service to resolve issues that arise after a ship begins operation by deploying its engineers and technicians to ships that have been delivered to its customers. In 2016, SHI conducted 6 LPM services: 5 times at the Busan New Port and once at the Gwangyang Port to improve customer satisfaction.

HSE Alliance Meeting

SHI organizes HSE Alliance Meetings to spread awareness and emphasize the importance of safety, health, and the environment to its customers. The August meeting was attended by ship owners, senior managers, HSE managers, and executives and safety personnel of SHI. Case studies of major accidents in the Korean shipbuilding industry were shared, generating ideas and following up measures to prevent similar accidents.

HSE Alliance Meeting

Improving customer satisfaction by conducting CSI Assessments

SHI conducts CSI Assessments to its partners' employees residing at Geoje Shipyard to go beyond customer satisfaction. The CSI Assessment is divided into 2 surveys: one that is conducted during a shipbuilding process and another after delivery. The results were analyzed and used to improve deficits. The CSI Assessment contributes greatly to customer satisfaction by strengthening the bond between SHI and its customers.

CSI Assessment under construction

The CSI Assessment conducted during the shipbuilding process is designed to objectively measure the entire process from engineering to delivery. The assessment is composed of questions that assess production and engineering qualities and articles that assess safety, health, and the environment.

CSI Assessment Conducted during Shipbuilding

Production Quality	Assessment of the satisfaction level of the whole production procedure, from manufacturing, assembling, constructing, and painting to installation and trial run of the ship
Engineering Quality	Assessment of the satisfaction level of the capacity of the person in charge, level of understanding on the latest trends, and immediate application of improvements to the engineering process of structuring, designing, and plumbing the ship
HSE	Assessment of the satisfaction level of the HSE (Health, Safety, and Environment) system, management system, and safety facilities in the shipyard

CSI (Customer Satisfaction Index) Assessment after Delivery

The CSI Assessment conducted after delivered ships have begun to sail is designed to retrace background information such as type of ship and main area of navigation, and to measure the quality of the ship and satisfaction level of SHI's after-sales services.

CSI Assessment Conducted after Delivery

1. Background Survey

- Type of ship
- Main area of navigation
- Overall quality level of ship

2. Quality Satisfaction after Delivery

- Cleanliness and finishing status of ship
- Welding conditions
- Installation of laggings and structural stabilities
- Vibrations and noise levels / painting conditions, etc.

3. Equipment Quality Satisfaction

- Performance and service of main engine
- Performance and service of engine generators
- Performance and service of power control systems
- Performance and service of sailing, communications, and automotive equipment

4. Guarantee Claims Satisfaction

- Technical level of A/S personnel
- Understanding level of technology of A/S personnel
- Response time and manner of A/S personnel
- Response claim time, etc.

SAFE WORKPLACE

A risk of accidents always exists during construction of vessels and offshore facilities. A brief moment of inattention or carelessness can cause an accident. Accidents resulting from poor safety practices can lead to not only loss for SHI but also loss of family members, the society and a country. Thus, SHI strives to prevent any and all accidents.

Context

Industrial disasters can cause loss of life and property. The Ministry of Employment and Labor (MOEL) announces an annual accident rate of companies in Korea every year and leads them to enhance and advance their safety management systematically. As the public interest in safety has increased, accidents resulting from poor safety practices can lead to loss of a company as well as have negative effects on the image of the company.

SHI Approach

With the firm belief that perfect quality and high productivity can be realized in a safe workplace, SHI puts safety first in all the production process. As safety is an absolute value that cannot be emphasized enough, SHI undertakes a variety of activities to enable employees of SHI and its subcontractors to work in a safe environment.

Way Forward for Safety Management

SHI seeks a workplace where everyone adheres to the safety practices by building 'a safety culture' on site. To incorporate safety management into the company culture, SHI has established strategic programs and implemented regular training and evaluation plans.

Objective		
Building a Safe culture on site		
Zero Major Accidents & 0.09 Accident Rate		
Way forward		
Work Site-Oriented Safety Enhancement	Increase in Customer Satisfaction	Establish a Green Working Environment

Certification of Safety Management Standard

Occupational Health and Safety Management System (OHSAS 18001)

SHI acquired the OHSAS 18001 in 2001 as the first company in the industry, which is the most reputable international standard in safety, health and environment sectors led by British Standard Institute. SHI has striven to meet the standard's requirements and ultimately to ensure a safe workplace.

12 Safety Rules

The 12 Safety Rules policy was enacted as a result of analyzing types and causes of accidents that have occurred on production sites. The rules have been amended to reflect changes such as increasing mobile phone use and increasing traffic in shipyard.

OHSAS 18001 Lloyd's Register Quality Assurance (LRQA)

12 Safety Rules

Always Do

Secure full body harness when working at height

Always secure a full body harness when working 2m of higher above ground.

Attach warning signs and lock out before electrical work

Do not make any connections when sending electric currents. Issue warnings and secure measures to prevent random operations and do not disable the secure measures.

Comply with permit to work procedures

Obtain permission from the manager prior to doing any work that require a work permit and proceed with work only after applying secure measures that comply with the checklist attached to the work permit.

Conduct gas test when entering confined spaces

Measure the oxygen level and well-ventilate the room before entering a confined area.

Conduct TBMs before Starting Work

Only after identifying and eliminating risk elements at work sites and applying secure measures by conducting TMBs should one begin work.

Observe all speed limits and Wear seat belt while driving

Always observe the speed limit and wear your seatbelt when driving. [Speed Limit: 30 km/h for motorcycles and automobiles, 20km/h for heavy equipment, and 10km/h for forklifts]

Never Do

Do not enter under a suspended load

Evacuate those that are within the path of heavy loads. Those that have been asked to evacuate should abide by the directions.

Simultaneous hot and painting work is prohibited

Prevent simultaneous work by obtaining a work permit in advance, and identify and eliminate combustible and inflammables on the other side prior to hot work.

Do not disable safety devices without authorization

Do not damage handrails, etc., without authorization. Do not randomly disable safety devices of forklifts and other cars within the work site.

Do not use mobile phones while walking, driving or carrying out work activity

Use Mobile Phones in a safe environment, suspending from work, driving or walking.

No alcohol or drugs while working or driving

Do not drink alcohol or use drugs that may affect work or driving.

Do not smoke outside of designated smoking areas

Only smoke in designated areas where an ashtray has been placed. And do not smoke when walking or working.

Key Achievements

Opening Ceremony of a TF for a Zero-Hazard Workplace

A Total Inspection TF was launched in April 2016 to lay the groundwork for a zero-hazard workplace by starting emergency system for safety inspection across the shipyard, introducing a safety responsibility system, and addressing hazards.

Opening Ceremony of Inspection TF

Second Total Inspection across the Shipyard

Following the first total inspection, the second inspection was conducted on all production processes and facilities to identify and eliminate potential risks and all risks that could result in serious disaster.

2nd Inspections at all shipyard

Establishment of an Audit Division

A SRP (Safety Risk Prevention) division was newly established to improve a safety culture and check field practice status across the company. International branches including China and Nigeria. also participated in regular safety audits.

Safety Golden Bell Event

SHI held its Safety Golden Bell event in April 2016 to emphasize the importance of safety measures to all its employees and business partners.

Awarding Ceremony for Safety Golden Bell Event

'World Safety Day' sponsored by TOTAL S.A.

The 'World Safety Day' event was held in April 2016 under the theme of 'Compliance with Golden Rule,' the key value of safety with presence of officials from Total Egina FPSO project and Total S.A.

'World Safety Day' Event

Safety Inspection on Containers

SHI conducted a special safety inspection on containers for winter fire prevention. The inspection mainly targeted container offices and warehouses to check unauthorized use of electric heating appliances, combustible substance, indoor smoking, and cleaning status, which could be major causes of fire.

Strategy Meeting for Safety and Quality

A 'Strategy Meeting for Safety and Quality' was held on July to elevate the concept of zero-hazard workplace and zero-defect product quality. The meeting included discussions of key strategies for safety and quality management and action plans to ensure a zero-hazard workplace and zero-defect product.

Safety Management Strategy Meeting

Fixturing Competition, Exhibition and Product Show

SHI organized a Fixturing Competition in September on fixturing equipment made by on-site personnel to develop a safe fixturing tool necessary in the field.

Various fixturing equipment was put on display including fixturing that prevent hand accidents and musculskeletal accidents. Simultaneously, an exhibition and product show was organized.

Fixturing Exhibition & Product Show

Safety Day Event

Borrowing a concept from '119' which symbolizes safety, Safety Day Event, a representative safety event, has been held on 19 January since 2015. On the Safety Day, a fire emergency evacuation drill is conducted and safety pledge was written jointly with Geoje fire station.

Safety Day Event

Performance Review

'Excellent' Grade in Safety Assessment

SHI obtained a grade of 'excellent' in safety assessment in the shipbuilding industry run by the Ministry of Employment and Labor in 2016.

Accident Rate

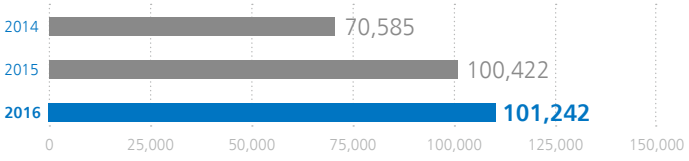
SHI recorded 0.10% accident rate in 2016 based on enthusiastic safety management activities conducted by all employees of both SHI and business partners. The accident rate of 2015 and 2014 recorded 0.13%.

Safety Inspection & Training to Partners

SHI regularly provides safety management trainings to its business partners to enhance the safety management level of its partners to that of SHI and to prevent safety accidents. In 2016, SHI inspected the safety management status of all its business partners and a total of 101,242 employees of its business partners participated in safety trainings provided by SHI. SHI will continue to support its business partners through its fellowship programs in 2017.

No. of Trainees who took part in Safety Management Trainings

Unit: Person



Safety Management Support at Overseas Offices

SHI dispatches professionals from its headquarters to international branches in China and Nigeria to support safety management and strengthen ability of local employees via safety experience training. Regular inspections and special training programs are carried out for continuous monitoring at international branches.

SHI will perform regular site inspections conducted by CEO, hold safety forums on safety, and discover potential risks to strengthen safety awareness and execution capabilities. It will also establish an advanced safety culture by standardizing safety regulations among oil majors and the top 3 shipbuilders and accomplish upward leveling of safety management of international branches by providing technical support from professionals.

Safety Management Strategy for 2017

SHI will perform regular site inspections conducted by CEO, hold safety forums on safety, and discover potential risks to strengthen safety awareness and execution capabilities. It will also establish an advanced safety culture by standardizing safety regulations among oil majors and the top 3 shipbuilders and accomplish upward leveling of safety management of international branches by providing technical support from professionals.

MUTUAL GROWTH WITH PARTNERS

SHI strives to achieve mutual growth with its partners responsible for supplying various raw materials and components needed to build vessels and offshore facilities. Moreover, SHI contributes to the improvement of its partners' business efficiency and creates synergies by complying with fair trade agreements.

Context

With increasing interest in corporate social responsibility and demands for mutual growth, the Korean government is emphasizing the growth of small and medium enterprises is a political priority by enforcing and reforming the Fair Trade Act and Subcontract Act. The concept of mutual growth is considered to be the basic rule of business because it incubates a healthy industry ecosystem.

SHI Approach

SHI, which aims to achieve mutual growth and development with its partners, continues to run communication channel programs to maximize synergies. Moreover, SHI operates a support system to increase its second-tier partners' business efficiency.

Mutual Growth Promotion Directions

SHI provides financial, technical, manpower and recruiting, and second-tier partner support to improve efficiencies and support the growth and development of its partners.

Mutual growth management system

SHI contributes to the growth and development of its partners		
Support for mutual growth	**Technical support & protection**	Technology license agreement, Patent approval, Joint development, Consignment research, Deposit of technical data
	Manpower & recruiting support	Improvement of technology and process, Recruiting support, Support for job fairs
	Support for Second- Tier Partners	Monitoring system for mutual agreements and payment between first- and second-tier partners
	Improvement of business efficiency	Management and training for quality, safety, environment, and technology

Incorporating Fair and Transparent Trading Culture

It is essential to establish a fair and transparent trading culture with partners for a healthy industry ecosystem and supply chain sustainability. SHI operates an ethical management system for its partners, and requests a certificate of compliance in ethical standards and of corruption prevention before trading.

Key Activities and Achievements

Early Payment before National Holidays

SHI provided 122.2 billion KRW of earlier payment to its business partners to lessen their financial burden including incidental expenses and bonuses before national holidays, such as Lunar New Year's and Korean Thanksgiving Day.

Early Payment for Partners

Unit: 100 Million KRW

	2014	2015	2016
Lunar New Year's Day	376	330	**1,046**
Korean Thanksgiving Day	750	363	**176**
Total Amount	1,126	693	**1,222**

Partners Council

SHI operates the Partners Council for sincere communication with employees working on the site. Opinions and recommendations gathered by the council are delivered to the relevant divisions and quickly handled.

Key Activities of Partners Council and Schedule

Regular Council BoD Meeting	January	Regular General Council	March
Executive Partners Meeting	July, December	Partners Proposal Meeting	Monthly

Mutual Growth Funds

SHI operates mutual growth funds in cooperation with financial institutions to provide financial support for partners. The net amount of accumulated interest from its balance is used to provide SHI's partners with lower interest rates.

Status of Mutual Growth Funds

Unit: 100 Million KRW

	Industrial Bank of Korea	Woori Bank	Total
SHI Balance	590	215	805
Financial Institutions	1,770	430	2,200
Fund	2,360	645	3,005

Support for Second-Tier Partners

SHI contributes to a healthy industry ecosystem through support of innovative activities, such as technological innovation and improvement of production processes, targeting second-tier partners to expand the scope of mutual growth. Moreover, SHI has introduced the NICE WINC system to improve the trading environment of and promote business stabilization for its second-tier partners by raising the amount of cash payment and reducing the payment period.

2016 NICE WINC System Management Status

No. of Second-Tier Partners

1,421 companies

Total Amount of Cash Payment

805 Billion KRW

Rate of Cash Payment

49.5%

Average Cash Payment Period

26 Days

Attained 'Excellence' for Mutual Growth

The 'Mutual Growth Index,' organized by the Fair Trade Commission and the Korea Commission for Corporate partnership, is a quantified index that evaluates major companies to encourage mutual growth. SHI received the Excellence Award in recognition of its efforts to comply with fair trade with its business business partners and establish support channels for mutual growth, according to the 'Mutual Growth Index' assessment conducted in June 2016.

Mutual Growth Index

2014	2015	2016
Excellence	Excellence	Excellence

Human Resources Education

Mutual growth has become a major social issue; SHI is supporting management and education on quality, safety, environment and technology to enhance the fundamental capacity of its business partners.

2016 Human Resources Education

	No. of Persons	Core Content
Quality	25	Basic Quality, Assessment System, Quality Management Standards
Safety	101,242	Safety Education, Certificate Course for professionals
Environment	25	Public Discloser of Environmental Information, Greenhouse Gas Management, Emissions Trading System
Technology	3,145	Strengthening Ability of Blue Collars, FLNG Works, Welding Works, Dock Master, Power Electricity Works

Support towards Entering Domestic Market

SHI registers SMEs with outstanding capabilities as new business partners, by which the company diversifies its purchase routes and boosts the market. In 2016, 242 companies were registered and a total of KRW 75.3 billion in sales was increased from SHI's registered 99 business partners.

Support towards Entering Overseas Markets

SHI provides education and briefing sessions regarding the shipbuilding market targeting the business partners that face difficulties entering the international shipbuilding market due to lack of market information, professional manpower, and funds.

Technical Support for and Protection of Business Partners

SHI encourages its business partners to develop new technologies and supports them by including newly developed technologies in contracts, approving patents, promoting joint developments, and commissioning researches. SHI supported 187 cases of 75 business partners in 2016 that contributed to an increase in productivity and efficiency. Meanwhile, by keeping technical data of its business partners' with organizations equipped with an escrow facility, SHI complies with the escrow policy to minimize the risk of the technology being leaked.

Business Partner Initiated Crisis Management Campaign

The 'Participate 111 Campaign,' initiated by SHI business partners as a means to overcome difficulties in the shipbuilding and offshore industry, began so business partners could fulfill their roles and responsibilities.

Under the motto '1 person shall strive to reduce 1 hour of loss per day,' the campaign is not merely a one-time event but is actively promoted in the shipyard. It has brought positive energy to business partners and SHI employees.

Participate 111 Campaign Poster

'Participate 111 Campaign' Strategy

Eliminate loss by being prepared and working on schedule	**Share information to establish a bond amongst colleagues**	**Increase productivity by strengthening the ability of and multi-functionalizing employees**

Top Business Partners

Gunwoong

Founded in 2001, Gunwoong's 140-some employees assemble ship hulls at the Geoje Shipyard. Gunwoong does its utmost to build distinct ships using sophisticated technology and to strengthen its employees' abilities.

Well aware that reducing loss directly connects to survival, employees of Gunwoong take part in the Participate 111 Campaign with an objective to increase their productivity by 15% or more

Guryong

Founded in 1996, the 130 some employees of Guryong are responsible for the assembly work of offshore facilities.

Employees with top-notch abilities to take part in 1:1 technology coaching believing that passing down technology will, in the long run, improve product quality and upgrade their colleagues. Guryong will continue its 1:1 technology coaching program until all its employees are qualified and it achieves zero-deficit welding.

CORPORATE SOCIAL RESPONSIBILITY

People [GWP/Educating Talent] 48
Excellence [Technology Development (R&D) / Quality Management] 54
Change [Green Management/ Corporate Culture] 60
Integrity [Risk Management / Information Management] 65
Co-prosperity [Sharing Management / Support for Next Generation] 71

물류
유반

GWP (GREAT WORK PLACE)

SHI endeavors to create the environment where all employees can concentrate on their work and exercise their intrinsic abilities, and to incorporate the culture of communication and harmony into the company.

Context

Companies prioritize providing an environment where their employees can do their utmost. Moreover, operating various support policies to boost morale and motivate employees strengthens the competitiveness of the company.
Hence, many Korean and foreign companies strive to establish an environment where their employees can work in a happy and worthy manner.

SHI Approach

Believing that 'people are what make a company,' SHI strives to establish a happy and worthy working environment where its employees can work with pride. Moreover, SHI implements various policies and operates facilities that will allow it to fairly evaluate its employees, to successfully build and deliver projects, and to promote the welfare of its employees.

SHI's concept of Talent

SHI seeks to discover people with an open heart, mind and behavior. In other words, SHI is looking for people who can confidently speak out to others about what must be changed, accept and bring about change by developing their abilities, and have the potential to survive in this era of limitless competition.

3 Principles

Principle #1

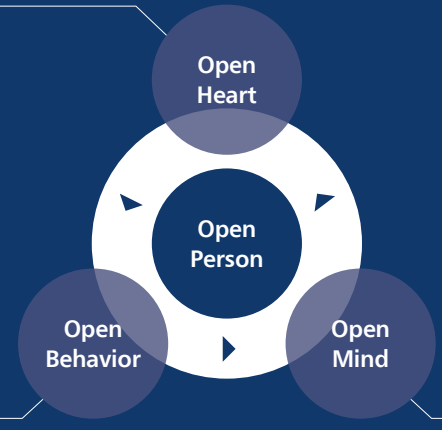
A person with humanity and morality

Principle #2

Creative person who charts a future based on creativity and cooperation

Principle #3

A person with an international mindset



Employee Status

As of 31 December, 2016, SHI had a total of 11,982 employees because of the characteristics of this industry 95% of the employees are male.

Employee Status of 2016

Unit: Persons

	Full-time Employee	Part-time Employee	Total No. of Employees
Male	10,922	410	11,332
Female	528	37	565
Total No. of Employees	11,450	47	11,897

Performance Evaluations

SHI conducts performance evaluations of its employees twice a year and determines personnel matters and compensations based on the results. Education is provided semiannually to evaluators and a committee is organized to perform evaluations fairly and objectively. A total of 11,781 employees were evaluated in 2016.

Insurance and Pension

SHI fulfills its responsibility to provide the 4 basic insurance policies: the national pension, health insurance, occupational health and safety insurance and unemployment insurance. Also, because of the inherent danger of the industry, SHI also bought a collective insurance against accidents. SHI also offers a private pension plan to guarantee employee's retirement.

Insurance and Pension Policy Status

Collective Insurance

SHI provides a stable life to families of the deceased and compensation for the hospitalized through its collective insurance. SHI has fully supported this insurance policy since May 1992.

Personal Pension

SHI offers a personalized pension plan system to guarantee retirement. SHI provides financial support until retirement. Employees can continue to make payment after retirement.

Labor-Management Culture

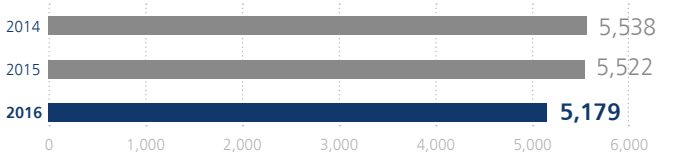
Labor-Management Council

SHI strives to establish trust and cooperation between its employees and management based on communication and respect.

The Labor-Management Council consists of a Periodic Council and a Temporary Council. Both councils negotiate on various interests such as wage increase, welfare, and human resources management. The councils also engage in talks on places of improvement.

Status of Labor-Management Council

Unit: Persons



Employee Grievance Adjustments

SHI communicate with its employees through various channels such as in-house broadcastings, in-house reporter system and internal notice boards. The internal notice board 'Sorisaem' collects suggestions from employees that are forwarded to the relevant division.

No. of Grievance Adjustments made through 'Sorisaem'

Unit: No. of Reports (Percentile)

	2014	2015	2016
Transportation (Commute·Weekend·Shuttle Buses)	152(31%)	108(28%)	198(29%)
Dining Hall·Dormitory·Restroom	91(18%)	52(13%)	229(33%)
Security·Parking	30(6%)	26(7%)	41(6%)
Transportation·Safety	28(6%)	28(7%)	36(5%)
Sports Facilities	4(1%)	4(1%)	14(2%)
Lighting·Heating·Plumbing	34(7%)	65(16%)	53(8%)
Computer System·Software (S/W)	61(12%)	24(6%)	32(5%)
Policy·Welfare	12(2%)	32(8%)	66(10%)
Social Responsibility Activities (Community Service)	7(1%)	1(1%)	0(0%)
Others (In-house Broadcasting, Gardening)	77(16%)	49(13%)	24(3%)
Total	496	389	693

Key Achievements

Corporate Dormitory

To provide stable housing for its employees, SHI has dormitories (inside and outside its facilities) that hold 4,372 persons. The dormitory built outside the SHI shipyard in December 2015 has 1,520 rooms that hold 3,040 persons. Each employee is provided with their own furniture and the dormitory provides free wireless internet to enhance amenity. Also, the Welfare Center built next to the dormitory has various sports facilities that provide guarantee leisure time to its employees.

New Corporate Dormitory

Employee Welfare Fund

SHI has set aside a welfare fund to provide a stable life, improve welfare and motivate its employees in accordance to Article 50 of the Framework Act on Worker's Welfare. The Internal Welfare Fund, established in January 1994, is composed of 6 funding committee members and 1 auditor. Funds collected as of October 2016 totaled KRW 26.25 billion.

Major Welfare Facilities

Dining Hall

There are 26 cafeterias in the Geoje Shipyard that can accommodate 17,000 employees with separate dining halls for ship owners and foreign employees..

Apartment for Employees

SHI provides apartments to employees who do not have housing under their name. As of 2016, SHI provided 534 apartments to employees and 282 apartments for foreign ship owners to take the lead in customer satisfaction.

Samsung Daycare Center

SHI runs the Geoje Samsung Daycare Center to lessen childcare burden of its employees, to increase the number of female employees and to fulfill its social responsibilities. The daycare center also has a nurse who oversees the health of its students.

Samsung Daycare Center

Cultural • Sports Facilities

SHI opened its Welfare Center to the public. The Welfare Center is equipped with an indoor gym, swimming pool, bowling alley, and baseball park. It also runs a scholarship program to pay for educational expenses.

Major Facilities	Equipped Facility
Culture Plaza	Swimming pool, bowling alley, fitness club, seminar room, indoor gym
A Stadium	Soccer field, basketball court, running track
Welfare Facility	Fitness club, gym, soccer field, baseball park, futsal stadium
Scholarship Program	Scholarship program, auditorium

EDUCATING TALENT

It takes a considerable amount of time and effort to foster talent, especially in the ship-building and offshore industry. SHI has a strategy of systematic education and training and runs a broad variety of programs so that its employees can be industry experts.

Context

A rapidly changing market environment and an economic slump have led companies to focus on planning and technological development as a means to survive. Fostering and training talented employees is critical because a business's success depends on its employees. Many businesses implement strategies and road-maps to enhance the capabilities of their employees.

SHI Approach

Under SHI's core value of Putting Talent First, it encourages workers to achieve through challenge and innovation. SHI provides many opportunities to assist their development while respecting their autonomy and, in the long run, gain the power to overcome difficulties and bring about growth.

Strategies to Educate Talent

With the objective to nurture professionals that will lead the global shipbuilding and offshore industry and offshore energy technology, SHI has established a strategy that focuses on 4 areas: job performance, international mindset, leadership, and competency. It educates employees to become proficient in each area.

Education Strategy

Programs to Educate Talents

Job Performance

SHI runs different education programs for different job performances to nurture professionals in the shipbuilding and offshore industry. The education programs on the 7 core jobs – sales, engineering, PM, contract management, quality performance, purchasing, and producing - are divided into 4 stages, incubating, basis, intermediate and advanced stage, according to the position of and number of years served as an employee. And each employee is provided with tailored programs to adapt to their actual work. For employees with a high school diploma, SHI provide opportunities outside the company to attain an associate degree in shipbuilding and offshore engineering in cooperation with engineering schools, relevant associations and research centers.

Job Competency Programs

Strengthening International Mindset

SHI provides intensive courses according to employees' needs, such as localization, language skills, and business manners, to give them the mindset to work in a global environment.

Leadership

SHI nurtures leaders with programs that consist of an introductory course for the newly employed, training for those who have just been promoted, and leadership courses for executives and division heads.

Common Fundamental Competency

SHI runs programs that focus on fundamental job-related competencies, from orientation to courses on sexual harassment, anti-corruption, and compliance and security. Retired employees receive education in life and career planning through SHI's Career Consulting Center (CCC) to prepare for their life after retirement. Professional consultants provide re-employment support service and education programs such as consultations, aptitude tests, information on new job opportunities, and resume clinics.

Cyber Training Institute

SHI operates a Cyber Training Institute that tailor education programs to each employee. The Cyber Training Institute Multi-Campus provides about 700 courses ranging from language to job competency and leadership.

Education Facilities

Technology Academy

SHI provides educational support to enhance the abilities of its employees and recruits/fosters technical students through its Technology Academy. The academy provides up-to-date equipment and training appropriate to the shipbuilding industry, such as welding, plumbing, electrical, and engineering. It also provides foreign language courses and an in-house college course.

Technology Academy

Educational Programs Provided at the Technology Academy

- Programs to Improve Skills of SHI Employees
- In-house College Courses (Assistant Degree, BA)
- International Vocational Olympics
- Programs to Nurture Business Partners
- Maestro Courses
- Language Courses / IT Courses

Key Achievements

Mandatory Educational Program

The Capacity Development Center provided a mandatory 'Let's Strengthen Our Practice Will! 2016 Mandatory Education' course to 4,503 employees of the production division to overcome difficulties that SHI is currently facing. This course, held 45 times from March 22 to May 2016, provided a concept of restoring original intentions to overcome difficulties and of settling a mindset to practice the basics.

2016 Mandatory Educational Program

Coaching Classes with Invited Overseas Professionals

SHI organized coaching programs with invited professionals with more than 20 years of experience in the offshore engineering field that could be adapted to actual projects. A total of 60 leading engineers completed 4 courses and strengthened their engineering abilities.

Internal Vocational Contest

SHI organized the 25th Internal Vocational Contest to improve productivity and product quality while motivating its employees. The contest consists of 12 events including welding, painting, hull CAD, and a team event while 200 people taking part in 2016.

Internal Vocational Contest

Record of Education Program in 2016

Number of Employees Educated (Accumulative)	Average Time of Education Provided per Employee(hours)	Total Number of Education Programs Organized
24,655	98.9	144

TECHNOLOGY DEVELOPMENT (R&D)

SHI proceeds with technological development that emphasizes distinguishing its product performance and lowering its production costs to correspond to the current slump in the industry. SHI strives to realize product quality that satisfies its customers and product performance recognized by the market.

Context

Competition with shipbuilders of Japan, which have recovered thanks to the low yen, and China, which receive full support from the Chinese government, is getting more intense. Moreover, distinct technological capability is emerging as a result of stronger regulations on gas emissions from the International Maritime Organization (IMO). As a result, SHI and its global competitors are investing more every year to develop technology.

SHI Approach

SHI carefully selects and develops new technologies that add value to customers' ships and offshore plants. SHI will continue to develop and provide products and services that increase profit and create value for customers.

Technology Development Strategy

SHI establishes 5-year product and technology development roadmaps every year in an attempt to attain technological competitiveness. It also conducts technological assessments and plans strategies to accelerate development.

Technology Development Roadmap

Aiming to become the Best in the Shipbuilding and Offshore Technology Field by 2026			
Attaining Superiority in Product Competitiveness	**Providing Independency to its Engineers**	**Innovating Engineering and Production System**	**Establishing a Foundation for New Products**
Distinguishing Smart Ships and Product Performance	Attaining Engineering Technology on Core Production Process and Equipment	Enforcing Smart Yard Environment and Advancing relevant Systems	Attaining Future-oriented Technology

Technology Development Structure

The SHI Central Research Institute is composed of 4 centers and 1 group. And each organization strives to development technology relevant to high added value ships and offshore plants based upon a technology.

Central Research Institute

Geoje		Daejeon	Pangyo	Geoje, Pangyo, Daejeon
Production Technology Research Center (Enhancement of Productivity)	**ICT Convergence Technology Research Center** (Improvement of Engineering Efficiency)	**Ships & Offshore Research Center** (Distinctive Product Performance)	**Energy Plant Research Center** (Internalization of Offshore Engineering Capability)	**Technology Planning Group** (Establishment of Technology Development Strategy)
•Welding, Painting, Automation •Materials, Structure, Noise Oscillation •Resolves Current Production Issues	•Develops Engineering System (CAD) •Smart Yard •Enforces Smart Yard Environment •Manages Engineering Management System	•Model, Propeller, Fuel Reduction •Smart Ship •Develops Independent Model of Offshore Plants	•Offshore Production Equipment •Conduct Independent Third Party Assessment on Offshore Engineering •Degassing, Environmentally Friendly Technology	•Establish Technology Development Strategy •Commercialize Results of R&D Projects •Register & Manage Patents •Support & Manage Research Projects of Each Organization

Performance Review

Developing & Adapting Mobile Solution Providing Shipbuilding Information

The Mobile Blueprint System, which provides shipbuilding information online, is a system that provides information needed to build a ship such as 2D blueprints and 3D blueprints through a wireless tablet PC using the LTE internet network installed within the shipyard.

SHI expects that this system will increase productivity as it will promote communications between workers, managers and engineers that will prevent work from going wrong or being omitted and display the latest blueprints in 2, 3 or 4 dimension. The Mobile Blueprint System was recognized for its excellence and innovation, receiving Grand Prize at the '2016 Samsung IT Fair' held in October.

Developing & Adapting of Digital Welder

The Central Research Institute developed a digital inverter type welder that makes up for the deficits of analogue welders. More than 1,300 digital welders are being used in different projects and are evaluated to have improved welding quality.

Digital Welder

Major Advantages

Reduced use of electricity by 15% maximum compared to analogue welders

Allows for real time monitoring on welding status (current, voltage, location, etc)

Makes easier to confirm self-diagnosis results on breakdowns

1/5 lighter and 1/3 smaller than previous analogue welders

Developing & Adapting of In-source RT System for Offshore Plants

SHI developed the world's first In-source Radiographic Test System that uses radiation to film the inside of thick and complicated plumbing of offshore plants. The new system reduces inspection time by as much as 98% over existing tests and minimizes interference with other processes. Samsung honored the system as Technology of the Year in 2016.

Key Achievements

DDS System Launch

SHI launched in March the Detailed Document Sharing (DDS) System, which provides detailed engineering blueprints of ships and offshore facilities. The system provides access to the latest documents submitted by ship owners and the latest revisions made. It also allows employees to directly email any revisions to designated contacts.

Idea Contest for Innovative Technology

SHI organized a Contest for Innovative Technology in April to identity innovative ideas to improve productivity and product quality and to reduce costs.

Contest for Innovative Technology

Trial Performance on Control System for Smart A/S Towing Tanks

SHI organized a trial performance in July to introduce to its employees the 'Control System for Towing Tanks,' the first result of its 'Smart A/S' project carried forward to monitor ships in real time and to anticipatively and efficiently manage deficits using ICT technology,

Trial Performance on Control System for Towing Tanks

Conference to Present SHI Central Research Institute's R&D Performance

The SHI Central Research Institute organized a conference on October to present its R&D activities and performance. After sharing activities and performance by project, the conference awarded the winners of the Samsung Technology Award and the winners for excellent R&D projects.

Presentation of SHI R&D Performance

Technology Development Strategy for 2017

SHI's technology development strategy for 2017 is 'Regaining competitiveness in production costs and developing/commercializing performance-oriented technologies.' It concentrates on R&D that can be applied to products and project sites, especially by expanding investment in ICT-based smart technologies.

Objective	Regaining competitiveness in production costs and developing/commercializing performance-oriented technologies		
Details	Concentrate on developing technology that reduce production costs	Expand use of ICT based smart technology	Strengthen commercialization of technology and marketing activities
	Expand portfolio on independent model & specialized technology, and internalize offshore engineering	Expedite smart ship commercialization and smart yard construction	Tightly support independent models and specialized technology commercialization and technology-based order activities

QUALITY MANAGEMENT

SHI developed a quality management process to maintain leading market share with its high-quality construction. SHI's quality professionals, all of whom possess internationally recognized certification, suggest technical solutions for quality issues and customer needs in the process of inspection, and prevent inferior quality in a timely manner.

Context

Customers expect quality products; quality control is vital to a company's success. It is essential to establish a quality control process to ensure optimal product performance and customer satisfaction.

SHI Approach

SHI has operated its own quality management system and process based on the experiences and technical skills that the company has accumulated over the past 40 years. SHI continually assesses and improve the system and process by reflecting feedbacks from its design, production, and R&D team.

Efforts towards Quality Management

SHI complies with design standards, Classification Rules, and specification for each process to guarantee optimal quality. Moreover, SHI operates differentiated quality management by verifying and advancing its quality management system to prevent quality issues and inferior quality.

Key Achievements on Quality Management

2016

- A certification change of ISO9001:2015 (quality management system) standards (the shipbuilding industry's first acquisition.)
- My area quality management policy implementation to strengthen the basic quality
- Non-Destructive Testing (NDT) spec. down and test rationalization
- Advancement in operating NDT

2015

- Quality awareness campaign for on-time delivery of no-defect products
- Initiation ceremony for production LINE QC to strengthen quality management
- Quality innovation conference for quality competitiveness

2014

- Establishment of 10 quality regulations and maintenance of international standards for a quality management system
- Acquisition of ISO 3834-2 (fusion welding of metallic materials) quality certification (the shipbuilding industry's first acquisition.)
- One-stop service delivery (from contract management to quality management during construction and after delivery)

Quality Regulations

In an effort to ensure customer satisfaction and address complaints effectively, SHI strengthened its 10 Quality Regulations that must be compliant with all procedures in the shipbuilding process. In 2016, SHI identified 747,615 cases of inferior quality and took measures against the 17,882 cases through 10 quality regulations monitoring.

10 Quality Golden Rules

01 **Follow the approved WPS**
Heating, inter-pass temperature, voltage, bead height, welding rod

02 **Follow/check approved drawings before start of work**
Manage the most updated blueprint

03 **Follow the preservation control procedure (protection, storage)**

04 **Follow the earthing(grounding) cable installation procedure**
Tighten ground connection, eliminate rust and paint

05 **Follow the Ex/electrical installation procedure**
Comply with Gland and Cable Disconnection Procedures

06 **Prohibit heavy pulling during flange installation**
Comply with flanging procedure

07 **Prohibit foreign material getting inside equipment and piping**
Keep it neat and tidy

08 **Prohibit unqualified personnel involvement**

09 **Prohibit working without approved procedures and drawings**
Prohibit the use of a hammer to remove temporary sub-materials

10 **Prohibit applying paint before surface preparation**

Key Achievements

ISO 9001:2015 Certification

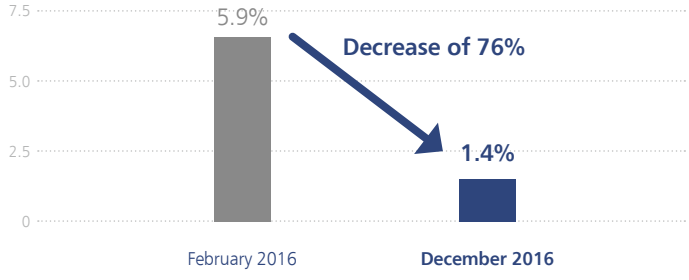
SHI has achieved a new certification of ISO9001:2015 (quality management system) standards for the first time in the shipbuilding industry. SHI has applied the newly achieved standards to 68 divisions in Daedeok R&D Center, Pangyo R&D Center, Chilseo plant, Geoje Shipyard, and its Chinese branches. SHI strengthens its competitiveness to maximize contract awards by creating a risk-based process for quality management.

ISO 9001:2015 Certification Change Ceremony

My Area Policy

SHI has implemented the My Area Quality Management Policy to increase efficiency in production. The My Area Quality Management Policy divides the Geoje Shipyard into 126 smaller areas, and appoints quality managers to each area to extend the range of basic quality inspection. As a result, the defect rate decreased from 5.9% in February 2016 to 1.4% in December 2016

Rate of Defects After Adopting My Area Policy



NDT execution and effective implementation of Tests

SHI conducts NDT (Nondestructive Testing) to determine whether quality standards and requirements are met. In 2016, SHI shortened a process and reduce costs by changing radiation testing (RT) to ultrasonic testing (UT) to reduce the number of RT as well as increasing entrusted testing.

Advancement in Operating NDT

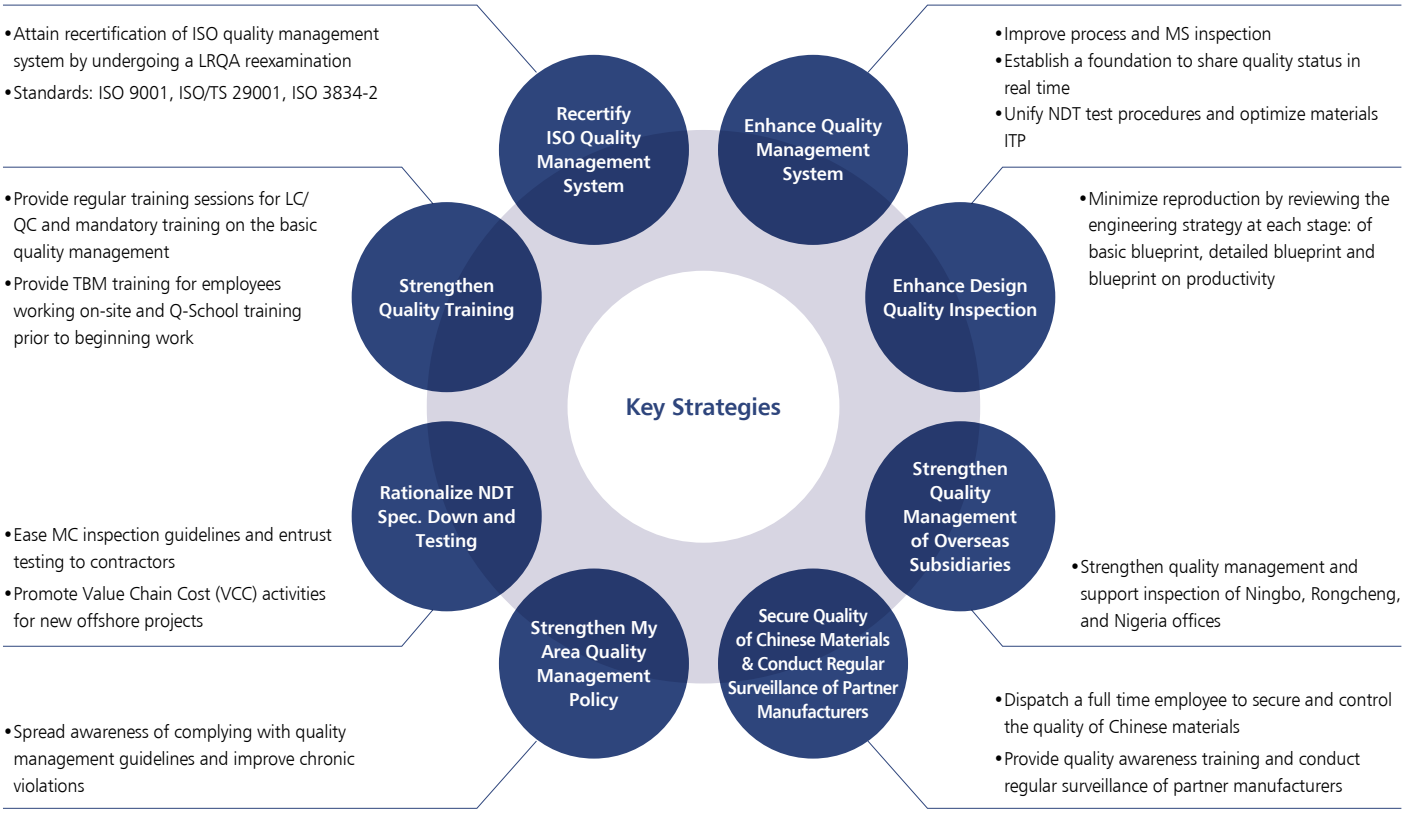
SHI strives to ensure vessel quality by using the advanced NDT method. After introducing CR equipment in July 2016, SHI has reduced radiation exposure time from RT by 50%. It also helps SHI reduced RT time by 98% through the development and application of RT in-source equipment that is movable within piping materials.

Quality Management Strategies for 2017

SHI aims to deliver products with zero-defects on time to exceed customer expectations. Moreover, SHI will intensively manage basic quality and focus on advancing its management system, ensuring quality goods of raw materials, reducing production lead time, and improving internal awareness for quality.

Quality Management System

Objective : Deliver Zero-Defect Products on Time to Realize Customer Satisfaction



GREEN MANAGEMENT

SHI has a responsibility to its employees, communities, society, and the nation to maintain a healthy environment of clean air, water, and soil, and fulfill it for the next generation. Based on respect of mankind and nature, SHI strives to be a leading green company with healthy growth.

Context

It is no longer an option for a business to simply protect and conserve the environment. Green management has become mandatory to adjust to international standards on use of energy and greenhouse gases emission as 'Basic act on low carbon green growth' and 'emission trading system (ETS)' were introduced. Green management has become a key element that influences corporate value and integrity.

SHI Approach

SHI runs a standardized environment management system to minimize its environmental impact. It regularly monitors air pollutants, toxic chemicals, waste excretion routes, energy consumption, and greenhouse gas emissions and strives to minimize the environmental effects.

Efforts towards Quality Management

To reduce environmental effects, SHI promotes specialized activities in the following areas: environmental management, which includes management of the air, water, waste, resources and chemical substances; and green management, which includes establishing a green working environment and promoting economically friendly technology and products.

Certification of Green Management

Certification of Green Management (ISO 14001)

By attaining the ISO 14001 certification for introducing, practicing, maintaining and improving an environment management system (EMS), SHI has been recognized for minimizing environmental effects through efficient resource consumption and regeneration.

Certification of Energy Management (ISO 50001)

SHI attained ISO 50001 certification, an international standard on the planning and practicing for energy reduction, in 2012. SHI sets its goal on energy management and carries out various activities to reduce energy consumption and cost.

Environment Management System (ISO 14001)

Lloyd's Register Quality Assurance (LRQA)

Energy Management System (ISO 50001)

Lloyd's Register Quality Assurance (LRQA)

Activities by Environmental Management Sector

Air Management

SHI regularly measures emission and concentration of pollutants to maintain clean air quality. Data are stored as reference materials for management strategy planning.

Water Management

SHI makes it a rule to discharge wastewater to the extent of not destroying the ecosystem, and promotes activities to minimize the volume of wastewater produced. The company treats wastewater with biological methods or utilizes it for road sprinkle water and supply for ships.

Waste Management

SHI has its own waste-incineration facilities and recycling sorters, and outsources treatment of general waste to specialized incinerator companies. Above all, SHI strives to increase self-treatment and recycling rates and eventually to reduce the volume of waste itself.

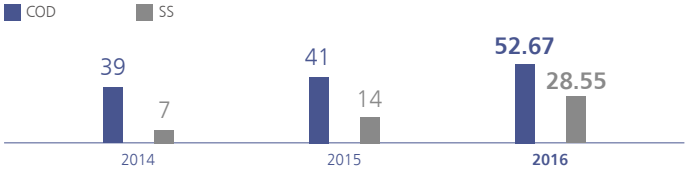
Recycling Resources

SHI rolls out a 3R (reduce, recycle, reuse) campaign to make efficient use of its resources. Drums generated during the welding process are 100% recycled, and rugs and packing materials are recycled according to the needs of relevant divisions.

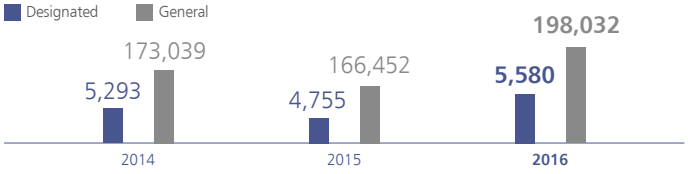
Chemical Substance Management

SHI has a strict principle of having to obtain approval for using chemical substances to close off any possibility of environmental pollution generated during construction process. Moreover, all chemical substances in shipyards must be approved by the Safety Environment Team for storage, usage, and disposal.

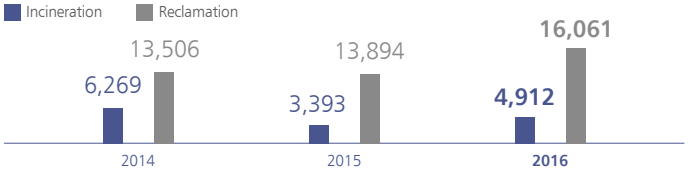
Wastewater Emission Unit: kg



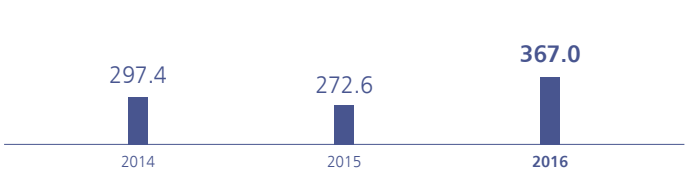
Volume of Treated Waste by Type Unit: ton



Volume of Treated Waste by Type Unit: ton



Volume of Recycled Welding Drums Unit: ton



Inspection of Surrounding Environment of Geoje Shipyard

SHI regularly inspects air and water quality to assess the effects on the surrounding environment. It monitors air pollution indices including PM_{10}, SO_2, and NO_2, and water quality indices including COD and DO to ensure that they do not exceed government standards and to make improvements.

Index	Regulation Standards	Unit	2014	2015	2016
PM_{10}	< 100	㎍/㎥	39.0	42.0	49.0
SO_2	< 0.05	㎎/㎥	0.004	0.007	0.007
NO_2	< 0.06		0.016	0.021	0.019
COD	< 2.0	㎎/ℓ	7.3	4.0	6.7
DO	> 5		7.5	8.0	7.3

Key Achievements

Contest for disuse Materials

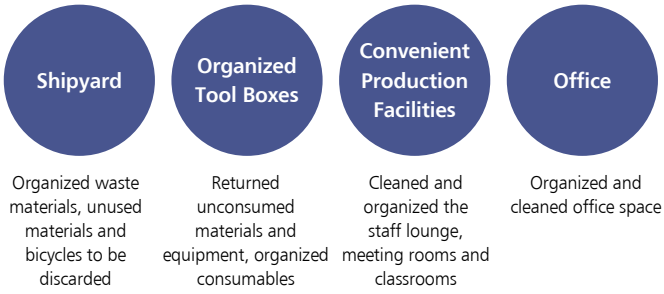
As part of SHI's campaign to conserve resources and clean the shipyard, SHI held a contest in April that gave employees an opportunity to share ideas on how to consume materials and equipment that have been neglected at worksites.

Evaluation of Unconsumed Materials

Spring Cleaning Day

SHI enforced 'Spring Cleaning Day' for the month of April to clean the Geoje Shipyard and its surroundings to strengthen safety measures and increase the consumption of materials.

Key Activities

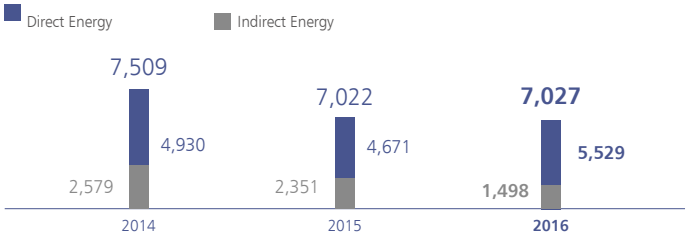


Green Management

Regulations on energy consumption and greenhouse gas emission continue to get stronger due to climate change and global warming. In 2010, SHI became the first in the shipbuilding industry to declare green management. This declaration became the foundation to establishing an energy management system which continues to be enforced today. SHI also regularly organizes classes on energy and greenhouse gas for its employees and business partners.

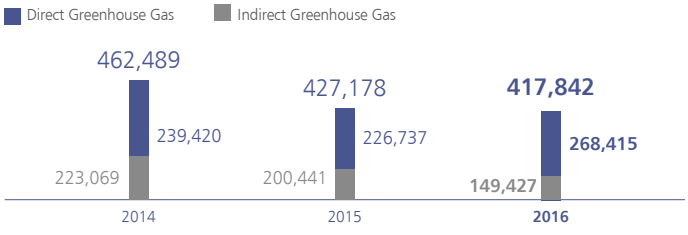
Energy Consumption

Unit: TJ



Greenhouse Gas Emission

Unit: tCO_2e



Inspections & Educations on Green Management for Business Partners in 2016

- **Supported environment inspect of 27 business partners**
- **Conducted educational classes for 25 employees of SHI's business partners responsible for environmental work**
  - Education on releasing information on the environment
  - Education on managing greenhouse gas emission
  - Education on working environments

CORPORATE CULTURE

Showing gratitude towards even the most trivial events not only enhances employees' happiness index but brings about positive effects in establishing a corporate culture of communication and harmony resulting in productivity improvement. SHI's Gratitude Sharing Campaign is a distinct corporate culture that brings happiness to individuals and growth to the company.

Context

Establishing a healthy corporate culture is as important as enhancing employees' abilities and employing and maintaining talent. A healthy corporate culture in which employees do their best work and communicate with one another with respect and gratitude can raise a company's competitiveness and to improve employee retention.

SHI Approach

SHI set gratitude sharing as a core value to establish and spread a healthy corporate culture. SHI engages in various activities to spread its culture of sharing gratefulness not only to its employees but to their families, business partners directly and indirectly related to its business operations, and members of the local community.

Key Achievements of 2016 and Plans for 2017

The Gratitude Sharing Campaign initiated in 2013 commemorated its 3rd anniversary in 2016. The campaign itself and activities contributed greatly to solidifying a corporate culture of communication, harmony, consideration, and respect, and to enhancing SHI's employees' happiness index.

Key Achievements of 2016	Plans for 2017
• Solidified gratitude sharing culture internally in commemoration of its 3rd anniversary • Established a foundation to expand the 'Gratitude Sharing Campaign' to family members and the local community	• Internalize and accelerate the gratitude sharing activities in the pursuit of succeeding it to the practical culture

Key Activities

Declaration of 'Positive Gratitude'

SHI declared its Positive Gratitude Campaign in February to announce planned gratitude. The 250 people present at the declaration, including shipyard heads, CEOs of business partners, and auditors, pledged to stabilize SHI's business partners' businesses and give a boost to employees' morale.

Declaration of Positive Gratitude Campaign

Coaching Sessions on Gratitude Sharing

SHI hosted coaching sessions on gratitude sharing for team leaders, division heads, and auditors. The sessions were an opportunity to share the achievements of 2015 and to discuss places of improvement. They also served as an opportunity to confirm the slogan for the Gratitude Sharing Campaign and establish detailed strategies.

Host Award Ceremony for Letter Writing Contest to Parents

As part of the Gratitude Sharing Campaign, SHI hosted an award ceremony in May for its Letter Writing Contest where local children wrote letters to their parents to thank them for their love. Some 4,000 students from 26 elementary and middle schools in the Geoje area took part in the competition. The 292 winners were presented with awards and mementos during the ceremony.

Lecture on Gratitude Sharing for Spouses

SHI hosted a gratitude sharing lecture to spouses of 100 employees on the topic of 'How to boost my husband's morale.' The lecturer provided an understanding of the difficulties that the shipbuilding industry faces and how to boost the morale of participants' spouses at home.

Publication of Gratitude Sharing Newsletter Gamsa Hyeongtong (Gratitude Going Well)

SHI publishes its weekly Gamsa Hyeongtong newsletter to share the anecdotes of excellent gratitude sharing at each division.

Performance Review

Publication of Casebook 'SHI's Gratitude Sharing & Happiness Giving' to Commemorate 3rd Anniversary

To commemorate the 3rd anniversary of the Gratitude Sharing Campaign, SHI published a 'SHI's Gratitude Sharing & Happiness Giving' casebook that includes activities during the past 3 years, which resulted in best practices prizes by division.

Exhibition of Excellent Gratitude Sharing Anecdotes

SHI hosted an exhibition that displayed excellent gratitude sharing anecdotes in May and ran an experience center that had employees reconsider the meaning of gratitude sharing.

Exhibition on Excellent Gratitude Sharing Anecdotes

RISK MANAGEMENT

With growing risks such as prolonged economic depression and oversupply of ships from rising countries, SHI established a risk management (RM) system and launched a new project risk management team to identify potential risks and effectively respond to them.

Context

Risk management is a comprehensive activity in which companies identify elements that may cause negative effects and build a system to respond to those elements. It also acts as a means to reduce and/or eliminate any influences and/or costs derived from accidents. From this perspective, risk management must be adapted to everyday work to allow companies to prepare for any unexpected accidents in advance.

SHI Approach

SHI operates a risk management system and a risk management division to effectively respond to financial and non-financial risks that originate from business operations including winning and concluding contracts, shipbuilding, and delivery. SHI has established a risk management culture to prevent or minimize risks.

Risk Management Items of 2016

SHI annually selects key items to focus on and establishes detailed strategies to promote risk management. 2014 and 2015 focused on establishing a risk management system, whereas 2016 focused on increasing risk management practices to ensure an advanced risk management system.

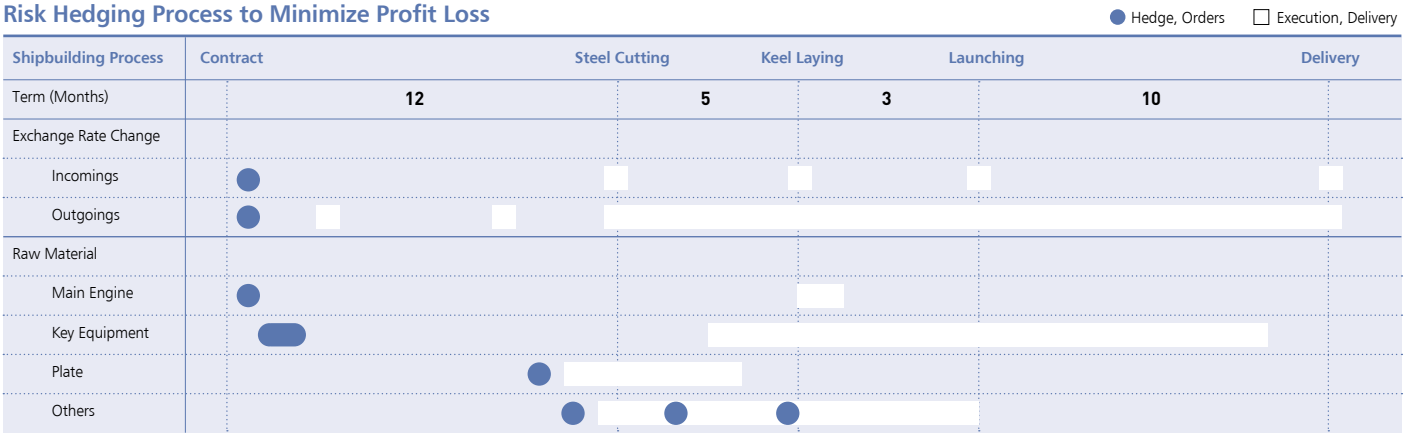
Ensure Advanced Risk Management on Attainment & Execution stages

Structure	Process		Operations
• Strengthen one's contract managing ability	• Establish Risk Management System for unexperienced Accidents • Advance L/L Operations System • Establish System to Manage Cost Improvement Objectives	• Advance PLC Management Process • Strengthen Monitoring on RM Systems • Establish a Support System to Manage Contracts	• Strengthen Risk Management on Major Offshore Projects

Financial Risk Management

The shipbuilding and offshore industry is vulnerable to a variety of market risks, foreign exchange risks, liquidity risks and credibility risks. In an effort to prepare for uncertainty and unpredictability in the financial market, SHI applies 'risk hedging' to foreign exchange rate fluctuation and raw material purchases and prevents risks that may influence financial performance through regular monitoring and response.

Risk Hedging Process to Minimize Profit Loss



- Foreign exchange risks are 100% hedged against risks by forwarding options upon attainment of contract
- Main engine and key equipment are ordered within 1-2 months after concluding contract to minimize risks against fluctuating prices

Project Risk Management

SHI launched a PLC RM team to manage risks that may originate at any stage of a project, from concluding contracts to production (it established exclusive contract management team in 2016). The team categorizes projects into two stages, attainment stage and execution stage, and promotes risk management strategies specialized in each stage. Especially, SHI hosts an Agenda Commission, Risk Commission, Material Costs Commission, and Contract Commission to prevent risks caused by low bidding.

Risk Management System for Attained Projects

Attainment Stage

Issue Invitation to Tender (IIT) to Contractor

Risk Evaluation Prior to Bidding
1. Inexperienced Risk Analysis
2. Agenda Commission (ITT review included)
3. Risk Review Commission

Decisions to Bid
1. Materials Cost Commission (Product quantity evaluation included)
2. Contract Commission
3. Order Commission

Bidding Results
1. Presentation on Bidding Results
2. Presentation on Contract Attainment

Execution Stage

3 Months after Concluding Contract

Golden Time Management
- Analysis of major project risks and establishment of preemptive measures

At all times upon contract

Risk Identification
- Risk Workshop

Risk Evaluation / Analysis
- Categorize Risks
- Evaluate Project Risk

Risk Response
- Establishment of Measures for Each Risk Category
- Risk Management Committee
- Inspect Current Projects
- Action Plan

Monitoring
- Loss Prediction
- KPI Management

Feedback
- Lesson Learned System

Non-financial Risk Management

SHI categorizes and manages potential risk elements to minimize risks in non-financial sectors such as morality, information, health, safety and environment. And it established an HSE Management System (3 No: no disease, no disasters, no pollutions) to manage risks in the health, safety and environment sector. It also enacted its Code of Ethics and launched a separate website where anyone can report wrongdoing and corruption, and receive compensation for eligible reports.

HSE Management Activities

Health Management (No Disease)
- Assess and improve working environment
- Manage Materials Safety Data Sheet
- Provide medical examinations o employees
- Operate affiliated facilities (hospital, physical therapy clinic, health center)

Safety Management (No Disasters)
- Attained OHSAS 18001
- Established a systematic safety improvement strategy to prevent accidents
- Promote lifesaving & disaster preventing activities

Environment Management (No Pollution)
- Establish a non-polluting shipyard management system
- Became first company to attain ISO14001 (A/S and recertification included)
- Develop environmentally friendly technology and products
- Manage wastewater, air and waste

Key Achievements

Appointment of Contract Management Division

To strengthen support of company-wide contract management, SHI appointed a Contract Management Assistance (CMA) Division in February. It also operates an integrated committee to effectively manage contracts and ensure systematic data management to improve how contracts are managed and establish preemptive measures.

Project Lifecycle Management

SHI hosts a monthly Action Plan Committee to improve contents of its action plans established to prevent additional loss when pursuing large-sized projects and to establish and manage loss prevention measures. The committee consists of PM, RM and members of relevant divisions where it categorizes and manages risks to efficiently improve the decision-making and monitoring process.

Enhancement of Project Risk Management

SHI categorizes and manages key offshore facilities projects into ongoing projects and new projects, and establishes different objectives and strategies for each category.

	Ongoing Projects	New Projects
Objective	• Stabilize Loss Deliver on-time by upgrading • employees' ability	• Take preemptive measures to prevent deficits • Strengthen RM PLC Process
Risk Management	• Identify risks by through workshops • Adopt new KPI indexes employees' ability	• Take preemptive measures towards identified risks

Risk Management Compliance T/F

SHI runs an exclusive T/F team to minimize risks by taking preemptive measures on the increase in issues relevant to subcontracting. The T/F team cooperates with leading business partners, introduces their compliance know-how, and receives support from professionals.

April~July
Improve risk of internal subcontracting CP

▼

April~August
Introduce electronic monitoring system on subcontracting

▼

September~
Review subcontracts & introduce a monitoring system

▼

October~
Provide support to electronic monitor inspectors

INFORMATION MANAGEMENT

SHI systematically manages information obtained through its business activities and prevents core information and technology from leaking and/or cyber hacking. It fully discloses its major business activities and performances to the public.

Context

Information is a valuable asset that influences business performance, efficiency, and risk mitigation. Safe management of such information is essential; in the Internet era, a management system for information and assets has become a crucial business factor.

SHI Approach

SHI operates an information management system to maintain a strong and reliable relationship with its stakeholders. SHI strives to efficiently manage obtained information through the division appointed to exclusively engage in information management activities.

Information Management Strategies

SHI's information management system consists of 2 operations: 'information protection' operation to prevent information, such as insider information on core technologies and personal information of business partners and customers, from leaking, and 'information disclosure' operation to open and share information on business activities, investments, major activities and performances, sustainability reports and others.

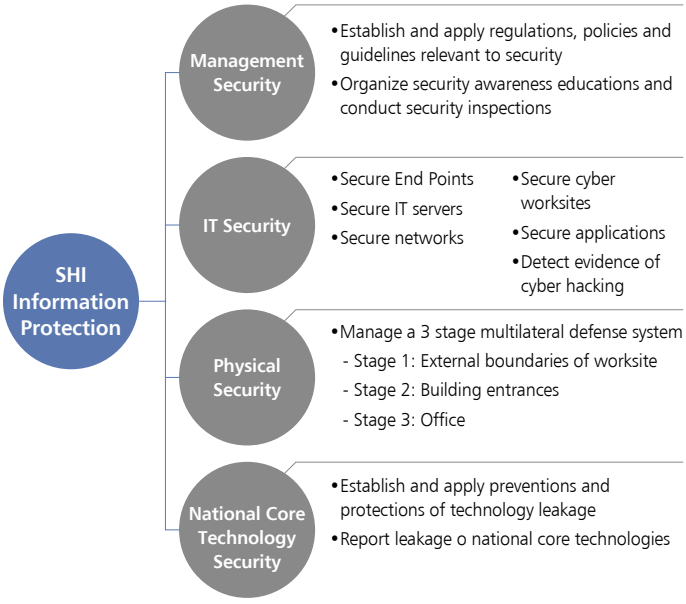
Information Management Sector

Category	
Information Management	
Information Protection	**Information Disclosure**
Objective	
• Maintain the ISO 27001 (international standard on information management) • Prevent core information assets and technology from leaking • Prevent cyber hacking • Comply with laws and regulations relevant to personal information protection	• Disclose to the public information on business activities, investments, and sustainable management (media: website, electronic disclosure systems, SNS, etc) • Regularly publish sustainability reports

Information Protection

To effectively manage its informational assets, SHI has operated an exclusive informational asset management division, the Information Protection Team, since 2017. Operations of information protection have been categorized into "management security,' IT security,' 'physical security,' and 'national core technology security. SHI appointed security management professionals to its Geoje Shipyard, Pangyo R&D Center, Daedeok R&D Center, and Chilseo Plant and works closely with outside partners.

Information Protection Structure



Major Information Protection Policies

Security Education

SHI regularly conducts security education to emphasize the importance of information protection and security, and to strengthen employee abilities. The newly employed must complete a mandatory OJT session on information security. All employees regardless of their position are required to complete an annual security education session. Employees handling personal information and IT system developers must also complete a required education session, and security personnel must complete 40 or more hours of training within 2 years.

Security Assessment

SHI regularly conducts security assessments to identify and resolve risks in advance. It conducts annual assessments of its Korean and international sites and its business partner sites.

Subject to Assessment		Date of Assessment
Korean worksites	Geoje Shipyard / Chilseo Plant	August
	Pangyo R&D Center	July
	Daedeok Research Center	July
Overseas Offices	India Engineering Center	April
	Chinese Subsidiaries (Ningbo, Rongcheng)	November
Business Partner	Engineering Partners	October

Information Protection Oath

In accordance to SHI's information protection regulation, employees of SHI and business partners are required to take an information protection oath annually.

IT Security Policy

SHI manages a security policy that covers IT infrastructures, such as networks and servers, data and applications.

Escort* Management Policy

- Control USB, external hard drives and CD R/W
- Control outside messengers
- Control the use of wireless LAN lines
- Distribute patch files

Management Policy for Web Blocking Solutions

- Control the use of websites not related work (webmail, webhard, etc.)
- Disallow internal files from being uploaded to prevent leakage

Information Security Assessment

- Mock tests on hacking
- Conduct security checks on servers
- Conduct checks on DBs and manage user accounts
- Examine communications networks
- Respond to hacking incidents

DRM* Management Policy

- Only allow employees authorized to protect technology information (encode electronic documents)
- Record list of document viewers

Firewall Management Policy

- In/Outbound Deny ALL

Physical Security Policy

SHI maintains security on all physical threats such as access control, facility protection, prevention of disasters and crime prevention as follows: a 3-stage access control system according to number of persons entering worksites, security of docks and outside fences using CCTVs and ultrasonic sensors, port security via patrol ships, installation of outer fence, 24-hour control room, access management of assets, security on restricted area using CCTVs and IC cards and management of hard disks.

National Core Technology Security Policy

SHI strives for external leakage protection of national core technologies, such as engineering technologies of high value-added ships and offshore systems and manufacturing technology of LNG carriers. SHI appoints 6 persons in charge and deals with investigations at Geoje shipyard and China subsidiaries. It also conducts annual security investigation on its engineering partners while working in virtualized environment to prevent blueprints leakage.

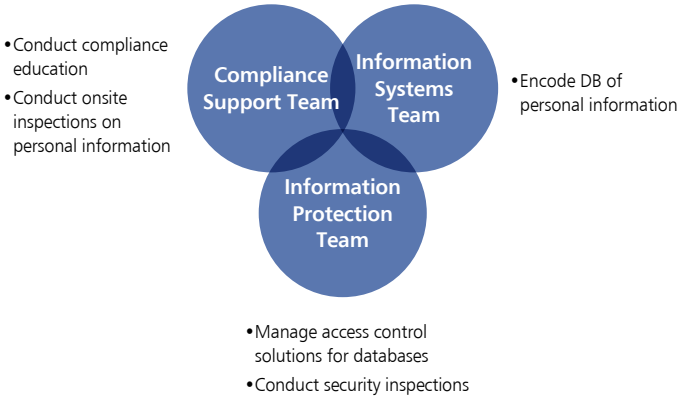
Major Activities and Achievements

Attain and Maintain International Standards

SHI attained in July 2011 the ISO 27001, an international standard for Information Security Management System (ISMS) established by the International Organization for Standardization. It maintains the attained international standards going through evaluations for renewal once every 3 years for 14 domains and 137 control indexes.

Personal Information Protection

SHI abides by 'Personal Information Protection Law' and 'Information Communication Promotion and Information Protection Legislation' to respond to the recent increase in breach of personal information. SHI further appointed mangers to manage personal information as well as divisions according to different activities



Information Disclosure

SHI fulfills its social responsibilities as a global leader by disclosing information on its business activities in a transparent manner. Information on SHI, key products, investment and employment opportunities can be accessed through the SHI website. SHI has published a sustainability report on SHI's social responsibility and sustainable business performances for 6 years since 2011. Moreover, SHI is active in utilizing blogs and social media to enhance communication channels with its stakeholders

Major Information Disclosure Channels

Disclosure Channel	Objectives & Functions
Official Website (www.samsungshi.co.kr)	SHI discloses information on its business activities including its history and key performances, corporate vision and business areas through its official website. The website also discloses investment information, such as financial statements and stock information, employment opportunities and sustainability reports.
Code of Ethics Website (audit.shi.samsung.co.kr)	The Code of Ethics website states the Ethics Charter and Code of Ethics that employees and business partners must comply with. The website also enables employees and others to confidentially report on unfair trade and corruption.
Sustainability Report	The sustainability report discloses in a transparent manner activities, performances and future plans of SHI's sustainable development from a social, economic and environmental perspective. Since 2012, SHI integrated its sustainability report and annual report which strengthened the report's financial aspect and secured balance of the reports.
Newsletter 'Dream Yard'	The newsletter, published for its employees and business partners, handles a wide range of areas from major business activities to announcements, compliance knowledge and common sense. SHI strengthened communications with its employees by increasing the number of publications from once a month to twice a month.
Blogs and Social Media	To approach its stakeholders in a friendlier manner, SHI operates a blog that handles major news of SHI. Moreover, to provide live mutual communications with its stakeholders, SHI actively uses social media such as Facebook and Twitter.

SHARING MANAGEMENT

SHI conducts various social responsibility activities that our society is in need of under its business philosophy of sharing and mutual growth. SHI employs its sharing management activities to support alienated neighbors and vulnerable social groups and further to resolve fundamental social issues.

Context

Corporate social contribution activities has become an effective communication channel with local communities beyond simple volunteer service or donation. Moreover, companies fulfill their duty as a corporate citizen through sincere social responsibility activities, and create positive effects such as support of business activities from local communities and strong connection.

SHI Approach

SHI, which contributes to promote sustainable social development and better quality of life, fulfills its duty to bring about economic and social development to local communities. Moreover, SHI strives to solve social issues by expanding the range of social contribution activities to public sector.

Sharing Management Strategies

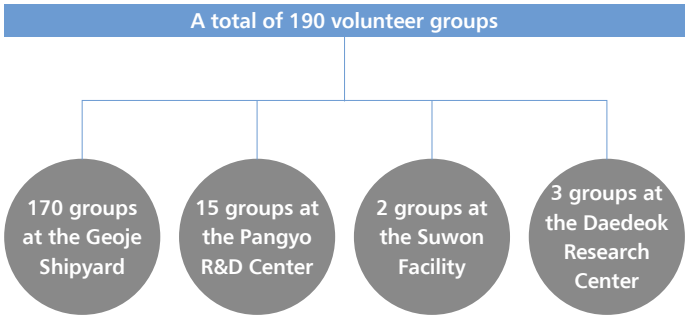
In efforts to realize a society in which neighbors cooperatively engage with happiness, SHI conducts a variety of 'local community' oriented social commitment activities. SHI's 190 volunteer groups conduct social commitment activities according to subject area and beneficiaries to realize SHI's social responsibility vision of being a 'steppingstone for a happy future.'

Vision	SHI, stepping stone for a future happiness		
Objective	Conduct social responsibility activities in a strategic and active manner to develop local communities		
Process	1. Conduct survey on needs of the local community	2. Review survey results	3. Establish and implement relevant strategies
Items of Enforcement	• Identify needs of the persons concerned and local communities	• Review the identified needs multilaterally • Check feasibilities of addressing the needs	• Devise and implement action plans • Check outcomes and gather feedback • Supplement plans based on feedback

Efforts to Spread Sharing Culture

SHI has actively engaged in social contribution activities for the past 20 years to improve the quality of life of local community members based on its business philosophy of sharing and mutual growth. SHI employees contribute to build healthy communities by planning and carrying out social contribution activities in a systematic and successive manner.

Volunteer Groups



Key Achievements

"Hope Sharing Campaign" for New Year's Day and Chuseok (Korean Thanksgiving)

To celebrate New Year's Day in 2016, SHI and 1,600 employees visited a total of 105 facilities, including sister villages, senior citizen halls, sister families and welfare facilities located near the Geoje Shipyard, to provide gifts of necessities. The volunteer groups demonstrated their sharing through talent donation, including cultural performances and foot massages, and cooking Korean traditional festival food. The groups provide gifts of necessities to those in need each year on national holidays. And the 190 groups promote the welfare of the local community by actively engaging in volunteer work for alienated neighbors and multicultural families.

Hope Sharing Campaign

Support on Multicultural Families

Launched in 2008, SHI's support project for multicultural families is a program to support female marriage immigrants in low-income families to better understand the Korean culture and ease into the Korean life. In 2016, SHI provided 38 members of 10 multicultural families with the opportunity to visit the wife's home country, and operated a portable library and cooking classes to assist immigrants and their children in learning Korean. It also trains and dispatches postpartum helpers to support multicultural families to ease anxiety on childbirth and economic difficulties.

Visiting Home Country of Wives of Multicultural Families

Outreach Concert

Employees of SHI host small-sized outreach concerts as part of its talent donation event at welfare facilities, silver towns and hospitals with relatively small possibilities to enjoy a cultural life.

Outreach Concert

Social Service Festival

SHI hosted a 'Social Service Festival' for the month of October 2016. Some 2,000 employees took part in the festival, where a variety of social service activities, from domestic activities for SHI worksites, welfare facilities, sister families and senior citizen halls, to international activities, took place.

Social Service Festival

Major Activities of Social Service Festival

Health Service	Foot massage, moxa cautery and acupressure treatment provided for senior members at the Changchon Village Hall at Sadeung-myeon, Geoje
Papering	Hang new wallpapers and laid new linoleum for disabled families of Yugae Village, Hacheong-myeon, Geoje
119 Teenage Guide	Foot massage and cultural performance for senior members at the House of Love, a care facilities for the elderly, in Geoje-myeon, Geoje
Technology volunteer	Repair and donate bicycles belonged to Banyawon, a housing facility for severely disabled persons in Geoje

Global Volunteer Activities

SHI supported projects in the Trilokpuri region of India (Delhi) to provide students with a better environment to study by repairing elementary schools, improve water fountains, and construct restrooms that separate men and women. SHI also conducted programs and teaching methods and educational curriculums for teachers to contribute to provide students with quality education. Should the project be complete, 600 families in nearby villages, including 440 students, will benefit from the project.

Blood Donation Campaign

In efforts to spread a culture of donating blood and thereby contributing to the stabilization of blood supply, SHI initiated its 'Blood Donation of Love' campaign in 1995. In 2016, a total of 1,718 employees donated their blood. Especially, blood donation from employees during the winter season when blood supply is low helped out greatly in treating critical patients.

Do Dream Concert with Disabled Performers

The 7th 'Do Dream Concert,' organized by SHI volunteer groups, was hosted in November. The 'Do Dream Concert,' a concert where SHI and disabled performers provide a coordinated show, included 9 performance teams including an ocarina performance and ballet show. The revenue raised from this concert was fully transferred to local welfare facilities for the disabled.

Do Dream Concert

Performance Review

2016 Samsung Social Contribution Award

SHI promoted various activities such as hanging new wallpapers, laying new linoleums and checking the electricity, at welfare facilities and for senior citizens who live alone. And a total of 152 residential environments were improved over the past 7 years. In recognition of improving quality of life of alienated neighbors, the group was awarded the 'Volunteer Award' at the '2016 Samsung Social Contribution Award.'

Painting Walls of Myeongsa Village in Geoje

The Wall Art Team of SHI engaged in painting walls of the village and docks to revive the beauty of Myeongsa Village, Geoje.

Sharing Mulkimchi (Watery Kimchi)

The Chamsarang Group hosted the 'Sharing Mulkimchi' event to share mulkimchi with alienated neighbors including seniors living alone and children in June. The group made 1,000kg of mulkimchi and shared it with 80 seniors and 10 child centers. Employees of SHI also donated KRW 5 million to the Community Chest of Korea campaign in the Gyeongsangnam-do area.

Sharing Mulkimchi (Watery Kimchi) event of the Chamsarang Volunteer Team

Donations to Support Families in Crisis

To provide actual help to neighbors in crisis in blind sports, SHI initiated the 'Support for Families in Crisis' campaign in 2014. Funds raised from donations are used to provide living expenses, scholarships, medical expenses and house repair costs for low income families. SHI delivered a donation of KRW 60 million to the Community Chest of Korea.

Donations to Support Alienated Low Income Households

KRW 110 million raised from donations from 2,279 employees since January 2016 was delivered to the Geoje Hope Welfare Foundation in November. The donation was used to support living expenses and medical expenses for low income households, as well as welfare projects for the local alienated class the Geoje Hope Welfare Foundation are promoting.

Donation ceremony for low-income households

Sharing Management Record

	Unit	2016	2015
No. of employees who participated in raising funds	Persons	**10,788**	9,507
Total amount of funds raised	KRW 100 million	**13.8**	13.5
No. of employees who participated in volunteer activities	Persons	**8,340**	7,410
Volunteer time	Time	**125,122**	82,475

SUPPORT FOR THE NEXT GENERATION

SHI promotes various projects in education, sponsorships and infrastructures to ensure that children and teenagers, who will lead our society in the future, grow up in a bright and healthy manner. SHI supports children and teenagers to grow up to become talents with many abilities who can spread out their dreams and hope as much as they like.

Context

The number of vulnerable children and teenagers due to economic poverty, broken homes and weakening of child rearing, safety accidents that threaten these children and teenagers continue to increase each year. As the need to provide safety, protection and support keeps growing, many companies actively take part in social responsibility activities for our next generation.

SHI Approach

To inculcate healthy values to our next generations, SHI has selected 'Support for the Next Generation' as its number 1 social responsibility and promotes various relevant activities. SHI also sponsors non-profit public organizations and scholarship projects, and supports underfed children campaigns.

Strategies to Support the Next Generations

SHI continues its support activities, including education programs such as afterschool activities and employment training, and lunch money, for children in need because of their situation at home and teenagers facing difficulties because of concerns of their future.

Fields of Support

Afterschool activities vocational experience training	Support on children and teenagers in poor countries	Campaign to support poorly fed children	Teenager guidance activities and family volunteer activities
Support education programs for middle school students and career training for school clubs in farming and fishing villages	Support vocational schools to protect children in poor countries	Support lunch money for students of low income families through funds voluntarily raised from employee donations	Promote guidance activities at night and a delinquency prevention campaign to provide healthy values to teenagers

Key Achievements

Donation of Automatic External Defibrillator to Neighboring Elementary School

SHI donated automatic external defibrillators (AED) to Jangpyeong Elementary School, OB Elementary School and Yangji Elementary School in Geoje. The AED is an emergency kit used in cardiac arrest situations. When donating the AED, SHI also supported professionals to provide CPR education and education on how to use AED to enable children to improve their response ability to emergency situations.

Donation of Automatic External Defibrillator (AED)

Afterschool Activities at Farming and Fishing Villages

To reduce the educational gap between urban and suburban areas, and to inculcate dreams and visions to local students, SHI has supported afterschool activities at farming and fishing villages since 2006. A total of 40 employees provide afterschool programs in English and math to 150 students in 3 middle schools in Geoje 4 times a week for 2 hours each.

Opening of Afterschool Program for 2016

Dreams, Love! Samsung Daycare Center Festival

To commemorate Children's Day, SHI hosted a festival for employees' children, and children and families residing in the Geoje area. The event included performances, playground, experience booth and marketplace for the disadvantaged. All the proceeds from the festival were donated.

SHI Daycare Center Festival

Lunch Money Support for Children in Low-Income Families

SHI began supporting lunch money for children of low income families in the Geoje area since 2004. And in 2016 alone, SHI supported lunch money to 269 middle and high school students. Many employees are taking part in this initiative to support growing children of low income families continue their education and develop their dreams.

Lunch money delivery ceremony for underfed students

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2016 Management's Discussion and Analysis

2016 Market Environment

The total number of orders decreased in 2016 due to low oil prices and the prolonged economic recession. As a pessimistic outlook has continued followed by economic uncertainty and order drought, the Korean government classified shipbuilding and offshore industry as a sensitive industry to to economic ups and downs and established a large-scale restructuring plan to downsize facilities and manpower and to help solve the difficulties of order drought. Korean major shipbuilding companies have made every effort to implement management efficiency measures in their own way.

Market Environment of Shipbuilding & Offshore Industry

Shipbuilding Industry

Due to lack of new order worldwide, orders for most ships such as large container ships and takers dropped by 72% as compared with previous year, from 69 million in 2015 to 19.3 million tons in 2016. Though major shipbuilding companies in Korea still lead the global industry with respect to order backlog and production capacity, intensifying competition with Japanese and Chinese companies is threatening their positions in the industry.

Offshore Industry

Investments in offshore sector by oil majors have deferred or shrunk with falling oil price since the second half of 2014, which resulted in dropping new order prices by 71% as compared to 2015. Furthermore, major shipbuilding companies experienced greater burden on working capital due to overinvestment in equipment considering order quantity, price fall in offshore facilities, project cancellation or delay, and delay in delivery.

Establishment and Implementation of Relevant Measures

SHI sought measures in May 2016 to respond to a request made from its major bond bank and to deal with pessimistic prospect and uncertainty of future business environment. SHI secured liquidity by selling assets and promoted business efficiency by downsizing itself, securing funds of KRW 2.1 trillion and raising KRW 1.1 trillion by issuing new stocks to overachieve its initial objective.

Plans and Achievements on Disposal of Non-productive Assets

Unit: KRW billion

	2016		Target for 2017-2018	Total
	Target	Achievements (Percentile)		
Marketable securities, etc.	55	58.3 (106%)	19	74
Real estate	115	115.3 (100%)	357	472
Total	170	173.6 (102%)	376	546

2016 Financial Performance

In 2016, sales increased by 7.2%, recording KRW 10.4 trillion, as compared with the previous year because of increase in merchant ships and general ships. On the other hand, SHI made business loss of KRW 147.2 billion as one-time expenses which generated from voluntary retirement increased. Assets and liabilities recorded increase of 47.1% with KRW 17.2 trillion and decrease of 16% with KRW 10.9 trillion respectively. SHI successfully increased its capital by issuing new stocks, resulting in greatly reducing its debt ration to 174% in 2016 from 306% in 2015.

Summarized Financial Information

Unit: KRW 1 Million

	2014	2015	2016
Total assets	17,122,234	17,301,591	**17,217,463**
Current assets	10,581,204	10,110,480	**9,950,790**
Non-current assets	6,541,030	7,191,111	**7,266,673**
Total liability	11,549,072	13,035,846	**10,942,152**
Current liability	10,008,363	9,570,119	**9,045,743**
Non-current liability	1,540,790	3,465,726	**1,896,409**
Total equity	5,573,161	4,265,745	**6,275,311**
Capital stock	1,154,951	1,154,951	**1,950,574**
Retained earnings	4,872,462	3,592,524	**3,519,572**
Sales	12,879,062	9,714,441	**10,414,189**
Operating income	183,020	-1,501,905	**-147,200**
Net income before tax	189,754	-1,461,810	**-68,940**
Net income	147,320	-1,212,110	**-138,776**

Orders and Order Backlog of 2016

Unit: USD billion ($), %)

	Number of Ships	Net Amount	Portion
Container ship	12	1.9	7
LNG Carrier	16	3.3	12
Tanker	40	2.4	9
Drillship	10	5.9	22
Offshore Facilities	8	12.7	48
Others	4	0.5	2
Total	**90**	**26.7**	**100**

Economic Stimulation of Local Communities

SHI will strive to do its best to overcome the economic depression in local communities caused by carrying out management efficiency measures including drastic downsizing of SHI and its business partners. It will start out with constructing infrastructure in local community and also plan a variety of activities to improve local residents' quality of life such as stimulation of traditional markets.

2017 Business Strategies

2017 Market Outlook

The shipbuilding and offshore industry is expected to continue the depression in 2017 as well due to oversupply and low investment capability of shipowners and oil majors, however, it is likely to slowly recover from the second half of 2017. In addition, gross production tonnage in the shipbuilding and offshore market is predicted to show a slight increase around the world. Nonetheless, it is likely to take some time for Korean shipbuilding companies to secure enough profitability under the condition where the gap of construction cost with Chinese companies gets wider.

Outlook in shipbuilding and Offshore industries

Shipbuilding Industry

Shipbuilding industry expects a recovery in LNG carrier and tanker during the first half of 2017. Export of shale gas and LNG and development of submarine gas carrier in Australia and East Africa will contribute the increase in new order of LNG carrier. Demand growth for oil and long-distance transportation will put an positive impact on tanker market. New order for container ships is likely to begin from the second half of 2017 after the alliance is confirmed in April.

Offshore Industry

It is expected that the international oil price will slightly recover. And the success of major oil companies to reduce cost will allow companies to secure profitability on offshore projects. As a result, in the short-term, we expect to see orders of offshore plant projects that had been delayed and/or cancelled, and to a see limited rise in new orders.

2017 Business Strategy

In 2016, SHI was able to achieve its objective of business efficiency and secure operation funds by selling off non-productive assets, undergoing restructuring and issuing new stocks to overcome its business difficulties. SHI set 'ensuring internal stability to secure differentiated competitiveness through innovation' as a business goal for 2017. SHI will do its utmost to come through the current slump and strengthen its position in the industry.

Major Strategies for 2017

Cost-reducing Innovation

- Adapt innovative ideas to reduce costs to worksites
- Improve production efficiency
- Promote innovative activities by improving work process, and reducing stocks and energy consumption

Competitiveness Enhancement

- Identify new profit sources, increase investments, and develop new technologies
- Strengthen competitiveness in attaining orders by establishing customer-oriented bidding strategies and developing specialized products
- Develop new construction methods to increase productivity

SHI will also focus on high value-added ships and offshore plants such as large-sized container ships, LNG carriers, shuttle tankers, ice breaking tankers, LNG FPSOs, drillships and FPSOs, so that it can provide greater differentiation to Japanese and Chinese companies and eventually continue to attain new orders.

Stock Information

Review of Domestic Stock Market in 2016

The KOSPI Index, which started off at 1961.31, rapidly fell to 1835.28 in February owing to risks derived from North Korea's 4th nuclear test and launching of a long-range missile and fall in international oil prices. The index showed a rally since March due to the Central European Bank's quantitative easing, however, the UK approved Brexit in June and official verification of deploying THAAD in July had the index to fall down and it remained stagnant at 2,000 level. The KOSPI Index fell again to 1958 in November when the bond market crashed in November after Trump was elected as president and North Korea conducted its 5th nuclear test. However, the Korean stock market turned for the better when the Organization of the Petroleum Exporting Countries (OPEC) agreed to cut production of crude oil by 1.2 million barrels. The Korean stock market concluded at 2026.46 due to strong growth in foreign investment in December, which is 65.15 point (3.32%) higher than that of previous year.

Stock Trend in 2016

Stock price continued to fluctuate in 2016 due to a prolonged recession in the shipbuilding and offshore industry, competition with Chinese shipbuilders and oil prices fall. Stock price recorded the highest in March at KRW 12,950 and lowest in November at KRW 8,300, concluding 2016 at KRW 9,250.

		2014	2015	2016
Face Value (Unit: KRW)		5,000	5,000	**5,000**
Total Number of Stocks Issued (Unit: Stocks)		230,990,231	230,990,231	**390,114,845**
Stock price	High	- 38,650	- 21,150	**-12,950**
	Low	- 19,850	- 9,980	**-8,300**
	End	- 19,950	- 10,850	**-9,250**
Foreign Ownership (Unit:%)		19.51%	14.65%	**17.24%**

Shareholder Constitution

As of December 2016, the total number of stocks issued is 390,114,845 stocks and number of outstanding stocks recorded 205,025,802. The largest shareholder, Samsung Electronics Co., Ltd., holds 16.9% of all stocks issued and Samsung Life Insurance and Samsung Electro-Mechanics hold 3.2% and 2.3% respectively. Minority shareholders, who account for 99.99% of all shareholders, add up to 156,783 persons possessing a total of 62.5% of SHI's stocks.

Major Shareholders

As of December 31, 2016)

Shareholder	Number of Stockholding (Unit: Stocks)	Percentile (Unit: %)
Samsung Electronics Co., Ltd.	**65,930,982**	16.90%
Samsung Life Insurance	**12,642,988**	3.20%
Samsung Electro-Mechanics	**8,928,807**	2.30%

Financial Statements

Financial Statements

Unit: KRW

	2014		2015		2016	
	Consolidated	Separate	Consolidated	Separate	Consolidated	Separate
Assets						
Current Assets	10,581,203,886,408	10,338,923,828,753	10,110,480,734,368	9,466,228,058,034	**9,950,789,795,899**	**9,487,858,128,289**
Cash and cash equivalents	340,828,995,204	278,952,164,958	983,478,373,773	929,537,097,258	**984,075,446,227**	**929,561,607,104**
Short-term financial instruments	552,286,821,654	423,679,976,885	1,153,964,617,515	906,269,740,230	**786,472,432,910**	**648,598,224,018**
Trade receivables	766,105,469,939	674,054,253,948	350,650,287,238	146,769,615,297	**389,247,494,187**	**297,668,714,899**
Due from customers for contract work	5,468,236,343,936	5,633,102,784,748	4,291,514,814,100	4,291,514,814,100	**5,054,636,276,591**	**5,054,636,276,590**
Other receivables	34,565,556,684	38,256,941,643	30,172,001,317	25,166,662,985	**127,079,891,765**	**117,545,499,137**
Advance payments	1,204,339,396,646	1,168,763,938,662	894,966,319,466	887,133,037,883	**360,295,600,190**	**352,290,121,958**
Prepaid expenses	113,569,546,007	92,904,488,885	94,671,566,597	74,034,950,249	**70,920,559,668**	**52,581,464,384**
Current derivative financial instruments	332,651,727,188	332,260,717,932	245,272,669,603	243,395,896,452	**210,751,182,260**	**203,020,421,729**
Current firm commitment assets	387,032,381,625	387,032,381,625	451,717,714,505	451,441,392,838	**479,975,331,410**	**472,886,625,030**
Inventories	1,168,817,778,667	1,121,342,169,315	1,449,045,285,162	1,421,117,402,914	**1,226,085,739,772**	**1,192,482,844,569**
Other current financial assets	67,399,190,712	67,070,740,706	52,748,575,663	46,548,289,448	**90,498,037,968**	**94,591,736,674**
Other current assets	145,370,678,146	121,503,269,446	112,278,509,429	43,299,158,380	**170,751,802,951**	**71,994,592,197**
Non-current assets	6,541,030,196,178	6,347,046,713,843	7,191,111,253,098	6,826,081,894,754	**7,266,672,882,754**	**6,974,673,638,097**
Long-term available-for-sale financial assets	97,777,953,564	97,777,953,564	61,143,039,512	61,143,039,512	**26,288,657,767**	**26,288,657,767**
Investments in associates and joint ventures	5,358,357,113	496,165,178,920	5,705,345,274	498,009,880,867	**3,467,930,910**	**487,341,481,900**
Property, plant and equipment	5,273,010,241,152	4,664,578,605,082	5,582,821,926,551	4,807,199,653,217	**6,442,424,538,523**	**5,739,412,579,199**
Investment property	20,593,114,258	20,593,114,258	6,981,786,474	6,981,786,474	**16,839,560,548**	**16,839,560,548**
Intangible assets	128,529,130,510	121,124,875,259	101,741,434,244	94,779,516,349	**96,140,776,471**	**93,594,447,942**
Long-term prepaid expenses	97,112,811,086	29,532,244,964	75,663,980,553	17,809,986,292	**67,969,654,036**	**15,202,898,190**
Derivative financial instrument	183,431,051,536	183,377,664,455	143,056,516,969	141,228,620,063	**82,036,715,609**	**80,232,164,480**
Firm commitment assets	209,890,506,989	209,890,506,989	385,128,453,648	375,752,455,784	**106,939,864,653**	**91,793,427,969**
Non-current trade receivables	165,321,703,591	165,321,703,591	67,955,945,129	67,955,945,129	**24,500,208,329**	**24,500,208,329**
Deferred income tax assets	307,599,590,391	306,675,242,065	730,006,107,462	724,599,631,861	**378,626,371,165**	**378,452,563,186**
Other financial assets	52,405,735,988	52,009,624,696	30,906,717,282	30,621,379,206	**21,438,604,743**	**21,015,648,587**
Total Assets	17,122,234,082,586	16,685,970,542,596	17,301,591,987,466	16,292,309,952,788	**17,217,462,678,653**	**16,462,531,766,386**
Liabilities						
Current liabilities	10,008,363,701,451	9,768,283,564,727	9,570,119,230,078	9,018,106,086,768	**9,045,743,305,814**	**8,853,296,372,938**
Trade payables	1,494,781,645,667	1,487,268,952,883	1,413,719,841,358	1,383,452,665,515	**1,320,711,146,304**	**1,266,189,730,818**
Short-term borrowings	2,213,523,762,006	2,118,826,624,536	1,908,413,150,868	1,778,721,569,116	**2,693,765,875,576**	**2,570,248,127,899**
Other payables	112,314,639,636	110,070,457,052	106,499,048,081	97,757,264,909	**137,670,063,887**	**100,872,916,974**
Advance receipts	765,595,353,531	633,187,087,218	1,114,953,967,408	912,324,444,426	**311,598,353,495**	**287,956,178,587**
Due to customers for contract work	3,033,834,645,635	3,103,958,591,726	2,813,297,640,828	2,668,395,202,087	**1,543,796,723,983**	**1,699,720,583,698**
Accrued expenses	666,216,189,055	655,923,537,379	502,396,264,847	492,130,021,514	**523,036,322,263**	**497,006,945,861**
Current income tax liabilities	86,415,034,996	83,663,842,001	4,937,885,534	1,877,337,164		
Current derivative financial instruments	345,463,333,015	345,178,484,514	521,701,075,486	517,081,181,032	**782,199,306,518**	**768,487,498,125**
Current firm commitment liabilities	343,105,017,759	343,105,017,759	246,360,587,891	246,071,593,819	**209,642,478,076**	**205,373,835,479**
Current portion of long-term debts	653,624,705,519	599,697,655,519	513,569,600,000	510,000,000,000	**1,158,721,568,655**	**1,099,828,242,275**
Provisions	202,887,355,586	202,887,355,586	375,693,088,290	375,693,088,290	**325,215,360,649**	**325,215,360,648**
Other current liabilities	90,602,019,046	84,515,958,554	48,577,079,487	34,601,718,896	**39,386,106,408**	**32,396,952,574**

Unit: KRW

	2014		2015		2016	
	Consolidated	Separate	Consolidated	Separate	Consolidated	Separate
Liabilities						
Non-current liabilities	1,540,709,085,368	1,471,337,148,652	3,465,726,998,103	3,177,380,431,941	**1,896,408,600,575**	**1,619,566,813,732**
Debentures	598,924,336,125	598,924,336,125	1,098,155,375,018	1,098,155,375,018	**499,347,207,263**	**499,347,207,263**
Long-term debts	360,575,782,657	307,562,663,547	1,513,180,196,172	1,327,400,000,000	**975,460,567,761**	**843,825,000,000**
Net defined benefit liabilities	81,148,863,177	81,148,863,177	175,924,376,932	175,924,376,932	**101,304,890,943**	**101,304,890,943**
Other provisions	64,806,409,000	64,806,409,000	24,072,508,000	24,072,508,000	**24,072,508,000**	**24,072,508,000**
Derivative financial instruments	213,182,802,894	212,231,665,749	405,879,686,509	394,013,020,731	**117,833,674,399**	**102,731,807,004**
Firm commitment liabilities	191,500,624,164	191,500,624,164	139,239,613,570	137,640,798,322	**34,123,353,398**	**32,109,400,734**
Other non-current financial liabilities	15,888,741,099	15,162,586,890	21,811,891,578	20,174,352,938	**18,199,268,257**	**16,175,999,788**
Other non-current liabilities	0		78,094,236			
Deferred income tax liabilities	14,681,526,252		87,385,256,088		**126,067,130,554**	
Total liabilities	11,549,072,786,819	11,239,620,713,379	13,035,846,228,181	12,195,486,518,709	**10,942,151,906,389**	**10,472,863,186,670**
Capital						
Attributable to owners of the company	5,537,479,225,161		4,237,368,406,426		**6,264,309,339,227**	
Capital stock	1,154,951,155,000	1,154,951,155,000	1,154,951,155,000	1,154,951,155,000	**1,950,574,225,000**	**1,950,574,225,000**
Common stock	1,154,376,930,000	1,154,376,930,000	1,154,376,930,000	1,154,376,930,000	**1,950,000,000,000**	**1,950,000,000,000**
Preferred stock	574,225,000	574,225,000	574,225,000	574,225,000	**574,225,000**	**574,225,000**
Premium on capital stock	417,172,244,393	417,172,244,393	417,172,244,393	417,172,244,393	**752,018,095,705**	**752,018,095,705**
Accumulated other comprehensive income	56,789,076,034	47,564,262,126	35,616,695,703	23,601,776,875	**1,006,041,933,242**	**873,434,437,983**
Other components of equity	-963,896,146,243	-963,896,146,243	-963,896,146,243	-963,896,146,243	**-963,896,146,243**	**-963,896,146,243**
Retained earnings	4,872,462,895,977	4,790,558,313,941	3,593,524,457,573	3,464,994,404,054	**3,519,571,231,523**	**3,377,537,967,271**
Non-controlling interest	35,682,070,606		28,377,352,859		**11,001,433,037**	
Total equity	5,573,161,295,767	5,446,349,829,217	4,265,745,759,285	4,096,823,434,079	**6,275,310,772,264**	**5,989,668,579,716**
Total liabilities and equity	17,122,234,082,586	16,685,970,542,596	17,301,591,987,466	16,292,309,952,788	**17,217,462,678,653**	**16,462,531,766,386**

Consolidated Statements of Income

Unit: KRW

	2014	2015	2016
Revenue	12,879,061,898,890	9,714,441,843,944	**10,414,188,640,168**
Cost of sales	12,116,358,002,949	10,676,057,968,401	**9,939,108,513,682**
Gross profit (loss)	762,703,895,941	-961,616,124,457	**475,080,126,486**
Selling and administrative expenses	579,683,917,058	540,289,374,247	**622,279,642,054**
Operating profit (loss)	183,019,978,883	-1,501,905,498,704	**-147,199,515,568**
Other income	2,631,044,863,947	2,677,989,720,350	**1,690,319,949,169**
Other expenses	2,536,611,498,356	2,627,069,553,392	**1,514,442,302,612**
Financial income	258,710,431,473	267,148,607,842	**227,123,455,160**
Financial costs	345,709,070,486	277,323,179,890	**324,347,280,634**
Share of gain (loss) of associates and joint ventures	-700,265,151	-650,814,305	**-395,296,070**
Profit (loss) before income tax	189,754,440,310	-1,461,810,718,099	**-68,940,990,555**
Income tax expense	42,434,231,465	-249,700,704,752	**69,835,915,882**
Profit (loss) for the year	147,320,208,845	-1,212,110,013,347	**-138,776,906,437**
Profit attributable to			
Equity holders of the company	149,224,549,432	-1,205,414,369,599	**-121,231,328,119**
Non-controlling interest	-1,904,340,587	-6,695,643,748	**-17,545,578,318**
Earnings per share for profit attributable to the equity holders of the company during the year			
Basic earnings per share	693	-5,879	**-485**
Preferred stock earnings per share	693	-5,879	**-333**
Diluted earnings per share	693	-5,879	**-485**
Preferred stock earnings per share	693	-5,879	**-333**

Consolidated Statements of Comprehensive Income

Unit: KRW

	2014	2015	2016
Profit (loss) for the year	147,320,208,845	-1,212,110,013,347	**-138,776,906,437**
Other comprehensive income (loss)	-36,280,430,706	-44,052,040,385	**1,004,748,749,354**
Items that will not be reclassified to profit or loss for the year			
Other comprehensive income before tax of profits from assets revaluation			**1,145,802,515,179**
Remeasurements of net defined benefit liabilities	-11,813,588,509	-29,369,229,625	**45,057,853,983**
Items that will not be reclassified and relevant corporate tax	2,858,888,419	7,107,353,569	**-288,188,209,337**
Items that will not be subsequently reclassified to profit or loss for the year			
Changes in value of available-for-sale financial assets	-35,683,861,449	-31,388,755,785	**-24,651,247,227**
Currency translation differences	-280,723,764	2,274,518,457	**120,533,356,801**
Changes in equity method investment	3,360,126	-102,197,535	**228,878,126**
Tax effects of other comprehensive income (loss)	8,635,494,471	7,426,270,534	**5,965,601,829**
Total comprehensive income for the year			
Equity holders of the company	114,830,361,552	-1,248,848,625,986	**883,347,762,739**
Non-controlling interest	-3,790,583,413	-7,313,427,746	**-17,375,919,822**

Consolidated Statements of Changes in Equity

Unit: KRW

			Equity						
			Capital Stock	Capital Surplus	Accumulated Other Comprehensive Income	Other Components of Equity	Retained Earnings	Non-controlling Interest	Total Equity
Balance as of January 1, 2014			1,154,951,155,000	417,172,244,393	82,228,563,824	-649,229,603,926	4,840,681,989,885	-8,544,181	5,845,795,804,995
Changes in equity	Comprehensive income	Profit (loss) for the year					149,224,549,432	-1,904,340,587	147,320,208,845
	Change in value of available-for-self financial assets				-27,048,366,978				-27,048,366,978
	Currency translation differences				1,605,519,062			-1,886,242,826	-280,723,764
	Remeasurement of net defined benefit liabilities						-8,954,700,090		-8,954,700,090
	Change in equity method investments				3,360,126				3,360,126
	Dividends paid						-108,488,943,250		-108,488,943,250
	Gains on disposition of tangible assets								
Transactions with equity holders of the company	Acquisition of non-controlling interests							39,481,198,200	39,481,198,200
	Capital increase by issuing new stocks								
	Gain on disposal of treasury stock					182,902,573			182,902,573
	Disposal of treasury stock					806,949,000			806,949,000
	Acquisition of treasury stock					-315,527,198,890			-315,527,198,890
	Stock purchase options					-129,195,000			-129,195,000
Transactions with non-controlling interests	Changes in scope of consolidation								
Balance as of December 31, 2014			1,154,951,155,000	417,172,244,393	56,789,076,034	-963,896,146,243	4,872,462,895,977	35,682,070,606	5,573,161,295,767
Balance as of January 2015			1,154,951,155,000	417,172,244,393	56,789,076,034	-963,896,146,243	4,872,462,895,977	35,682,070,606	5,573,161,295,767
Changes in equity	Comprehensive income	Profit (loss) for the year					-1,205,414,369,598	-6,695,643,749	-1,212,110,013,347
	Change in value of available-for-self financial assets				-23,962,485,251				-23,962,485,251
	Currency translation differences				2,892,302,455			-617,783,998	2,274,518,457
	Remeasurement of net defined benefit liabilities						-22,261,876,056		-22,261,876,056
	Change in equity method investments				-102,197,535				-102,197,535
	Dividends paid						-51,262,192,750		-51,262,192,750
	Gains on disposition of tangible assets								
Transactions with equity holders of the company	Acquisition of non-controlling interests							8,710,000	8,710,000
	Capital increase by issuing new stocks								
	Gain on disposal of treasury stock								
	Disposal of treasury stock								
	Acquisition of treasury stock								
	Stock purchase options								
Transactions with non-controlling interests	Changes in scope of consolidation								
Balance as of December 31, 2015			1,154,951,155,000	417,172,244,393	35,616,695,703	-963,896,146,243	3,593,524,457,573	28,377,352,859	4,265,745,759,285

Unit: KRW

		Equity						
		Capital Stock	Capital Surplus	Accumulated Other Comprehensive Income	Other Components of Equity	Retained Earnings	Non-controlling Interest	Total Equity
Balance as of January 1, 2016		1,154,951,155,000	417,172,244,393	35,616,695,703	-963,896,146,243	3,593,524,457,573	28,377,352,859	4,265,745,759,285
Changes in equity	Comprehensive income Profit (loss) for the year					-121,231,328,119	-17,545,578,318	-138,776,906,437
	Change in value of available-for-self financial assets			-18,685,645,398				-18,685,645,398
	Currency translation differences			120,363,698,305			169,658,496	120,533,356,801
	Remeasurement of net defined benefit liabilities					34,153,853,319		34,153,853,319
	Change in equity method investments			228,878,126				228,878,126
	Dividends paid							
	Gains on disposition of tangible assets			868,518,306,506		13,124,248,750		881,516,612,076
Transactions with equity holders of the company	Acquisition of non-controlling interests							
	Capital increase by issuing new stocks	795,623,070,000	334,845,851,312					1,130,468,921,312
	Gain on disposal of treasury stock							
	Disposal of treasury stock							
	Acquisition of treasury stock							
	Stock purchase options							
Transactions with non-controlling interests	Changes in scope of consolidation							
Balance as of December 31, 2016		1,950,574,225,000	752,018,095,705	1,006,041,933,242	-963,896,146,243	3,519,571,231,523	11,001,433,037	6,275,310,772,264

Consolidated Statements of Cash Flows

Unit: KRW

	2014	2015	2016
Net cash generated from operating activities	-457,461,384,244	620,279,375,943	**-1,554,754,530,504**
Cash generation from operations	49,404,754,762	860,570,548,010	**-1,476,379,297,886**
Interest received	45,096,880,547	37,822,169,789	**56,226,461,656**
Interest paid	-126,329,109,604	-110,743,840,345	**-168,208,135,775**
Dividends received	1,084,181,213	472,988,998	**307,026,500**
Income tax paid	-426,718,091,162	-167,842,490,509	**33,299,415,001**
Net cash used in investing activities	-521,349,418,917	-1,080,653,868,348	**129,534,007,631**
Changes in short-term financial instruments	-238,003,344,738	-599,615,029,981	**224,258,846,662**
Acquisition of long-term available-for-sale financial assets			**-803,657,100**
Disposal of long-term available-for-sale financial assets	16,600,461,411	1,709,566,280	**38,040,036,077**
Acquisition of held-to-maturity financial assets			**-59,000,000,000**
Acquisition of associates and joint ventures		-1,100,000,000	**-250,000,000**
Disposal of associates and joint ventures			**1,107,125,782**
Acquisition of property, plant and equipment	-366,500,050,635	-608,155,589,087	**-207,047,445,330**
Disposal of property, plant and equipment	43,960,193,042	37,749,954,240	**97,131,162,528**
Acquisition of investment properties			**-737,023,444**
Disposal of investment properties	27,129,529,832	25,122,387,500	**17,305,634,230**
Acquisition of intangible asset	-2,500,659,686	-45,614,273	**-535,661,467**
Disposal of investment properties	169,933,676	3,065,755,943	**3,060,582,941**
Disposal of other current financial asset	15,876,987,151	38,800,088,029	**11,131,135,366**
Acquisition of other current financial assets	-17,999,192,114		
Disposal of other non-current financial assets	5,804,122,459	26,631,308,912	**8,394,960,235**
Acquisition of other non-current financial assets	-5,887,399,315	-4,816,695,911	**-2,521,688,849**
Net cash provided by financing activities	503,052,116,036	1,103,694,356,196	**1,391,691,302,583**
Acquisition of non-controlling interests	39,481,198,200	8,710,000	
Proceeds from short-term borrowings	791,367,691,539	-324,573,102,897	**774,022,633,107**
Repayments of current portion of long-term debts	-255,321,917,070	-651,148,177,650	**-513,487,915,400**
Proceeds from long-term borrowings	351,220,525,507	1,634,255,790,583	**687,663,564**
Repayments of long-term borrowings		-1,871,171,090	
Acquisition of treasury stock	-315,527,198,890		
Disposal of treasury stock	320,760,000		
Dividends paid		498,284,500,000	
Issued debenture			**1,130,468,921,312**
Dividends received	-108,488,943,250	-51,262,192,750	
Net increase (decrease) in cash and cash equivalents before exchanging fluctuation	-475,758,687,125	643,319,863,791	**-33,529,220,290**
Cash and cash equivalents at beginning of year	818,362,587,756	340,828,995,204	**983,478,373,773**
Effect of exchange rate change on cash and cash equivalents	-1,774,905,427	-670,485,222	**34,126,292,744**
Cash and cash equivalents at the end of year	340,828,995,204	983,478,373,773	**984,075,446,227**

APPENDIX

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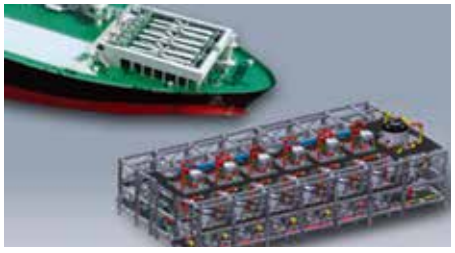
Key Decisions Made by the Board of Directors

Meeting Number	Date of Holding	Agenda	Number of Members Present	Approval
1	February 1, 2016	Agenda # 1: Approval of Financial Statement Agenda #2: Approval of Business Report (Item of Report: Operations on Internal Accounting Control System)	4(4)	Approved
2	February 22, 2016	Agenda #1: Determination of Call of 42nd Ordinary General Meeting of Shareholders Agenda #2: Determination of Objective of 42nd Ordinary General Meeting of Shareholders (Item of Report: Compliance Support Activities, Operations on Internal Accounting Control System	4(4)	Approved
3	March 18, 2016	Agenda #1: Determination of Chair to Meeting of Shareholders & Board of Directors Agenda #2: Appointment of CEO & Entrustment of BoD Duties Agenda #3: Change of Charter of BoD and Its Subcommittees Agenda #4: Execution of BoD Remuneration Agenda #5: Appointment of BoD Subcommittee Members Agenda #6: Change of Location of Head Office Agenda #7: Approval of Financial Transactions on Transactions made according to Policy Terms agreed upon with Subsidiaries Agenda #8: Approval of Financial Transactions on Large-scaled Product & Service Transactions with Subsidiaries Agenda #9: Approval of Transactions with Subsidiaries Agenda #10: Determination of Sales of Stocks of Doosan Engine	4(4)	Approved
4	April 29, 216	Agenda #1: Approval of Financial Statement of 1s Quarter of 2016 Agenda #2: Approval of Transactions with Major Shareholders	4(4)	Approved
5	June 27, 2016	Agenda #1: Determination of Call for Extraordinary General Meeting of Shareholders Agenda #2: Closure of Roster of Shareholders / Determination of Date of Closure Agenda #3: Approval of Financial Transactions on Transactions made according to Policy Terms agreed upon with Subsidiaries Agenda #4: Approval of Financial Transactions on Large-scaled Product & Service Transactions with Subsidiaries	4(4)	Approved
6	July 29, 2016	Agenda #1: Determination of Objective of Extraordinary General Meeting of Shareholders Agenda #2: Approval of Financial Statement for 1st Half of 2016	4(4)	Approved
7	August 19, 2016	Agenda #1: Deliberation on Issuing of New Stocks to Increase Capital	4(4)	Approved
8	September 27, 2016	Agenda #1: Approval of Financial Transactions on Transactions made according to Policy Terms agreed upon with Subsidiaries Agenda #2: Approval of Financial Transactions on Large-scaled Product & Service Transactions with Subsidiaries Agenda #3: Approval of Increase in Financial Transactions on Large-scaled Product & Service Transactions with Subsidiaries during 3rd Quarter of 2016	4(4)	Approved
9	October 27, 2016	Agenda #1: Approval of Financial Statement for 3rd Quarter of 2016 Agenda #2: Approval of Sales of Real Estates of Persons of Special Interest Agenda #3: Deliberation on the Participation of Persons of Special Interest in Issuing of New Stocks	4(4)	Approved
10	December 30, 2016	Agenda #1: Appointment of Members to the External Directors Recommendation Committee Agenda #2: Approval of Financial Transactions on Transactions made according to Policy Terms agreed upon with Subsidiaries Agenda #3: Approval of Financial Transactions on Large-scaled Product & Service Transactions with Subsidiaries Agenda #4: Approval of Transactions with Subsidiaries	4(4)	Approved

R&D Leadership

S-Regas Regasification System

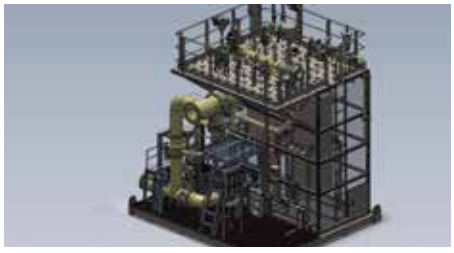


The S-Regas Regasification System, which is installed on the upper section of a ground LNG terminal or a maritime LNG FSRU, vaporizes liquefied natural gas and supplies it to consumers. At the core of the system, which minimizes downtime to increase productivity, lies the technology to design, analyze and control extremely low-temperature and high-pressure processes.

SAVER Air Lubrication System

The Saver Air Lubrication System sprays air at the base of a vessel to reduce friction with seawater and improves fuel efficiency. Its performance has been successfully proven by applying a prototype on a block carrier going from Ningcheng, China to Geoje, Korea, and its applications are being expanded to 170K LNG carriers and other LNG vessels.

S-Reli Reliquefaction System

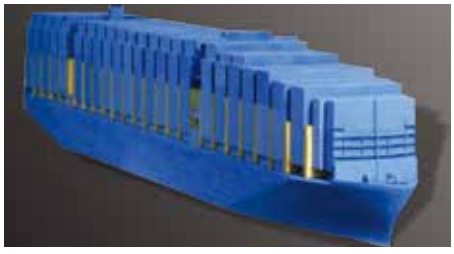


LNG ships convert natural gas into liquid, which is then stored in the tank during transport. During this process, a significant volume of boiloff gas (BOG) is generated. S-Reli is a liquefaction system that converts the gasified LNG into liquid again to return it to the tank or use it as fuel to operate a vessel. It is currently applied to LNG carriers to which a Korean-type LNG Cargo Containment System are applied for the first time.

SAVER CAP

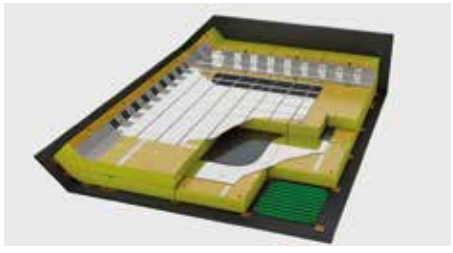
Located at the front of a large container ship, SAVER CAP reduces the air resistance and the fuel needed for vessel operation by controlling the flow of seawater around the vessel. The use of SAVER CAP not only improves fuel efficiency by 1.8 to 3.7% but also reduces vibration on a vessel to safeguard the various goods on the front of the vessel as well as container boxes.

Side Gap Protector



The Side Gap Protector is an energy-efficiency system that reduces the stagnation area on the corners of container boxes and prevents the separation of flow on the opposite side, thus minimizing the wind resistance on a container ship. It may save about 2.4% to 5% of fuel by reducing the wind resistance during actual sailing conditions.

KC-S Cargo Containment System



For the first time in the Korean shipbuilding industry, Samsung Heavy Industries successfully developed its own KC-S Cargo Containment System which has helped reduce KRW 9 to 10 billion in royalties for each LNG carrier. Also, by improving membrane shapes, developing materials for secondary barriers and applying new superadiabatic materials, safety, hermeticity and transport efficiency are simultaneously improved to increase competitiveness in obtaining orders for LNG carriers.

Dual Lifting Technique

A dual lifting technique has been developed to combine a 3,600 ton-level and a 8,000 ton-level offshore crane to operate them as a single offshore crane. This has enabled reduction in both time and cost to manufacture and install terra blocks and has maximized safety and efficiency by applying a linkage system.

Automation of Pipe Welding & Inspection

A spider robot, which efficiently welds large and thick pipes in a vessel, and a robot that drives inside of pipes for welding before performing automatic cleaning and inspection have been developed. Through utilization of various self-developed intelligent robots, safety and quality are pursued and secured perfectly.

Independent Auditor's Report

To the Board of Directors and Shareholders of
Samsung Heavy Industries Co., Ltd.

We have audited the accompanying consolidated statements of Samsung Heavy Industries Co., Ltd. (the Parent Company) and its subsidiaries (collectively referred to as the "Group"), which comprise the consolidated statements of financial position as at December 31, 2016 and 2015, and the consolidated statements of profit or loss, consolidated statements of comprehensive income, consolidated statements of changes in equity and consolidated statements of cash flows for the years then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies and other explanatory information.

Management's responsibilities for the financial statements
Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with International Financial Reporting Standards as adopted by Republic of Korea and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's responsibilities
Our responsibility is to express an opinion on the consolidated financial statements based on our audits. We conducted our audits in accordance with Korean Standards on Auditing. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the consolidated financial statement, whether due to fraud or error. In making those risk assessment, the auditor considers internal control relevant to the entity's preparation and fair presentation of the consolidated financial statements 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 entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements.
We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion
In our opinion, the accompanying consolidated financial statements present fairly, in all material respects, the consolidated financial position of Samsung Heavy Industries Co., Ltd. And its subsidiaries as at December 31, 2016 and 2015, and its consolidated financial performance and its consolidated cash flows for the years then ended in accordance with Korean IFRS.

Emphasis of Matter
Without qualifying our opinion, we draw attention to the following area of focus.
1) The auditor's emphasis on area of focus on construction contracts
Area of focus on construction contracts in accordance with the Practical Guidance of Auditing Standard 2016-1 are those matters that, in the auditor's professional judgment and communication with those charged with governance, were of most significance in the audit of the consolidated financial statements of the current period. These matters were addressed in the context of the audit of the consolidated financial statements as a whole, and in forming our opinion thereon and we do not provide a separate opinion on these matters.

We have addressed the output of the audit process for the area of focus as below in forming an audit opinion on the consolidated financial statements of Samsung Heavy Industries Co., Ltd. And its subsidiaries as a whole.

We have addressed the output of the audit process for the area of focus as below in forming an audit opinion on the consolidated financial statements of Samsung Heavy Industries Co., Ltd. And its subsidiaries as a whole.

A. General Information

Common information applied to the area of focus on constriction contract described in this audit report are as follows:

As explained in the Note 2 to the consolidated financial statements (Critical Accounting Policies), the Group recognizes contract revenue and contract costs associated with the constriction contract as revenue and expense respectively based on the percentage of completion of the contract activity at the end of the reporting period when the outcome of a construction contract can be estimated reliably. The percentage of completion of the contract activity is the proportion that costs incurred to date, excluding any contract cost that does not reflect the work performed, bear to the estimated total costs of the contract. The Group presents the gross amount due from customer for contract work as an asset for all contracts in progress for which costs incurred plus recognized profits (less recognized losses) exceed progress billings, and presents the gross amount due to customers for contract work as a liability for all contracts in progress for which progress billings exceed costs incurred plus recognized profits (less recognized losses).

B. Revenue recognition based on the input method

As explained in the Note 3 to the consolidated financial statements (Critical Accounting Estimates and Assumptions), total contract revenue is measured based on the initial amount of revenue agreed in the contract. However, the measurement of contract revenue is affected by a variety of uncertainties that depend on the outcome of future event; for example, the amount of contract revenue may increase as result of variations in contract work, claims and inventive payments, on the other hand, the amount of contract revenue may decrease as a result of penalties arising from delays caused by the Group in the completion of the contract. The measurement of contract revenue is also affected by the percentage of completion measured based on the aggregated amount costs incurred. Total contract costs are estimated based on future estimated of material costs, labor costs, construction period and others.

Also, as explained in the Note 6 to the consolidated financial statements (Constriction Contracts), estimated total contract revenue and cost were changed due to variations in contract work and costs increases.

Estimating total contract revenue with respect to contract changes due to long-term duration of the contract, changes in designs, the down trend in international oil prices and others of the Group's major constriction contracts; such as, offshore plant and drilling rig etc., are uncertain. The changes in estimated total contract revenue and costs may have negative impacts on the profit or loss for the period (or for the succeeding year); therefore, we identified revenue recognition based on the input method as significant risk.

In respect of the Group's revenue recognition based on the input method, we have performed the following audit procedures.

- We obtained understanding of the accounting policy of revenue recognition, determined if there were any changes in the accounting policy, and assessed the accounting policy.
- We reviewed significant contents of contracts.
- We inquired about current progress of major contracts and identified any significant changes at the end of the reporting period, and performed analytical procedures on the significant changes.
- We performed analytical review procedures on major financial ratios such as rate of profit.
- We reviewed internal control in relation to reviewing and approval process of a contract by an appropriate approver when a new contract is engaged.

C. Uncertainty of estimated construction costs

As explained in the Note 3 to the financial statements (Critical Accounting Estimates and Assumptions), estimated construction costs are estimated based on future estimates of material costs, labor costs, construction period and others. Estimated construction costs can be changed due to changes in designs, raw-material price and constriction period.

As the Group's construction contracts related to offshore plant and drilling rig are usually long-term in nature, the measurement of estimated contract costs is affected by variety of uncertainties such as changes in the specifications or designs, changes in construction environment, fluctuation of material cost and others. Considering the impacts of changes in estimated construction costs on the profit or loss for the current period (or for the succeeding year); we identified uncertainty of estimated construction costs as a significant risk.

As of December 31, 2016, in respect of the Group's uncertainty of estimated construction costs related to offshore plant and drilling rig, we have performed the following audit procedures.

- We inquired and performed analytical review procedures on changes in estimated construction cost's major components.
- We inquired the causes for differences where the construction contracts contain significant differences in change of total estimated construction costs compared to prior year.
- We obtained understanding of calculation method and significant assumption on estimated construction costs and confirmed its relevant evidences for the calculation.
- We reviewed internal controls in relation to establishing contents initial estimated construction costs, and reviewing and approval process of estimated construction costs by an \ appropriate approver.
- We reviewed internal control in relation to reviewing and approval process of changing estimated construction costs by an appropriate approver.

D. Measurement of percentage of completion

As explained in the Note 6 to the consolidated financial statements (Construction Contracts), estimated total contract cost was changed due to costs increases.

In case of the Group's major construction contract; such as, offshore plant and drilling rig, it is highly probable that the changes in estimated total contract cost and unexpected cost may occur. According to these uncertainty of estimated total contract costs, we identified measurement of percentage of completion as a significant risk.

As of December 31, 2016, in respect of the Group's estimated total contract costs and aggregated cost incurred that have impacts on the measurement of percentage of completion, we have performed the following audit procedures.

- We performed analytical review procedures on changes in accumulated cost incurred and estimated total contract costs.
- We determined if there were any contract costs that did not reflect the work performed and excluded from the costs incurred and estimated, and reviewed related accounting policies.
- We compared the percentage of completion in the report submitted to ordering company and percentage of completion based on input method, and inquired about the reason of the difference.
- We obtained understanding of direct cost allocation policy and tested internal control of cost allocation and transfer for each construction.
- We obtained understanding of indirect expense allocation policy and tested internal control of indirect expense allocation.
- We independently tested the occurrence and timing of cost recognition, which incurred during the year, for each construction contract.

E. Collectability of the gross amount due form customer for contract work

As explained in the Note 6 to the consolidated financial statements (Construction Contracts), the amount of due from customer is significant in level of overall financial statements as at December 31, 2016.

In case of the Group's major construction contracts; such as, drillship and drilling rig, most of contracts are based on tail-heavy payment term, and it is probable that the payment may delay due to the customer's financial status caused by the prolonged decline in the global oil price, and may results an unavoidable payment term extension. Therefore, we identified collectability of the gross amount due from customer for contract work as a significant risk.

As of December 31, 2016, in respect of the contact that has a significant increases in the gross amount due from customer for contract work, we have performed the following audit procedures.

- We reviewed changes in contracts regarding to payment term, deferred penalties, time of deliver and other obligations.
- We reviewed date of maturity in contracts and financial soundness of ordering company.
- We reviewed the management's estimates for collectability of the gross amounts due from customers for contract works.

F, Accounting treatment for changes in construction

As explained in the Note 3 to the consolidated financial statements (Critical accounting estimates and assumptions), the Group measures total contract revenue at the initial amount of revenue agreed in the contract; however, the measurement of contract revenue is affected by a variety of uncertainties that depend on the outcome of future events such as increase contract revenue due to variations in contract work, claims and inventive payment; or decrease contract revenue as a result of penalties arising from delay caused by the Group in the completion of the contract. A variation is included in contract revenue when it is probable that the customer will approve the variation and the amount of revenue arising from the variation or the contract is sufficiently advanced that it is probable that the specified performance standards will be met or exceeded and the amount of revenue can by reliably measured.

Especially, it is probable that a variation may occur in offshore plant contracts, and there is uncertainty in the measurement of contract revenue due to frequent change in specification of design, change in construction environment and others; therefore, we identified accounting treatment regarding variations in offshore plant contract work as a significant risk.

As of December 31, 2016, in respect of accounting treatment regarding variations in contract work, we have performed the following audit procedures.

- We inquired about the Group's accounting policy for accounting treatment regarding variations in contract work and penalties.
- We tested internal control of the Group in relation to reviewing and approval process of a construction contract by an appropriate approver when there is a variation in the contract amount.
- We independently tested and confirmed with the ordering company if the variation in the contract amount has obtained an appropriate approval of the ordering company.
- We compared the construction completion date of the contract and that of construction schedule of the Group.
- We confirmed appropriate disclosures were disclosed for the variation made in the contract based on amended contract.

Other Matter

Auditing standards and their application in practice vary among countries. The procedures and practices used in the Republic of Korea to audit such financial Statements may differ from those generally accepted and applied in other countries.

Samil PricewaterhouseCoopers

Seoul, Korea
March 16, 2017

pwc

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This Report is effective as of March 16, 2017, the audit report date. Certain Subsequent events of circumstances, which may occur between the audit report date and the time of reading this report, could have a material impact on the accompanying consolidated financial statements and notes thereto. Accordingly, the readers of the audit report should understand that there is a possibility that the above audit report may have to be revised to reflect the impact of such subsequent events or circumstances, if any.

Assurance Statement

Lloyd's Register LRQA

LRQA Independent Assurance Statement Relating to Samsung Heavy Industries Co., Ltd.'s Sustainability Report for the 2016 calendar year

This Assurance Statement has been prepared for Samsung Heavy Industries Co., Ltd. in accordance with our contract but is intended for the readers of this Report.

Terms of engagement

Lloyd's Register Quality Assurance (LRQA) was commissioned by Samsung Heavy Industries Co., Ltd. (SHI) to provide independent assurance on its 'SHI Sustainability Report 2016' ("the report") against the assurance criteria below to a limited level of assurance using LRQA's verification procedure. LRQA's verification procedure is based on current best practise, is in accordance with ISAE 3000 and uses the principles of AA1000AS (2008) - inclusivity, materiality, responsiveness and reliability of performance data.

Our assurance engagement covered SHI's operations and activities in Korea and specifically the following requirements:

Confirming that the report is in accordance with:

- GRI G4's reporting guidelines Core option and Financial Services Sector Disclosures

Evaluating the accuracy and reliability of data and information for only the selected indicators listed below:

- Economic: economic performance (EC1, EC3), indirect economic impacts (EC7, EC8)
- Environmental: energy (EN3, EN7), emissions (EN15, EN16), effluents and waste (EN23)
- Social: employment (LA2), occupational health and safety (LA7), training and education (LA9, LA10), labor practices grievance mechanisms (LA16), anti-corruption (SO3, SO4), product and service labelling (PR5), compliance (PR9)

Our assurance engagement excluded the data and information of SHI's suppliers, contractors and any third-parties mentioned in the report.

LRQA's responsibility is only to SHI. LRQA disclaims any liability or responsibility to others as explained in the end footnote. SHI's responsibility is for collecting, aggregating, analysing and presenting all the data and information within the report and for maintaining effective internal controls over the systems from which the report is derived. Ultimately, the report has been approved by, and remains the responsibility of SHI.

LRQA's Opinion

Based on LRQA's approach nothing has come to our attention that would cause us to believe that SHI has not, in all material respects:

- Met the requirements above
- Disclosed accurate and reliable performance data and information
- Covered all the issues that are important to the stakeholders and readers of this report.

The opinion expressed is formed on the basis of a limited level of assurance and at the materiality of the professional judgement of the verifier.

Note: The extent of evidence-gathering for a limited assurance engagement is less than for a reasonable assurance engagement. Limited assurance engagements focus on aggregated data rather than physically checking source data at sites. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

LRQA's approach

LRQA's assurance engagements are carried out in accordance with our verification procedure. The following tasks though were undertaken as part of the evidence gathering process for this assurance engagement:

- Assessing SHI's approach to stakeholder engagement to confirm that issues raised by stakeholders were captured correctly. We did this through reviewing documents and associated records.
- Reviewing SHI's process for identifying and determining material issues to confirm that the right issues were included in their Report. We did this by benchmarking reports written by SHI and its peers to ensure that sector specific issues were included for comparability. We also tested the filters used in determining material issues to evaluate whether SHI makes informed business decisions that may create opportunities that contribute towards sustainable development.
- Auditing SHI's data management systems to confirm that there were no significant errors, omissions or mis-statements in the report. We did this by reviewing the effectiveness of data handling procedures, instructions and systems, including those for internal verification. We also spoke with those key people responsible for compiling the data and drafting the report.
- Reviewing supporting evidence made available by SHI at their Geoje Shipyard in Gyeongsangnam-do, Korea
- Checking that the GRI Content Index allows stakeholders to access sustainability indicators.

Observations

Further observations and findings, made during the assurance engagement, are:

- **Stakeholder inclusivity:** We are not aware of any key stakeholder groups that have been excluded from SHI's stakeholder engagement process.
- **Materiality:** We are not aware of any material issues concerning SHI's sustainability performance that have been excluded from the report. It should be noted that SHI has established extensive criteria for determining which issue/aspect is material and that these criteria are not biased to the company's management. However, SHI should improve the translation process from material issues into indicators to be reported.
- **Responsiveness:** SHI has not provided a detailed strategies and targets for contributing sustainable development. We believe that future reports should explain them in detail.
- **Reliability:** SHI's reporting process for the selected indicators are well defined.

LRQA's standards, competence and independence

LRQA implements and maintains a comprehensive management system that meets accreditation requirements for ISO/IEC 17021 Conformity assessment – Requirements for bodies providing audit and certification of management systems that are at least as demanding as the requirements of the International Standard on Quality Control 1 and comply with the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants.

LRQA ensures the selection of appropriately qualified individuals based on their qualifications, training and experience. The outcome of all verification and certification assessments is then internally reviewed by senior management to ensure that the approach applied is rigorous and transparent.

LRQA is SHI's certification body for ISO 9001, ISO 14001, ISO 50001, ISO 3834 and OHSAS 18001. We also provide SHI with a range of training services related to management systems. The verification and certification assessments, together with the training, are the only work undertaken by LRQA for SHI and as such do not compromise our independence or impartiality.

May 15, 2017

Tae-Kyoung Kim

LRQA Lead Verifier
On behalf of Lloyd's Register Quality Assurance Limited
17th Floor, Sinsong Building, 67 Yeouinaru-ro, Yeongdeungpo-gu, Seoul, Korea

LRQA reference: SEO6017930

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Assurance Statement on Greenhouse Gas

SAMSUNG HEAVY INDUSTRIES
80, Jangpyeong 3-ro, Geoje-si, Gyeongsangnam-do, Korea

Verification Scope

Korean Standards Association has conducted reasonable GHG emissions verification based on GHG report provided by SAMSUNG HEAVY INDUSTRIES which includes Scopel and Scope2 emissions.

Verification Standards and Guidelines

To conduct verification activities, verification team applied verification standards and guidelines. The standards and guidelines are as follows.

- GHG&Energy Target Scheme guideline(2016-255) provided by Ministry of Environment, Republic of Korea
- Verification guideline for management of GHG emissions trading scheme(2016-015) provided by Ministry of Environment, Republic of Korea
- KS Q ISO 14064-1,2,3 : 2006
- IPCC Guideline.

Verification Conclusion

As a result of venfication activities, verification team has found no significant errors. Therefore, Korean Standards Association confirms that following emissions data are adequately quantified.

GHG a SCOPE 1

unit : $tonCo_2eq$

Year	SCOPE 2		Total
2017	149,422	268,413	**417,835**

*There is a difference between the total quantity of GHG emis.sion and the stnn of each \ID'kplace's emis.sion.
(Decimal place is not considered when calculating the emission of each workplace.)

April 13, 2017

Baek, Soo Hyun

President of KSA **Baek Soo hyun**

Korean Standards Association

GRI G4 Guidelines Index

In Accordance - Core

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SAMSUNG HEAVY INDUSTRIES

SUSTAINABILITY REPORT 2016

Contributing Teams

- Accounting Team
- Finance (IR) Team
- Technology Planning Group
- Planning Team
- Mutual Growth Officet
- Production Innovations Team
- Safety & Environment Team
- HR Development Team
- HR Planning Team
- Talent Nurturing Team
- Information Security Team
- Compliance Support Team
- General Affairs Team
- Quality Management Team
- CS Team
- RM Team
- Communications Team (Planning & Publications)

Contact

Please contact the Communications Team with any questions and/or comments about the 2016 Samsung Heavy Industries Sustainability Report.

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This report was printed on environment-friendly paper using soy ink.