



# 2018 COMEC

SOCIAL RESPONSIBILITY REPORT



中船海洋与防务装备股份有限公司  
CSSC OFFSHORE & MARINE ENGINEERING(GROUP)COMPANY LIMITED



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## RESPONSIBILITY 2018


### > Key Performance

 Total Assets  
RMB**47,475**million


 Operating Income  
RMB**19,214**million


 Social contribution per share  
RMB**0.4446**


 Full-year delivery  
**52**ship


 Research and Development Expenses  
RMB**666**million


 Product Quality and Safety Assurance Expenses  
RMB**190.43**million


 Comprehensive Energy Consumption Per RMB10,000 of Output Value  
**0.0409**  
ton of standard coal/RMB10,000

 Environment Protection Expenses  
RMB**14,412,500**

 Number of Employees  
**15,858**

 Percentage of Female Employees  
**14.07**%

 Total Number of Suppliers  
**3,271**

 Total Charitable Donations  
RMB**4,078,000**

### > 主要荣誉



- Class A evaluation for the 2017-2018 annual information disclosure work of the Shanghai Stock Exchange
- 2018 Golden Lion Award• the Hong Kong Stock Connect Company with Highest Growth
- The 11th National Excellent Equipment Management Unit (GSI, Huangpu Wenchong)



# LETTER TO STAKEHOLDERS

Dear shareholders:

**A new year comes and season changes.** It is my pleasure to share with you our efforts and achievements in business operations, environmental protection and social responsibility in the past year.

The year 2018 was the first year for putting the Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era and the guiding principles of the 19th National Congress of the Communist Party of China fully into effect. Guided by the national strategy, COMEC fully participated into the great process of building a maritime power strategy and "One Belt, One Road" strategy. Facing with the overcapacity and sluggish recovery of the global shipbuilding industry, we overcome difficulties and strengthened confidence to further promote the transformation, upgrading and high-quality development of the Company in accordance with the general requirements of supply-side structural reform. We are committed to becoming a leading enterprise in the global marine and heavy equipment market with leading technologies and prominent services and a building and supporting facility for Chinese marine defence equipment.

**During this year, we took on the mission and made innovations while sticking to the right path.** We firmly followed the general principle of pursuing progress while ensuring stability and adhered to the new development philosophy. With a focus on the main business, we put concentrated efforts to promote the development of the marine industry in accordance with the strategy of building a maritime power. We faithfully fulfilled the responsibility of "military products first, solidly promoted the integration of the military and the people, and forged ahead with achieving national defense and military modernization. With deep involvement in global competition, we adhered to the customer-centered and market-oriented principle and deepened the research of advanced technologies in the industry, promoting development both in scope and in depth, value-oriented transformation in innovation and high-end upgrade in the industry. Through joint efforts in manufacturing, creation and construction, we created greater value for customers and shareholders with ship products and shipbuilding and marine equipment featuring higher-quality, smarter and safer. A total of 52 ships had been delivered throughout the year, with a revenue of RMB 19.214 billion, in which ships with high added values accounted for 57.55%.

**During this year, we were committed to green manufacturing and cared about the ecology.** Advocating the value-oriented green development, we

built lucid waters and lush mountains and created a favorable environment with a consistent commitment to achieving harmony between human and nature. We vigorously promoted green shipbuilding, fully met the environmental requirements of international conventions, focused on the development of green ship technology, and implemented the concept of energy conservation, low carbon, environmental protection and sustainable development to every link and every process of product design and manufacturing. In addition, we actively participated in building a beautiful China, expanded the environmental protection industry and promoted the layout of the environmental protection industry chain, helping the improvement of the ecological environment.

**During this year, we put people first and were committed to joint construction and sharing.** The long-term development of an enterprise depends on the support and kindness of the society. With the idea of "When you drink water, think of its Source", we keep our corporate citizenship in mind, practice social responsibility and grow up together with stakeholders. In terms of employee development, with a commitment to the people-oriented principle, we respect and safeguard the rights and interests of employees, unblock the channels of their career development, carry out various employee care activities, and strive to improve their happiness index. In terms of the community development, with a commitment to the mission of building a harmonious society, we actively participate in the public welfare cause on poverty reduction and alleviation, and community volunteer services to convey positive social energy and kindness, and enhance social understanding and support. In terms of partners, with a commitment to the concept of win-win cooperation, we establish a harmonious and interactive partnership with suppliers and other stakeholders in the same industry to promote the healthy and sustainable development of the industrial chain and achieve common prosperity and progress.

**Despite various difficulties, we are forging ahead on a new journey.** In 2019, with a commitment to the cultural concept of "Innovation, Efficiency and Win-win Collaboration", COMEC will take on the mission of "Planning and Managing the Maritime, Serving the Country with Ships", continue to deepen the reform and focus on efficiency and effectiveness. Under the innovation-oriented guidance, we will make positive and proactive endeavors to expand the development of the enterprise with an expectation to work with all stakeholders to build a world-class enterprise.



## ABOUT US

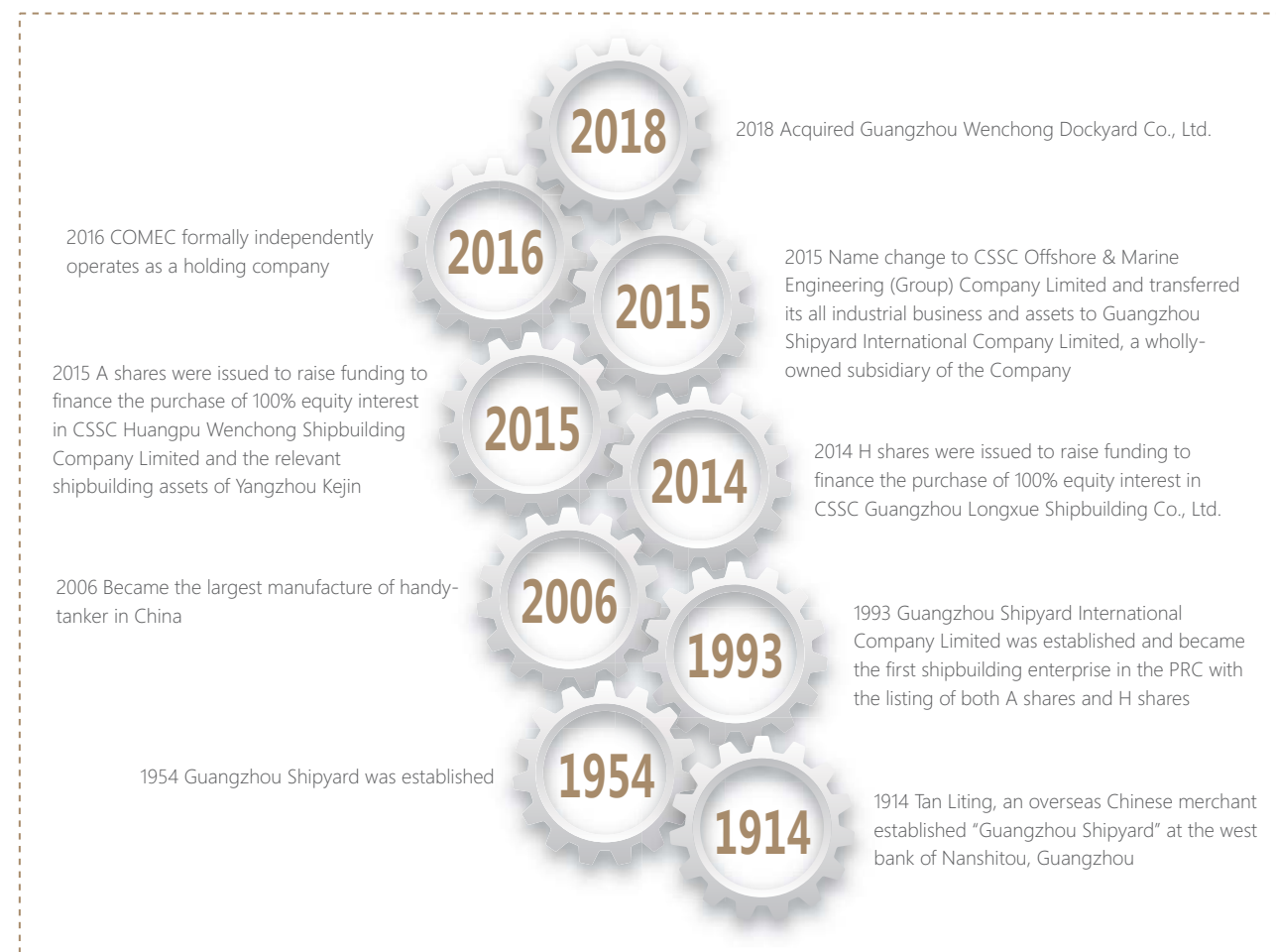
### > Company Profile

CSSC Offshore & Marine Engineering (Group) Company Limited ("COMEC") is a large key shipbuilding enterprise under China Shipbuilding Industry Corporation Limited ("CSSC") and a holding platform company for capital operation of CSSC. The Company was formerly known as Guangzhou Shipyard International Company Limited. The Company became listed in Shanghai (stock code: 600685 for A shares) and Hong Kong (stock code: 00317 for H shares) in 1993 and was the first shipbuilding enterprise in the PRC with listing of both A + H shares.

Through the consolidation of CSSC's high-quality shipbuilding assets in the South China, COMEC realized the listing of domestic core military assets. It has become a large comprehensive marine and defence equipment enterprise group incorporating four sectors of marine equipment, being marine defence equipment, marine transport equipment, marine development equipment and marine expeditor equipment.

### > History

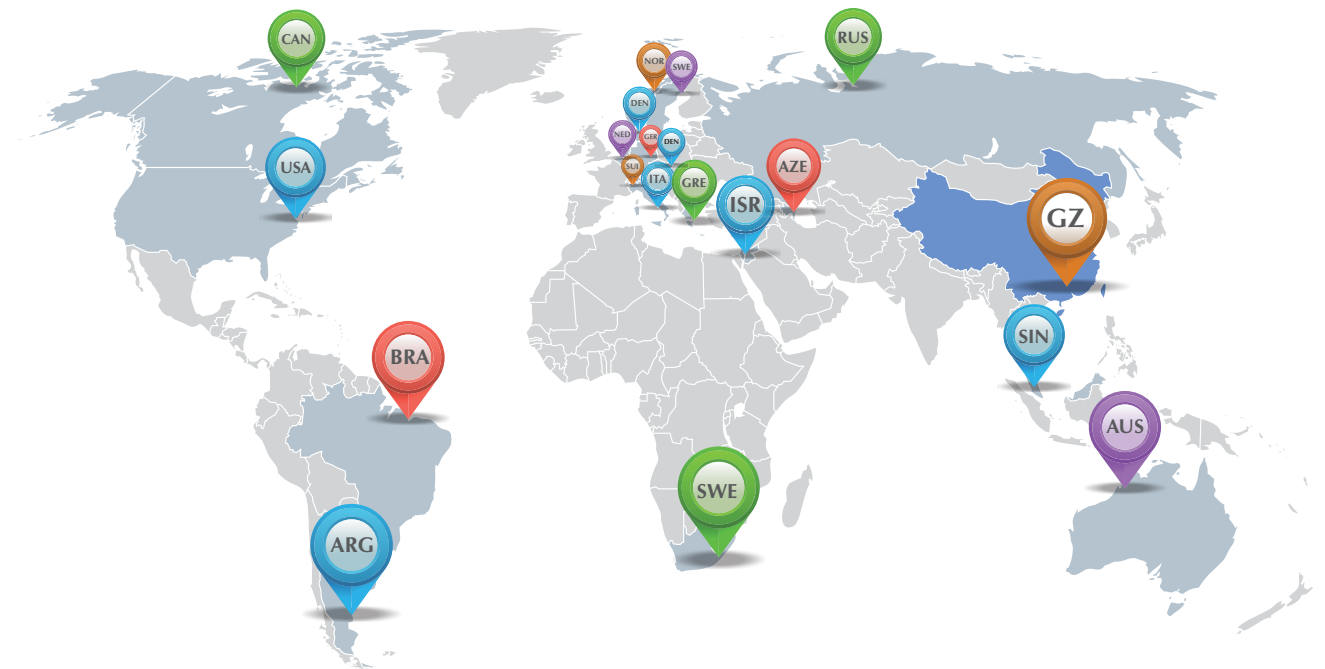
In over 100 years since the establishment of the Guangnan Shipyard in 1914, COMEC made every effort to move forward. In the tidal wave of reform and opening up and in the course of the development of domestic shipbuilding industry, we have braved the new tide and actively led to build a strong foundation with the historical mission of making China a strong marine power and manufacturing power, and have an important position in the modern industrial history and the shipbuilding industry in the PRC.



### > Business Coverage and Principal Products

With over 100 years of development, the Company's business now covers over 20 countries and regions on the six continents in the world. Principal activities include shipbuilding, marine engineering, steel structure and electromechanical products. The Company's principal products cover shipbuilding and marine products including military ships, special supporting ships, business ships, oil tankers, feeder container ships, ro-ro passenger ships, semi-submerged ships and polar module carriers, offshore platform, as well as non-ship products including steel structures and sets of electromechanical equipment.

#### • Business Coverage





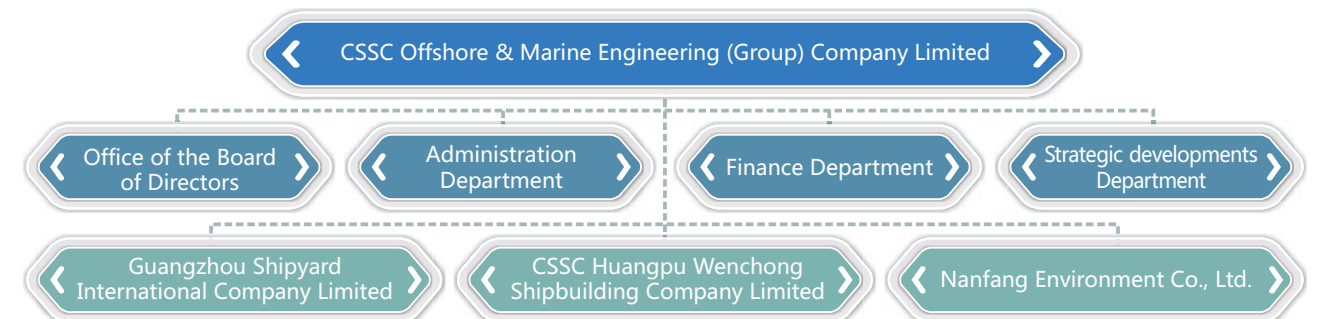
## Principal Products



## CORPORATE GOVERNANCE

### > Organisational Structure

We always keep in mind our responsibility for all of our shareholders and have been in strict compliance with laws, regulations and relevant requirements. In line with our production and operation, we continued to improve our corporate governance structure, expressly set out the responsibilities and authorities in respect of decision-making, implementation and monitoring, and formed an operation mechanism whereby the decision-makers, the implementation staff and the monitoring staff are assigned different responsibilities to achieve an effective check and balance. We strived to promote the overall healthy and sustainable development of the Company through professional, standardized and transparent means.



### > Operation of the Board, the Supervisory Committee and General Meeting

In strict compliance with relevant laws and regulations including the Company Law, the Articles of Association, the listing rules of Mainland China and Hong Kong and the Rules of Proceedings for General Meetings, we actively give full play to the core role of the Board of Directors in the management of the Company's corporate strategies, risk management and control, and material business decisions. By holding the meeting of the Board of Directors, the Supervisory Committee and the general meetings and convening meetings of the specialized committees as appropriate, we improved the reasonableness of our operational decisions and the effectiveness of operation of the Company, and fully safeguarded the lawful interests of shareholders.

#### • Board of Directors

Pursuant to the Articles of Association of COMEC, the Board of Directors of the Company consists of 11 directors. The Board of Directors fully represents interests of shareholders and reports to shareholders at the general meeting. It formulates the Company's development strategies and monitors the operation and management and financial position of the Company in order to create long-term value for shareholders.

Name	Position
Han Guangde	Chairman
Chen Zhongqian	Vice Chairman
Chen Liping	Executive Director
Sheng Jigang	Executive Director
Xiang Huiming	Executive Director
Chen Ji	Executive Director
Shi Jun	Non-executive Director
Wang Yichu	Independent non-executive Director
Min Weiguo	Independent non-executive Director
Yu Shiyong	Independent non-executive Director
Liu Renhuai	Independent non-executive Director





Supervisory Committee

The Supervisory Committee of the Company comprises five Supervisors. The Supervisory Committee operates in strict compliance with the laws, regulations and regulatory documents including the Company Law, the Securities Law and the Corporate Governance Standards for Listed Companies, as well as the Articles of Association and the Rules of Procedure of the Supervisory Committee in order to actively safeguard the lawful interests of the Company and its shareholders.

Name	Position
Wu Guangjun	Chairmen of the Supervisory Committee
Fu Xiaosi	External Supervisor
Zhu Zhengfu	External Supervisor
Mai Rongzhi	Supervisor Representing Employees
Zhang Shan	Supervisor Representing Employees



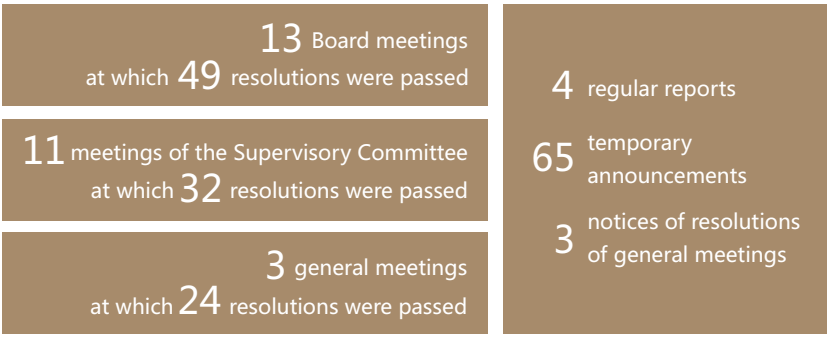
General Meeting

According to the relevant regulatory rules, the Articles of Association and the Rules of Procedure of the General Meeting, the Company set out clear procedures for convening, notice, holding, consideration, voting and disclosure for general meetings, so that shareholders fully enjoy the right to know, the right to speak, the right to question and the right to vote.



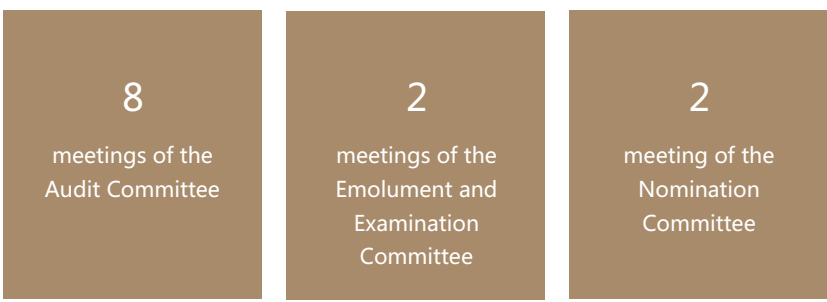
Regular meetings for the Board, the Supervisory Committee and General Meeting

In 2018, the Company held 13 Board meetings, at which 49 resolutions were passed; 3 general meetings, at which 24 resolutions were passed; 10 meetings of the Supervisory Committee, at which 32 resolutions were passed, and issued 4 regular reports, 65 temporary announcements and 3 announcements of the resolutions passed at general meetings to keep the market informed of the production and operation of the Company.



Held meetings of specialized committees as appropriate

In 2018, the Company held 8 meetings of the Audit Committees, 2 meetings of the Emolument Evaluation Committee and 1 meeting of the Nomination Committee, and gave full play to the role of the specialized committees under the Board of Directors in relation to audit supervision, remuneration appraisal, and personnel nomination responsibilities.



Investor Relations Management

Through performance briefings, the Company received over 10 investor researches for funds, brokers and industry researchers and no less than 100 persons, which has improved the mutual understanding between the market and the Company.



# RESPONSIBILITY MANAGEMENT

We enhance responsibility management by establishing and improving the Company's organizational structure and management team to promote the smooth development of social responsibility work. We jointed hands with the stakeholders, including our customers, shareholders, employees and community to promote the sustainable development of the Company and the society.

## > Responsibility Culture

After hundreds of years of practice accumulation, we have formed a cultural system of "serving country through marine and shipbuilding business" to fulfil our responsibility in the era. As an entity with deep historical heritage, the Company has an advanced responsibility culture adapting to the reality, and will lead COMEC to embrace the ocean and head towards the "deep blue" with a new gesture.



## > Social Responsibility Organisation System

We set up a social responsibility work network with deep involvement by key management, coordination and cooperation between departments and implementation of subsidiaries of the Company, in order to facilitate the implementation of the requirements for social responsibility management at all departments and pave the way for systematic advance of the social responsibility work.

<b>Management</b>	Conducts overall control over social responsibility work, formulates the relevant strategies and policies, and make arrangement for the social responsibility work.
<b>Organizer</b>	The Office of the Board of Directors implements the arrangement of the Company's social responsibility work, and is responsible for the preparation of the social responsibility report, communication and submission and distribution of materials on social responsibility.
<b>Implementer</b>	All units arrange the implementation of the social responsibility practice and submit relevant materials for the Company and the departments.

## > Communication with Stakeholders

We placed stress on the establishment of a mechanism for regular communication and exchanges with the stakeholders. We strived to understand the expectations and demands of the stakeholders by way of communication and exchanges through various channels, levels and forms, which were used as important reference when formulating the Company's sustainable development strategies and action plans, conducting responsible practices and making information disclosure.

Stakeholders	Expectations and demands	Methods of communication and response	The Company's response and measures
 Government	<ul style="list-style-type: none"> <li>Serve national defence</li> <li>Technological innovations</li> <li>Asset appreciation</li> <li>Abide by the laws and regulations and pay tax in accordance with the law</li> </ul>	<ul style="list-style-type: none"> <li>Improve corporate governance</li> <li>Accept regulatory review</li> <li>Regular reporting</li> </ul>	<ul style="list-style-type: none"> <li>Regular reports</li> <li>Information submission</li> <li>Public information disclosure</li> </ul>
 Shareholders	<ul style="list-style-type: none"> <li>Continuous stable returns</li> <li>Transparent information disclosure</li> </ul>	<ul style="list-style-type: none"> <li>Regular report on operational information</li> <li>Improve daily management</li> </ul>	<ul style="list-style-type: none"> <li>Receiving visiting investors</li> <li>2018 annual report</li> </ul>
 Customers	<ul style="list-style-type: none"> <li>High-quality products and services</li> <li>Strictly comply with contracts</li> <li>Cooperation and Win-win</li> </ul>	<ul style="list-style-type: none"> <li>Provides safe and reliable products</li> <li>Provides high-quality services</li> <li>Strengthen contract performance management</li> </ul>	<ul style="list-style-type: none"> <li>Delivery ordered products on time</li> <li>Fulfil contractual obligations</li> </ul>
 Partners	<ul style="list-style-type: none"> <li>Fulfil undertakings</li> <li>Fair, just and open</li> <li>Cooperation and Win-win</li> <li>Share experience</li> </ul>	<ul style="list-style-type: none"> <li>Disclose procurement information</li> <li>Conduct strategic cooperation</li> <li>Negotiation and communication</li> </ul>	<ul style="list-style-type: none"> <li>Signs strategic agreements</li> <li>Hold seminars</li> <li>Carry out technical exchanges</li> </ul>
 Employee	<ul style="list-style-type: none"> <li>Basic rights and interests protection</li> <li>Employee health and safety</li> <li>Fair promotion and development</li> <li>Employee care</li> </ul>	<ul style="list-style-type: none"> <li>Improve the compensation system</li> <li>Provide a safe and healthy working environment</li> <li>Provide fair promotion channels</li> <li>Strengthen staff training</li> <li>Carry out employee care</li> </ul>	<ul style="list-style-type: none"> <li>Democratic life meeting</li> <li>Workers congress</li> <li>Employee physical examination</li> <li>Visit workers with financial difficulties</li> </ul>
 Environment	<ul style="list-style-type: none"> <li>Energy conservation and emission reduction</li> <li>Waste disposal</li> <li>Reduce pollutant emissions</li> <li>Green office</li> </ul>	<ul style="list-style-type: none"> <li>Strengthen environmental statistics and monitoring</li> <li>Green production</li> <li>Environmental protection training</li> </ul>	<ul style="list-style-type: none"> <li>Research and develop green products</li> <li>Recycling resources</li> <li>Public disclosure of environmental information</li> </ul>
 Community and the public	<ul style="list-style-type: none"> <li>Community development</li> <li>Poverty alleviation</li> <li>Community communication</li> </ul>	<ul style="list-style-type: none"> <li>Donations and help</li> <li>Volunteer service activities</li> </ul>	<ul style="list-style-type: none"> <li>Help poor villages</li> <li>Learn from Lei Feng activities</li> <li>Convenience service activities</li> </ul>





# ECONOMIC RESPONSIBILITY

With greatness in simplicity, action overwhelms. In the process of advancing high quality in a comprehensive and thorough way, we fully implemented the “building a maritime power” strategy and the “One Belt and One Road” strategy. Facing the overwhelming situation of “double overcapacity” in global shipping and shipbuilding, we thoroughly implemented the new development concept and actively adapt and usher in the new normal of economic development. We gave full play to our own advantages, and cultivated stable and sustainable development capabilities of the enterprise with high-quality shipbuilding, safe production management, continuous technological innovation and lean management to create greater value for shareholders and customers.



| Steady Business Growth | Building High-quality Ships | Production Safety Management | Independent Technological Innovation |  
| Enhanced Operation and Management |



## STEADY BUSINESS GROWTH

Based on our shipbuilding business, we continued to expand into business such as maritime equipment, electrical and mechanical engineering equipment and environment protection industries, in order to gradually establish our comprehensive presence in the maritime industry and achieve our magnificent objectives of "becoming a first-class enterprise in the global maritime and heavy equipment market with leading technologies and prominent services and a building and supply for Chinese navy in South China".

### Shipbuilding business



For military ships, several ships built by us including the frigates, hospital ships and carrier support ships have performed outstandingly in the execution of long-distance escorts and national major military exercises with repeatedly making meritorious military service. The civil products have made breakthroughs in transformation and upgrading, and continuously increased the proportion of high-tech products, with reaching the leading level of the world in semi-submerged ships, luxury Ro/Ro passenger ships, feeder container ships, polar ships and oil tankers.

### Ship maintenance business



We have actively explored and summarized the new comprehensive lifetime insurance mode that is compatible with the construction of the equipment system. We have continued to promote the expansion and upgrading of the repair and maintenance of military ships business based on the ship maintenance support project. Though the acquisition of the ship maintenance leading enterprise Wenchong Dockyard Co., Ltd., we have achieved building and maintenance simultaneously and kept up with market hotspots such as environmental protection and energy conservation, to vigorously develop ship repair and installation and renovation business.

### Offshore engineering equipment



We have successfully built offshore engineering equipment ships comprising multi-function underwater operation support ships, large survey ships, scientific exploration ships, saturated underwater ships and platform support ships, and successfully entered the high-end field of offshore engineering equipment manufacturing for the offshore engineering platforms comprising jack-up drilling platform and wind power installation platform.

### Non-ship business



We have excellent large-scale processing and production capability, and our businesses cover the fields of harbor machinery and crane machinery manufacturing, installation, bridge and building steel structure manufacturing and installation. We have undertaken Shenzhen-Zhongshan Channel and built large steel structure engineering for important national projects such as the Hong Kong-Zhuhai-Macao Bridge, establishing a good reputation in the industry.

Item Year	Operating income (RMB100 million)	Operating profit (RMB100 million)	Total profit (RMB100 million)	Net profit attributable to the Company (RMB100 million)	Equity attributable to owners of the Company (RMB100 million)	Business order (RMB)
2016	233.50	220.40	1.19	0.71	103.48	1.787
2017	223.13	135.54	1.68	0.88	104.15	2.354
2018	192.14	241.29	-24.6	-18.69	97.27	0.4446



### Case Luxury Ro/Ro passenger ship "VISBORG"

The "VISBORG" Luxury Ro/Ro passenger ship built by Guangzhou Shipyard International Co., Ltd. is 200 meters long and 25.2 meters wide, with a design draft of 6.4 meters and a service speed of over 28.5 knots. Its passenger capacity is 1,730 people. It is equipped with vehicle deck which is 2,310 meters long and its navigational mileage is 6,500 nautical miles. The "Wiesburg" is powered by the most advanced "natural gas/fuel" dual-fuel engine in the world. It is the best energy-saving and environment-friendly high-end luxury Ro/Ro passenger ship in terms of speed and performance in the world.

The ship is an upgraded version of the "Wiesby" luxury Ro/Ro passenger ship that was completed and delivered by GSI in 2003. The design and research team solved a series of cutting-edge technology problems in shipbuilding, such as safe return, vibration noise, LNG system design, weight and gravity control of the ship comfort, high speed and propeller cavitation.



### Case Submarine pipeline inspection vessel "Offshore Oil 791"

The first submarine pipeline inspection vessel "Offshore Oil 791" built by Huangpu Wenchong is independently developed, designed and constructed by our country. Its application fills the blank of the inspection and maintenance of submarine pipelines and submarine cables, which is of great significance in ensuring the safety of offshore oil exploitation of our country and the protection of the marine ecological environment.

The ship has the characteristics of fast speed, strong maneuverability, resistance to storms and strong in specialty. It can conduct continuous line patrol and achieve emergency response and all-weather sailing under normal circumstances.



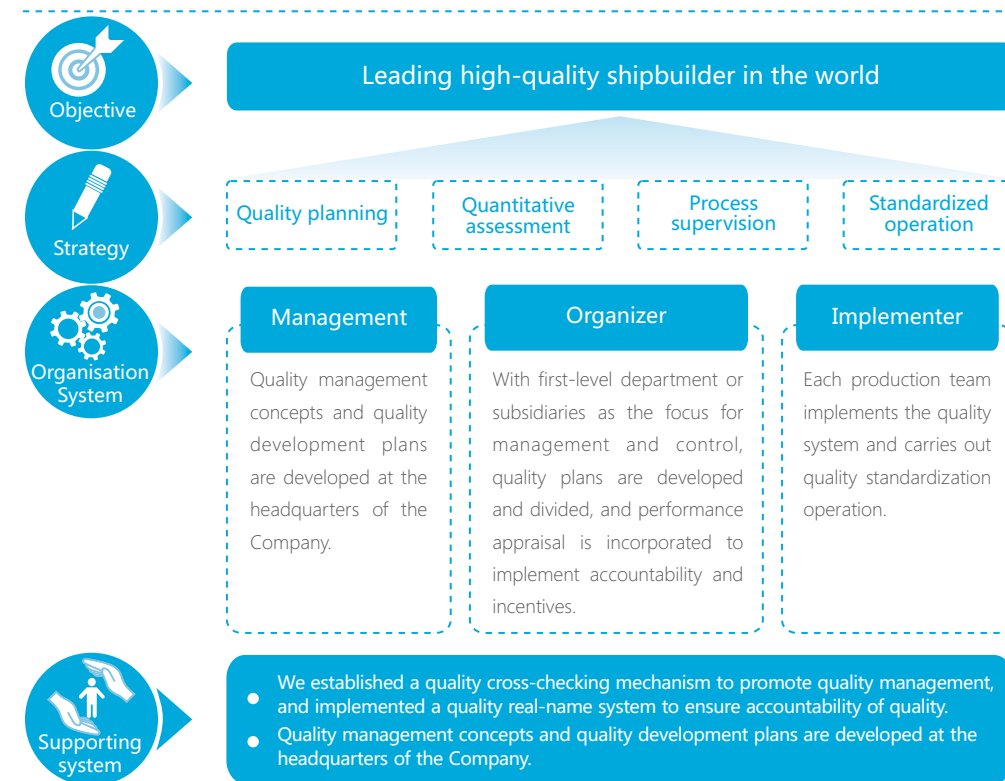
## BUILDING HIGH-QUALITY SHIPS

From the smallest details, we make greatest efforts to create high-quality ships. We regard quality as the foundation of enterprise development, and carry out the concept of lean production throughout many links such as the design, building, equipment installation. We continue to promote the construction of quality control standards system, deepen the quality control of the source and strengthen the comprehensive quality control of all employees and whole process, achieving safe navigation with high-quality products and services.

### Quality management

We have assigned the quality responsibilities into the whole process of the production and operation of the Company, and established a multi-level quality management system from the headquarters to the production teams with all levels interrelated and each having its own focus, so that the quality management and control of the Company can shift to reasonable and systematic management. We will achieve organic unity and mutual promotion of the development of quality standards with quality maintenance and quality improvement activities.

### Quality management system



### Quality Control program

Quality Control (QC) program is an important part of improving quality and efficiency, with continuously enriched form and content. In 2018, through the knowledge contest, speech contest and micro course competition, we created a good atmosphere of "everyone values quality, everyone creates quality and everyone enjoys quality". We carried out a series of activities such as quality technology innovation forum, refined management and quality special rectification to implement quality management and control, and promote the extensive application of advanced quality management and control methods and typical experience.

Product quality and safety guarantee investment of RMB  
**190.43**  
million

4  
national quality trustworthy teams

7  
excellent quality management and control teams in Guangdong province

8,719  
persons participated in the quality management and control training

An increase of  
**370%**  
in persons participating in the quality management and control training



#### Case

#### Quality Technology Innovation Forum Activity

In 2018, Huangpu Wenchong organized quality technology innovation forum, with a total of 94 papers on quality and technology innovation collected, of which 35 excellent papers were edited into a book for exchanges and learning.



#### Case

#### First prize of the first results publishing competition of QC Group of central enterprise

Standing out from more than 1,300 projects, the "Reducing Noise of the Gotland Ro/Ro Passenger Ship" by the "Alienware" QC team of GSI won the first prize of the first results publishing competition of QC Group of central enterprise organized by the State-owned Assets Supervision and Administration Commission and sponsored by the China Quality Association.



### Quality training

Talents have been the core factor in determining quality management and control standards. We attach great importance to the learning application and innovation capacity building of quality inspectors and management personnel in respect of quality awareness and methods. According to the requirements of GJB9001C-2017 quality control system and rules and regulations for specific ships, we have organized multi-level quality training and conducted regular qualification assessment, with an endeavor to improve the professional management level of quality inspectors and management personnel. In addition, we have incorporated quality specifications into the regular training content to enhance the quality awareness of all employees, thus promoting the continuous and effective operation of the quality management and control system.



#### Case

#### Training on process technology of ro-ro passenger ships and on-site building management

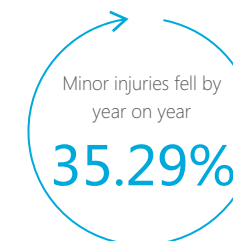
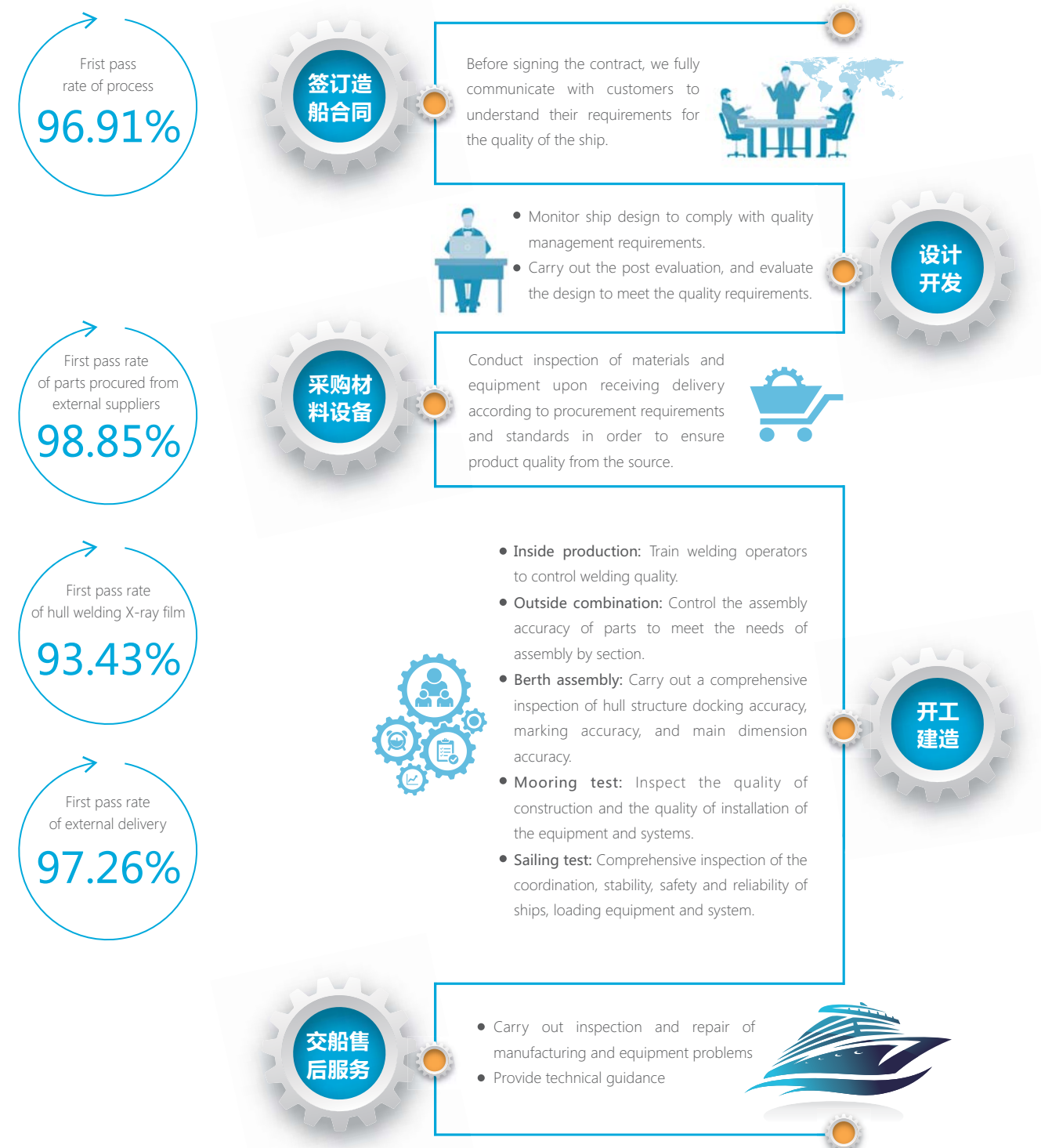
In January 2018, GSI hired domestic and international experts including RINA from Italy to carry out training on process technology of ro-ro passenger ships and on-site building management. The training involved rules and regulations in relation to the "personnel support", "safe return to port", "cabin unit", "noise and vibration", "weight and gravity control" and "building technology and process of ro-ro passenger ships".





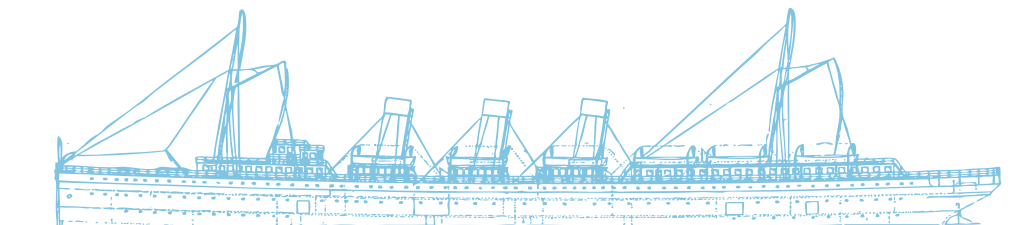
## Whole process quality supervision

The shipbuilding project is huge and complicated, involving a series of processes such as design and development, cutting and manufacturing, welding and assembly, installation and debugging. With a consistent commitment on the quality of military products, we make promote boutique process, dynamically manage quality risks, implement the whole process control in strict compliance with the requirements of the military standard and the national standard quality system, and carry out the process quality inspection to ensure the quality of the product process.



## PRODUCTION SAFETY MANAGEMENT

Production safety is the lifeline of sustainable development of an enterprise. We strengthen the "red line" awareness and bottom-line thinking, firmly set up the safety concept of rule by law and adhere to the principles of addressing both the symptoms and the root causes. With focus on the top-level design, we attach great importance to the fulfillment of responsibility and comprehensively ensure safe production. The Company experienced no major accident or heavy accident in 2018, and the number of its minor injury accidents reduced by 35.29% year-on-year.



Minor injury accidents	Number	Serious injury accidents	Number	Fatalities	Number	Major accidents	Number
2016	45	2016	0	2016	0	2016	0
2017	34	2017	0	2017	1	2017	
2018	22	2018	0	2018	0	2018	

## Improve safety management

Following the Company's safety production target, we will improve the safety production responsibility system of "the party and government with the same responsibility, one post and two responsibilities, co-management and responsibility claim for dereliction of duty", and standardize the management with military products safety production standardization and HSE management system to strengthen safety technology research and promote implementation. We strengthen hidden danger management and implement hazard source management and risk control, to standardize safety production basic management, workplace management, equipment facility management and operation behavior management, restraining the occurrence of safety production accidents from the source.

## Safety culture all employees

The safety behavior of employees is the cornerstone of safety management of an enterprise. We are committed to cultivating safety culture among all employees, vigorously advocate the concept of "life comes first and rules are strictly observed", and strive to cultivate a safety culture of "everyone is responsible for safe production", to continuously improve the safety quality of employees and establish self-protection and mutual protection mechanism among employees.



### Safe training

By combining internal training and external training, we adhered to the principle of training targeting all employees, level-based teaching and region responsibility, and conducted targeted training for management personnel regarding safety production management ability, and special training for special operators employed with certificates to ensure employees equipped with safe production awareness and ability.

### Publicity activity

We continued to organize safety publicity in various forms including the "Safe Production Education Month", "Safety is blessing" speech contest, "Safety Production Knowledge Competition", in order to teach safety knowledge while playing and let staff keep in mind their safety responsibility and fulfil their responsibility.



## Case Safety Education Experience Hall

The "Safe Education Experience Hall" are equipped with 13 modules and 63 experience projects, including a comprehensive theoretical training room, labor protection and occupational health experience area, fire and fire-fighting experience area, traffic safety experience area, emergency rescue experience area, cabin and restricted space experience area, environmental protection experience area, assembly work and lifting work experience area, gas cylinder and gas cutting experience area, industrial gas pipeline experience area, electrical safety experience area, tool safety experience area, scaffolding and aerial work experience area. The "Safety Education Experience Hall" carried out "experience-based" education, which changed the traditional "classroom-based" teaching mode and improved the effect of education.



## Strengthen emergency drills

We have established a comprehensive coordination and interaction mechanism for emergency response, and carry out regular emergency drills with various sizes, in order to enhance our ability to cope with natural disasters and emergencies and ensure that an emergency will be handled with ease. In view of the challenging situations including frequent extreme weather typhoon and flood, we have prepared an emergency drill plan by taking into account the characteristics of production and major risks of the Company. During the year, we conducted 57 emergency drills.



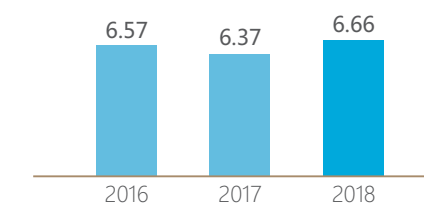
6,208,200  
Emergency supply  
expense RMB

## INDEPENDENT TECHNOLOGICAL INNOVATIONS

Technological innovation is the only way to achieve high quality development. We focus on innovation drive, continue to deepen the mechanism of scientific and technological innovation, and strengthen fund security and talent team building. In addition, we actively conduct research and development, promote and apply a series of new technologies, new products, new technologies, and lead industrial upgrading with technological transformation, to enhance competitiveness and support the shift of new and old growth drivers and high-quality development.

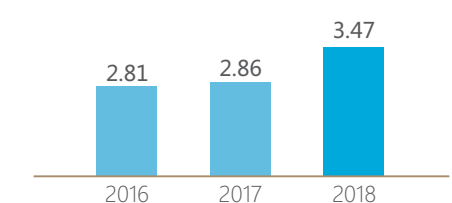
### Research and development expense

Unit: RMB100 million



### Research and development expense as a percentage of operating income

Unit: %



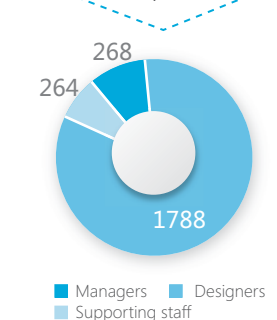
## Research and development team

We attach great importance to the development of technological talents and building a reserve of multi-level talents. We also create a good situation in which talents are enabled to fully paly their capabilities, new and existing talents complement each other, and new talents are guided by existing ones, in a way to provide talent support for technological innovation. As of the end of 2018, we had a research and development team of 2,320 members.



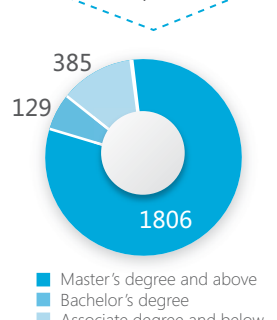
### Structure of functions

Unit: person



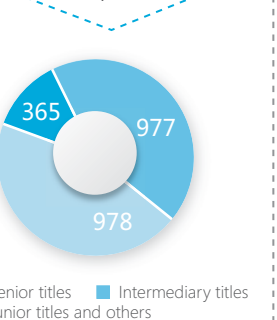
### Structure of education

Unit: person



### Structure of titles

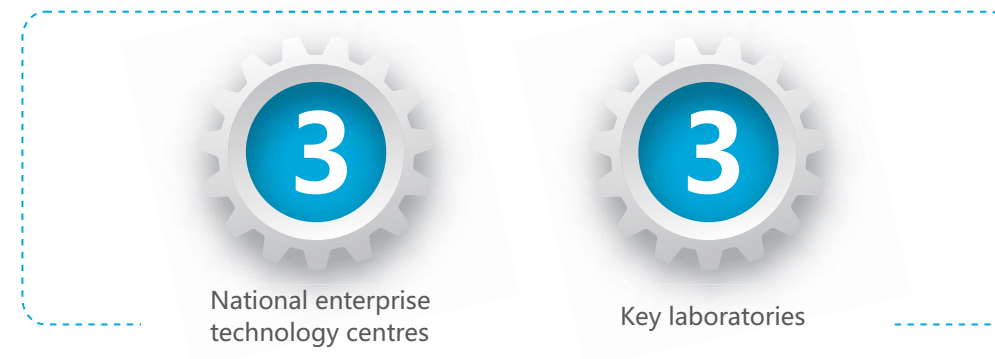
Unit: person





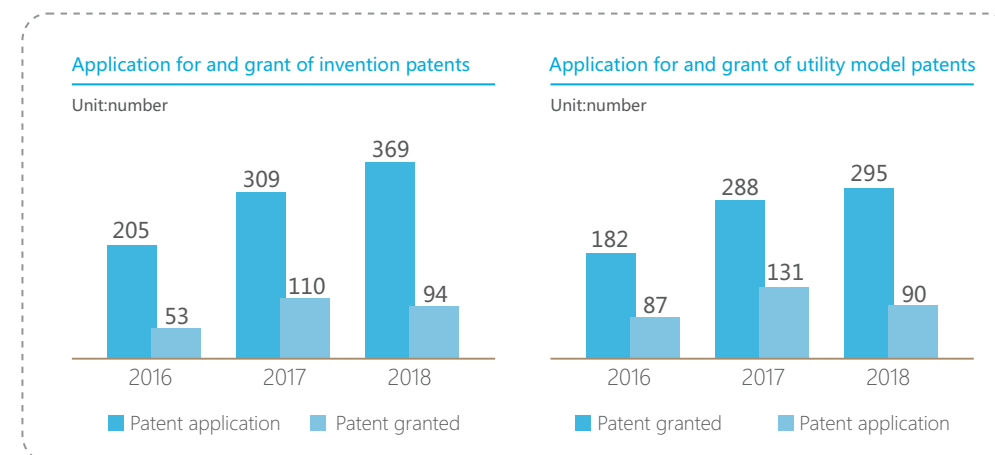
## Research and development platform

We strive to build a multi-platform for scientific and technological innovation and provide strong support for innovative research and development.



## Technological achievements

In 2018, the Company further promoted the development and technical research of new green energy-saving and environmental-friendly ships, and carried out new ship research and design in ship such as luxury Ro/Ro passenger ships, polar module carriers, semi-submerged ships, tons sea patrol ships, scientific research ships and container ships. We vigorously promoted researches in dual fuel power, smart ship manufacturing production line, smart green cooling system, "Green Pearl River" package plan, low-sulfur emission control technology and low-energy land ow-emission welding technology.



## OPERATION MANAGEMENT IMPROVEMENT

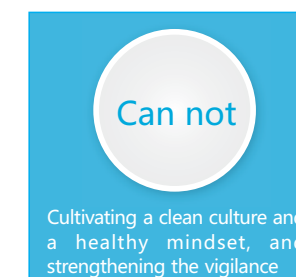
Amidst the continuous hovering at the bottom of the global shipbuilding industry and the fierce competition, we have attached increasing importance to the role of operation management improvement in improving operation and achieving high-quality development. We have continuously improved the internal management system and strictly implemented internal audit and anti-corruption work to ensure the legality and compliance of operation management, asset safety, financial reporting and the accuracy and completion of related information, thus laying a solid foundation for the realization of corporate strategy with a focus on efficiency and effectiveness.

### Operating in compliance with laws and regulations

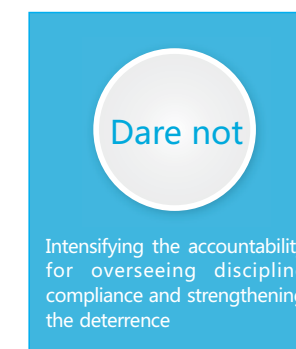
Operating in compliance with laws and regulations is an inherent requirement for the steady development of an enterprise. We have explored the establishment of corporate compliance system according to new situations, strengthened the construction of the Party conduct and of an honest and clean government and anti-corruption, and taken various measures to improve our ability to manage the enterprise and operation according to the laws and regulations, thereby providing a strong guarantee for the high-quality development of the Company.



- **Implementing the inspection and rectification plan to improve the system.** Taking the opportunity of implementing the inspection and rectification opinions of the central government and CSSC, we conducted self-inspection and immediate rectification to find the weak links in the current power operation mechanism, and carried out integrity risk identification and prevention and control to strengthen the institutional construction of sensitive business areas.
- **Promoting the full coverage of supervision work with leveraging on the joint force of supervision.** Based on problems, we have carried out special inspections in key areas, normalized the supervision and inspection of sensitive links and continued to regulate internal inspections, promoting the full coverage of supervision work.



- **Strengthening education of the Party's discipline and regulations.** We organized Party members, managers and personnel with sensitive positions to thoroughly learn the Party Constitution, Guiding Principles and Regulations, and promoted the learning by cases, to strengthen the awareness of the bottom line of discipline, and by examination, to improve the awareness of anti-corruption to guard against changes.
- **Deepening the integrity employment education among all employees.** Relying on the connection of employment education platform and carrier in a multi-level and all-round manner, we will promote the normalization and full coverage of integrity education, and continuously enhance the influence and appeal of the integrity culture.



- **Strengthening the management of petitions.** We have constantly standardized the clue disposal, filing investigation and review procedures for oversight over discipline compliance, and implemented the rules of oversight over discipline compliance, to make sure that every problem is investigated and the "micro-corruption" at the grassroots level is punished with zero tolerance.
- **Advancing the development of the punishment and prevention system.** We have strengthened the prevention of duty-related crimes and comprehensively conducted four forms of oversight over discipline compliance and identified problems early, with an aim of learning from mistakes to prevent recurrence. We have strengthened cooperation with external supervision organs, to expand the source of case clues and strengthen the governance corruption.

## Strengthening risk management and control

In 2018, in combination with the characteristics of its own capital operation platform, the Company continued to make the internal control management more institutional, standard and process-based, and simultaneously conducted the system release and the improvement of the internal control manual, forming an effective and sound system management and internal control management system to provide guarantee for the achievement of the Company's strategic goals.

16  
systems were amended

### Prevention and control audit risk

we revised the Regulations on Audit Management of COMEC, to further regulate the audit process and behavior and promote the Company's compliance operations. Our supervision and audit focused on the effectiveness of system implementation and the effectiveness of key link control, quality of accounting information, fiscal funds utilisation management and consumption-related expenses management, such as entertainment expense, welfare, office expenses. We also amended 16 systems.

17  
effective internal control systems were established

### Strengthening internal control

we amended the Regulations on Internal Control of COMEC, to further regulate internal control management process and behavior, and strengthen basic management. We urged subsidiaries of the Company to conduct self-inspection on internal control and implemented rectification during the year, impelling the establishment of an effective internal control management system in 17 affiliated units. The internal audit and evaluation focused on onsite audit, self-assessment of subsidiaries, onsite testing of internal control team, defect rectification and merger stage of holding companies to reduce risks encountered by the company.

## Improving operation efficiency

With deep analysis of the characteristics of the industry and the enterprise, we have inherited and carried forward the fine traditions of the enterprise, combined solid foundation with management innovation and established a refined management method, enabling the management improvement cover all aspects of operations of the enterprise.



### Technology cost reduction

Give full play to the role of design in driving growth, extend cost control from the production link to the front end, and achieve cost reduction and efficiency improvement through design optimization.



### Procurement cost reduction

Strengthen the connectivity of technology, procurement, operation and production, flexibly adopt the competition method of lock-price procurement and introducing suppliers, and comprehensively control procurement cost.



### Production cost reduction

Continuously optimize production management, improve process, coordinate material arrival cycle, improve execution rate of production plan, and strictly control standard cycle.



### Finance cost reduction

Strengthen the close combination of product cost and expense management and comprehensive budget expense, promote target cost management, and strictly control cost overruns.

Huangpu Wenchong  
2018 Advanced Unit of  
Guangzhou Information-  
Based Enterprise

## Information construction

In terms of information construction, in 2018, we actively applied the model-based 3D design system in the military and civilian products. The functions of shipbuilding production management system continued to be improved and fully applied, and the refined dispatching was further applied. The information-based material cost continued to be optimized and applied. We developed and applied the information system V2.0 of status disclosure and advancing improvement, and launched the maintenance and protection information system for application.

The existing integration of informationization and industrialization is in the stage of "integrating and improving", generally covering principal businesses. The information system is operating stably, with a significant improvement in information-based capability.

We integrated the design platform to improve the Company's design efficiency. The information construction experience from external designers contributed to expand the Company's business development and liberate technical forces, focusing advantageous resources to make breakthroughs in high technology and ships with high added-value.

We made innovations in the resource management and control platform. Various works were steadily conducted to consolidate the integration and application of integrated platform. We comprehensively advanced the 3DE testing on real ship and application.

We completed several projects, such as BIM information-based design model extraction, welding map development and implementation, interface research and development of the three-line and one system, and well received by the owners and accepted by the project team for implementation.



### Case Navigation Zhiyun platform

Navigation Zhiyun is the first Internet platform for the shipbuilding industry launched by CSSC Industrial Internet Co., Ltd. a wholly-owned subsidiary of Huangpu Wenchong, providing professional industrial applications such as equipment interconnectivity and joint manufacturing for enterprises in the shipbuilding industry chain; providing an open and interconnected application and development environment for users in the industrial chain to promote business synergy throughout the manufacturing process.

The platform solution was selected as the Manufacturing and Internet Combined Development Pilot Demonstration Project by the Ministry of Industry and Information Technology, and two projects, being industrial Internet platform for high-end special equipment and identity resolution for the ship industry were listed into the 2018 Industrial Internet Pilot Demonstration Project by the Ministry of Industry and Information Technology.







# ENVIRONMENT RESPONSIBILITY

Lucid waters and lush mountains are invaluable assets. The construction of ecological civilization has become a key task in the new era of the country, and green environmental protection has become an important sign for economic development under the new normal. With a commitment to the mission of building a beautiful China, COMEC adheres to the management concept of “Green manufacturing” , and strengthens the company's environmental management under the guidance of ISO14001:2015 management system pursuant to the requirements of international conventions and laws and regulations. Based on the main business, it not only promotes green shipbuilding and energy-conserving and emission-reduction, but also expands the development of environmental protection projects in emerging industries to achieve common and sustainable development of economy, ecology and society.



| Green Management | Green Research and Development | Green Production | Development of Environment Protection Business |

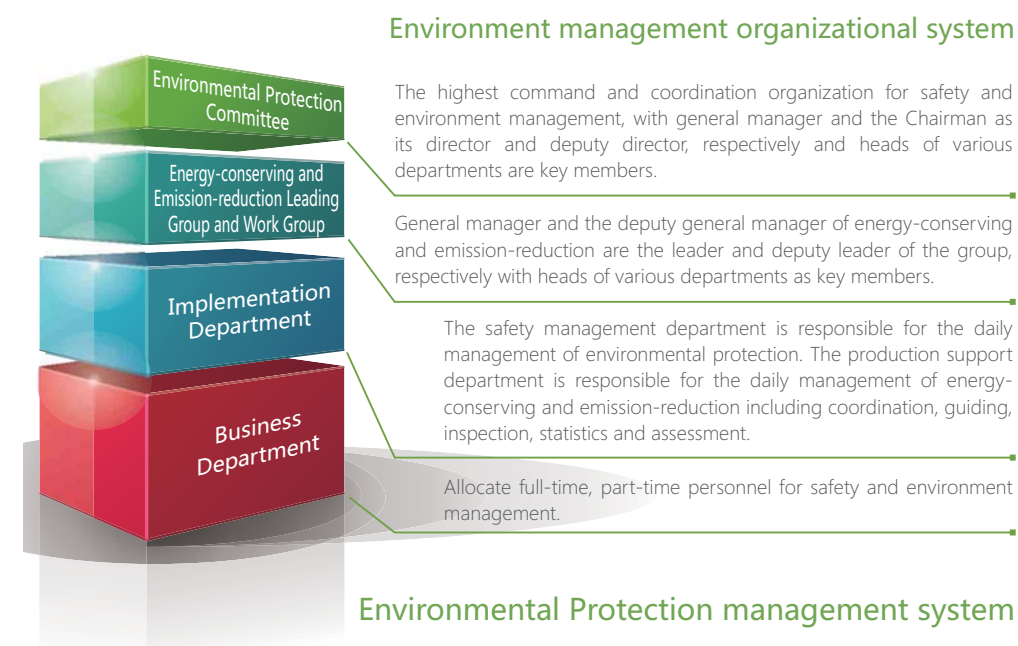


## GREEN MANAGEMENT

By practicing ecological concepts and green development, and in strict compliance with the requirements of laws and regulations including the Environmental Protection Law, we continued to improve our environmental management system, incorporate ecological and environmental protection into the decision-making elements of the enterprise, and attach importance to the research of environmental policies of the enterprise, thus promoting the coordinated development of the enterprise's economy and ecological environment.

### Environment management system

To achieve the Company's objective of environment protection and energy-conserving and emission-reduction, we established and improved an environment management organizational system with interactions and communication between all levels from the management to the working groups and to the implementing level in order to continuously improve the relevant environmental protection management system.



"Implementation Rules for Safety and Environmental Protection", "Regulations on Environmental Pollution Prevention and Control", "Regulations on Garbage Classification Management", "Regulations on Hazardous Waste Management", "Regulations on Hazardous Waste Storage Management", "Environmental Pollution Accident Emergency Rescue Plan", etc.

### Environmental protection training

We carried out extensive environmental protection publicity and education to convey environmental protection laws and regulations and industrial policies to all employees, and enable environmental protection awareness deeply rooted into hearts so as to make environmental protection become a conscious behavior of all employees, and promote the green and sustainable development of the enterprise.



Comprehensive energy consumption per RMB10,000 output value of  
**0.0409**  
ton of standard coal / RMB10,000

Power consumption per RMB10,000 output value of  
**181.10**  
kwh / RMB10,000

Environment protection expenses of RMB  
**14,412,500**

Environmental protection training provided during the year for  
**7**  
sessions

**11,097**  
persons participated in Environmental protection training

## GREEN RESEARCH AND DEVELOPMENT

We vigorously promoted supply-side structural reform, endeavored to make innovations in research and development, and promoted the upgrading of brand ships, ship technology and manufacturing process, to accommodate the needs of low-carbon economy and green economy and consolidate industry pioneering advantages by leading market demand, thus contributing to high-quality development of the shipbuilding industry.

- **Ship designs with low carbon-emission.** We conducted in-depth research of the impact of the new regulations on ship designs, strengthened the efforts to understand the requirements of TIER III emission and global regulations on low-sulfur emission, and adopted the selective catalytic reduction (SCR), dual fuel and fuel cell new energy proposal to optimize ship and system configuration and reduce fuel consumption. Currently, the Company has adopted the READY design on the relevant ships under construction, and the classification design of SCRUBBER READY and GAS READY on certain ships.
- **Shipbuilding technologies to reduce emission.** We carried out the overall investigation, upstream and downstream investigation, project proposal and feasibility analysis for the major special technology project "Green Pearl River Prosper Pearl River", and worked out a preliminary cooperation plan with relevant parties to promote the building of hydrogen fuel cell demonstration ship and lead the development of green ship technology.
- **Green manufacturing processes.** We researched green environmentally-friendly manufacturing process, testing technologies, welding technologies and green processing technologies such as noise and dust treatment in the manufacturing process, and extensively adopted green processes and technologies.



Case

### Building a green brand ship to meet international convention emission standards Dual-fuel feeder container ship

**Dual-fuel feeder container ship:** The ship with 1400 dual-fuel containers of Huangpu Wenchong is equipped with a new generation of low-pressure common-rail dual-fuel engine, dual-fuel generator and dual-fuel boiler, almost free from the emission of sulfur oxides and PM. Its nitrogen oxides emission is lower 15-20% as compared to the low-speed machine with the same working condition. TIERIII emission standard can be met without any post-treatment measures in gas mode.



**LRII tankers for product oil / crude oil:** On 15 October 2018, the 114,000 DWT LRII tanker for product oil crude oil No. 4 ship built by GSI for TORM of Denmark was officially delivered. The ship was the first environmentally-friendly ship equipped with a desulfuration scrubber built by GSI and also the first ship of TORM with a desulfurization scrubber.



Case

### 1,000 DWT pure electric new energy electric self-unloading ships



The ship is the first inland river large collier with the "Green Ship-III" classification mark. It is powered by lithium battery + super capacitor with cruising distance of approximately 80 kilometers in two hours of charging. It does not consume waste pollutants, such as fuel, carbon and sulfur during the whole journey without PM2.5 emissions. In addition, the ship adopts a totally enclosed cargo structure to prevent the freight from being scattered, which results in environment pollution and is equipped with domestic sewage and domestic garbage collection system.



## GREEN PRODUCTION

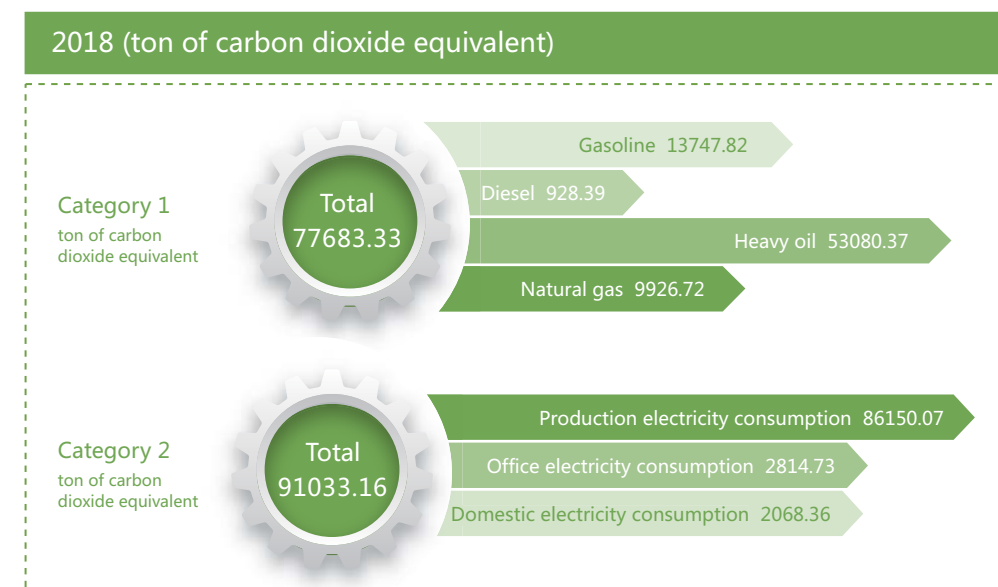
With the goal of energy saving, consumption reduction and pollution reduction, we actively promoted the application of new technologies, new processes and new equipment and integrated low-carbon concepts and sustainable development ideas into daily production management of the enterprise to use energy in a scientific and rational manner and strictly control pollution discharge in an expectation to become a more environmental-friendly and energy-saving ship builder. We experienced no major violations and environmental accidents during the year.

## Climate change and energy management

While paying close attention to the global climate change trend and relevant international conventions, we have established a sound energy saving management network and energy monitoring system, applied the performance appraisal system and energy conservation and emission reduction organizational system and focused on the completion of energy conservation and emission reduction targets to jointly reduce greenhouses gas and waste emissions so as to lower the impact of the Company's production operations on climate change.

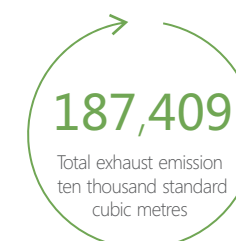
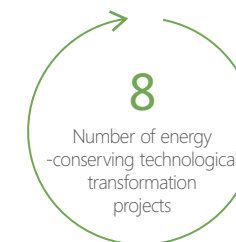
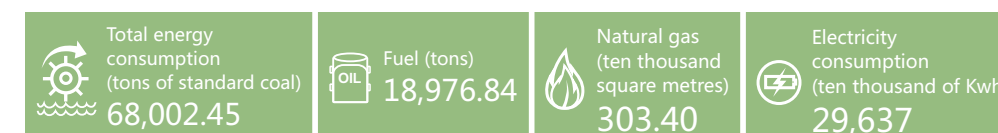
## Greenhouse gas emission management

We have fully implemented various national and local requirements and classified the source of greenhouse gas into two categories, namely category 1, which represents the emissions directly generated in the shipbuilding process of the Company, mainly greenhouse gas generated by fuel consumption, and category 2, which mainly represents emissions indirectly generated by electricity consumption.



## Energy conservation and carbon reduction management

We advocate the conservation-first energy strategy, stick to green and low-carbon emission concept in development, strive to improve energy utilization efficiency and actively carry out energy-saving technological transformation to optimize energy structure and improve the dynamic energy monitoring system. All plants have completed energy management system certification, which have systematically improved energy management.



### Case

## Welding process optimization reduces post-welding grinding rate

Through the analysis of a large number of post-welding grinding data, we specifically expand the application scope of automatic welding, and introduce new welding process of the submerged-arc transverse welding for large storage tank, which have improved the welding efficiency and welding quality, and realized a decrease of 48%, 73% and 56% in the grinding data of manual welding for ship structure, the grinding data of automatic welding for ship structure and the grinding data of manual welding bead for pipelines, respectively.

It is estimated that approximately 162,265 hours of grinding can be saved during the year, saving 468,938 polished pieces and 162,265 hours of compressed air consumption.



## Exhaust treatment

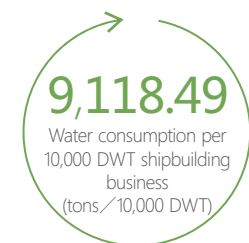
Organic exhaust and metal oxide dust are generated during the manufacturing process. We value the management and treatment of exhaust, adopt technologies such as adsorption through activated carbon, filter barrel filtration and catalytic combustion treatment, and conduct regular maintenance of environmental protection equipment to ensure that all facilities are under normal operation and all exhaust emission indicators meet the required standards.

Source of pollutants/ Type of pollutants		GSI		Huangpu Wenchong		Emission method	Height of exhaust tube
		Emission concentration (mg/m³)	Emission rate (kg/h)	Emission concentration (mg/m³)	Emission rate (kg/h)		
Steel plate pre-treatment line	Particulates	4.7	0.09	10.6	0.15	intermittent	20
	Toluene	0.08	0.002	1.72	0.025	intermittent	20
	Xylene	5.07	0.117	1.45	0.025	intermittent	20
Segmental coating	Particulates	4.62	0.07	26.2	0.62	intermittent	25
	Toluene	0.17	0.008	0.02	0.08	intermittent	25
	Xylene	1.18	0.057	4.31	0.08	intermittent	25

## Waste management

Waste is a by-product of our construction and operation. We focus on reducing the generation of waste and environmental hazards from the source. We have adopted various responsible measures, including improving waste classification management and comprehensive utilization efficiency, to reduce waste emissions and achieve recycling of resources.

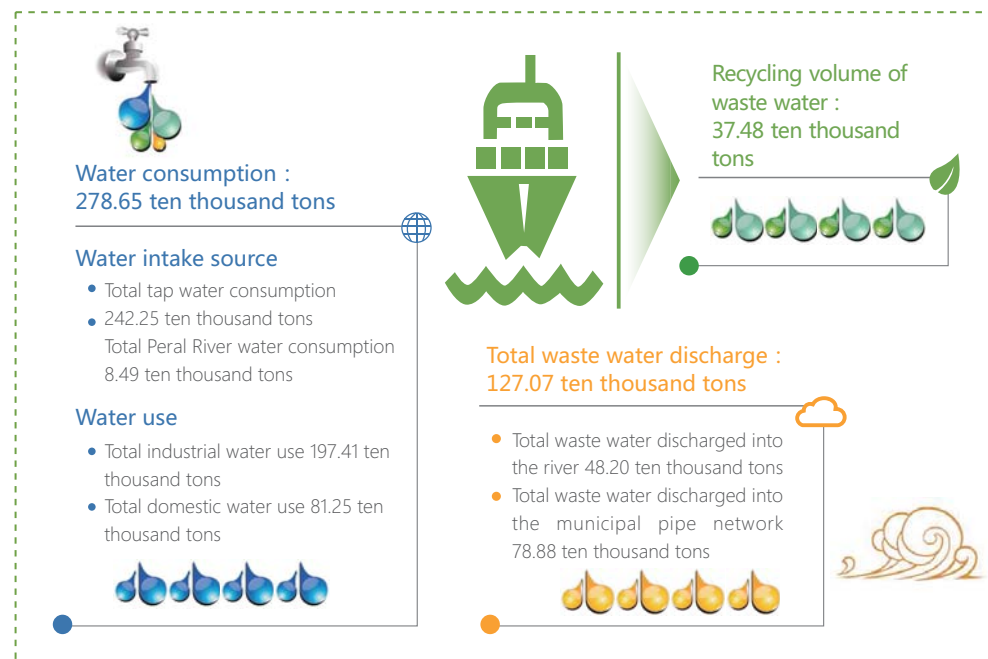
Type	Environmental effectiveness	Treatment method
Scrap materials	Collected and handed over to suppliers or waste materials recycling companies	Reused as raw material
Paint waste	Transferred and processed by qualified institutions	Harmless treatment
Hazardous waste	Delivered to qualified institutions	Harmless treatment
Domestic waste	Classified and delivered to a qualified institution.	Classified and reused



COMEC		2016		2017		2018	
		Generation volume (tons)	Recycling volume (tons)	Generation volume (tons)	Recycling volume (tons)	Generation volume (tons)	Recycling volume (tons)
Solid waste	Hazardous solid waste	503.96	17.2	368.978	10.65	1890.36	0
	Non-hazardous solid waste	57205	34243	45780	33400	37725	12787
Liquid	Hazardous liquid	702.4	496.85	402.884	54	1593.23	201.48

## Water resources management

Water is the source of life, the key to production, the foundation of ecology, and an indispensable resource for the shipbuilding industry. We utilize water resources in a scientific and rational manner, continuously improve the reusing rate and recycling rate and strictly control sewage treatment and discharge, to maximize the protection of water resources.



## Waste water treatment

We generate production wastewater and domestic sewage in the process of production and operation. The production waste water represents mainly the oily waste water generated in the mooring experiments of ship wharves and the pipeline oil intermingling process. In accordance with national and industry standards, we continue to explore more effective methods of wastewater collection and processing technologies and methods. We carry out strict supervision and management of the operation of wastewater environmental protection equipment to prevent any water run, drop and leakage. We regularly carry out sewage outfall water monitoring, and monitoring results are in line with the emission standards for Guangdong province.

COD emission Unit: ton	2016	33.46	mmonia nitrogen emission Unit: ton	2016	6.58
	2017	23.35		2017	2.583
	2018	41.08		2018	3.45

## Practice green office

We integrate the concept of environmental protection into our daily work, promote green practices, encourage employees to do their best to save energy, and protect the environment from the little things.

- Indoor temperature is controlled at a reasonable level. Air conditioning temperature is set at  $\geq 26$  degrees in summer and  $\leq 20$  degrees in winter.
- Natural light is adopted as much as possible and only a small number of lights are turned on in certain areas where there are few people. No lights shall be on permanently.
- We give priority to energy-saving certified office equipment in procurement. The equipment is set to operate at an energy-saving model and will be turned off when staff leaves.

- We promote paperless office and make full use of electric office platforms to improve office efficiently and reduce resource consumption.
- We advocate the use of double-sided paper and encourage the reuse of envelops and paper.

Save electricity Save water Save paper Save oil

- We installed energy-saving faucets to avoid the run, flow drip, leakage and long flow of water.

- We conduct strict management of the vehicles owned by the Company and implement a "one card for one vehicle" system.
- Employees are encouraged to use public transportation when going out for business.

## DEVELOPMENT OF ENVIRONMENTAL PROTECTION BUSINESS

As the supply-side structural reform of the country advances, with a commitment on the main ship business, we are focusing on the environmental protection in accordance with the "Five Development Concepts". Though environmental sanitation integration and comprehensive environmental management projects and "package" solutions regarding solid waste, soil, water and hazardous waste treatment, we provid system integration services to form a landscape where the development of equipment manufacturing is supported, driven and regurgitantly fed by the environmental protection industry.



Case

Internet + smart waste classification

The Internet + waste classification system consists of four platforms: smart delivery platform, point incentive and quality-oriented education platform, big data management platform and urban mineral development platform, which realized waste sorting and reduction as well as the whole process management of waste recycling through positive incentives. We have formed "GSI University Green Island" and "GSI City Station" system for universities and communities.







# SOCIAL RESPONSIBILITY

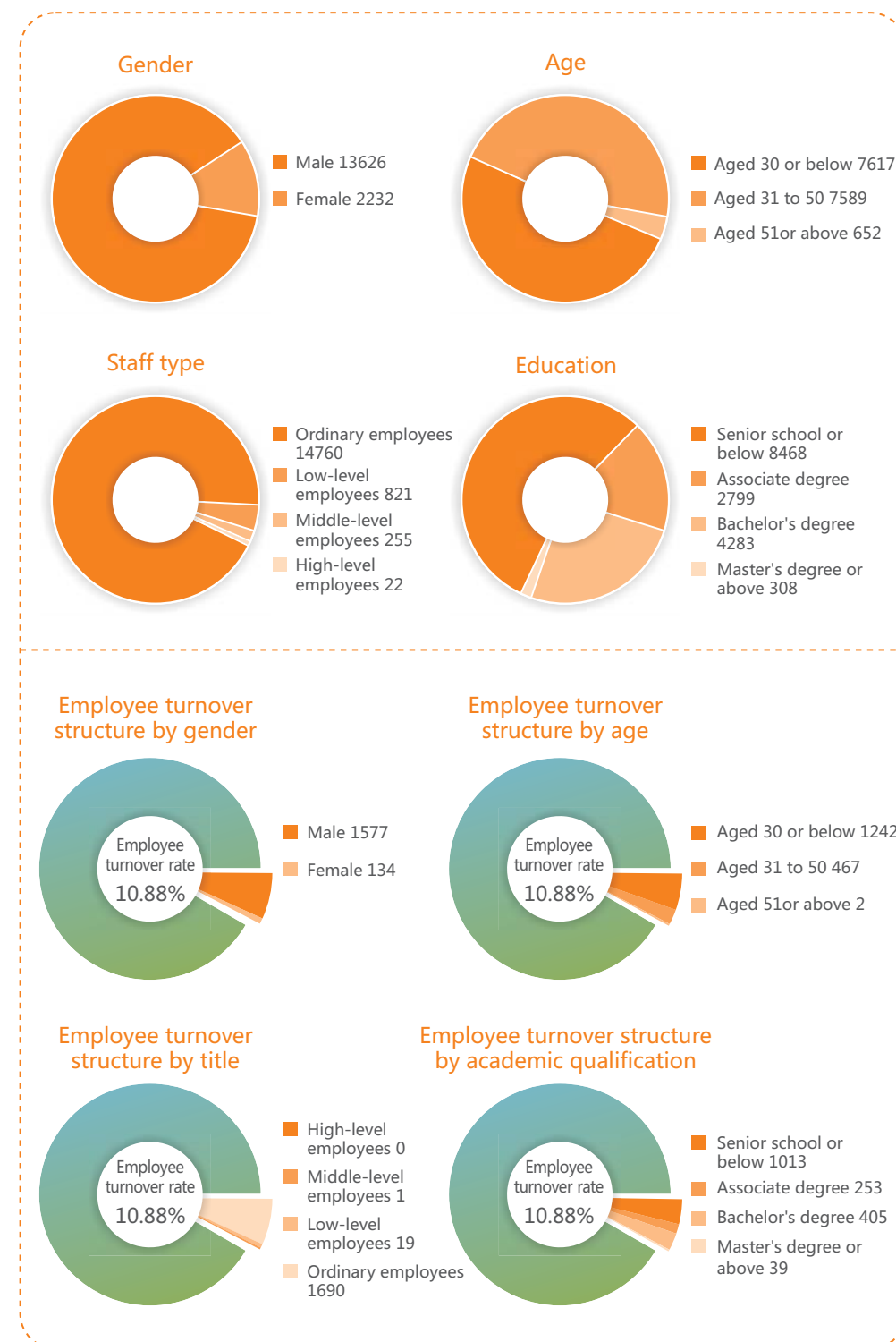
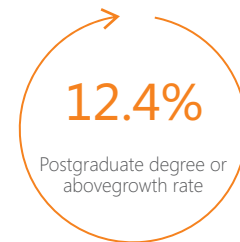
The width of sea is not formed by the flow of one trickle. While pursuing high-quality development of the Company, we keep in mind our corporate citizenship and actively seek ways to live in harmony with relevant stakeholders. Uniting strength in good faith and starting from the interests of employees, we have established a sound training system and smooth professional channels. We participated in public welfare activities with love and implement targeted poverty alleviation with a combination of "providing assistance" and "fostering self-reliance". We achieve a win-win situation through cooperation and promote supply chain management, to create an open and transparent competitive environment and co-construction, sharing and common development with all stakeholders, so as to assume greater social responsibility.



| Staff Development | Harmonious Community | Cooperation and win-win |

## STAFF DEVELOPMENT

The success is achieved by talents, and the business is expanded by talents. With regarding talents as the core driving force for its development, the Company adheres to the principle of fair and open recruitment, protects the core rights and interests of employees and maintains a healthy and comfortable working environment, striving to build a better career development platform for employees and encourage them to maximize their potential and realize a benign circle of personal value with the development of the enterprise. As of the end of 2018, the Company has a total of 15,858 employees, including 2,232 female employees, accounting for 14.07%.



## Protecting employees' interests

We strictly follow the relevant labor laws and regulations, safeguard the basic rights and interests of employees, build a fair and reasonable distribution mechanism, protect their occupational health, encourage employees to participate in democratic management of the Company, and strive to create a safe and comfortable working environment for employees.

### Remuneration and benefits

Under a compensation management system that is in line with the principles of competitiveness, fairness and incentive, we improve employee welfare with further development of the Company to enable employees share the fruits of reform and development of the Company, and strive to improve their sense of well-being and gains. We encourage employees to work hard and provide higher returns to those with better performance, in order to reflect their values and attract, retain and reward employees who have made tirelessly efforts for the long-term development of the Company, whereby employees who have made considerable contribution to the company in terms of income distribution.

- Compensation:** post salary, longevity pay, performance salary, incentive allowance and others; in which, incentive allowance is a salary incentive set up for specific matters, including allowance for talents at key position, confidentiality allowance, research and development bonus, link bonus.
- Employee benefits:** five social insurances and one housing fund, major illness insurance, supplementary medical insurance, enterprise annuity (Huangpu Wenchong), paid annual leave, bereavement leave, marriage leave, home leave, paternity leave, caregiver leave, maternity leave, etc.



### Democratic communication

We respect the democratic rights enjoyed by our employees, and continue to improve a democratic management system in the basic form of workers congresses and democratic life meetings. We enrich the channels and forms of democratic management, and carry out a series of activities including the Communist Youth League member representative meetings, the Mid-Autumn Festival symposium, and rational proposals collection to listen to the voices of employees and promote the establishment of harmonious and stable labor relations.



### Occupational safety

Sticking to the working approach of prevention first with treatment combined, we actively control occupational hazards factors and improve the provision of individual protective facilities by strengthening occupational safety awareness, to create a safe, hygienic and comfortable working and living environment for employees to the utmost extent, thereby enabling employees devote to work with physical health and positive attitudes.



- **Occupational hazards prevention:** we have entrusted a qualified testing agency to detect occupational disease hazard factors in the Company's workplaces.
- **Occupational health check:** in compliance with the regulations, we have arranged physical examinations for personnel who are exposed to occupational hazards, whereby we have achieved the pre-job physical examination rate of 100%, on-the-job physical examination rate of 100% and the off-the-job physical examination notification rate of 100%.
- **Occupational health training:** we provide pre-job occupational health training, and regularly organize training and publicity and education activities during the period of employment, to popularize occupational disease prevention and prevention knowledge and methods to use the protective equipment.
- **Labour protective products:** we provide employees with labour protection products, including dust masks, anti-poison respirators, earplugs, gloves, hoods and strengthen the supervision of the use of labour protection products.
- **Employee work injury management:** we purchase work injury insurance for employees, formulate work injury management plans, and make best endeavors to deal with work-related injury accidents and follow-up work.

100%	13,987,400	0	1,284
Staff health record ratio	Labour protection product expense RMB	Number of employees deceased due to work	Lost days due to work injury of

## Assisting staff development

We abide by the people-oriented management philosophy, and by actively creating a multi-channel and multi-level staff training system, provide a broad space and smooth channel for employees' career development, assist them to achieve their own worth, and promote the common development of employees and the enterprise.

### Improving staff training system

We continue to provide employees with trainings meeting job needs and beneficial for employees' growth and development, improve their ability to perform duties and overall quality, and inspire employees' potential to improve the performance of individual and the Company, and achieve a win-win development of both the Company and the employees.

	Staff training data	Number of staff trained (person)	Number of hours of training provided to each staff (hour)		Staff training data	Number of staff trained (person)	Number of hours of training provided to each staff (hour)
By Gender	Male	13,626	10	By type	High-level	22	113
	Female	2,232	12		Middle-level	255	62
					Low-level	821	37
					Ordinary employees	14,760	9

**Pre-employment training and probation training:** New entrants to the Company will receive pre-employment training arranged by the human resources department, covering the overview and development strategies of the Company, career development, professional ethics, quality management knowledge, safety and environmental protection knowledge, learning about labor laws and regulations, and introduction to shipbuilding production process.

**Internal training:** The Company has established a staff education committee to guide staff training. Once an employee formally starts his/her, he/she will have the opportunity to receive various training and education. The internal training is divided into two forms: being level 1 and level 2 training. Level 1 training is managed by human resources department of the Company, and level 2 training is managed by various departments. The Company's internal training is closely related to production, operation and job needs, which generally comprises skill training, process knowledge training, quality management, professional design knowledge training and management business training.

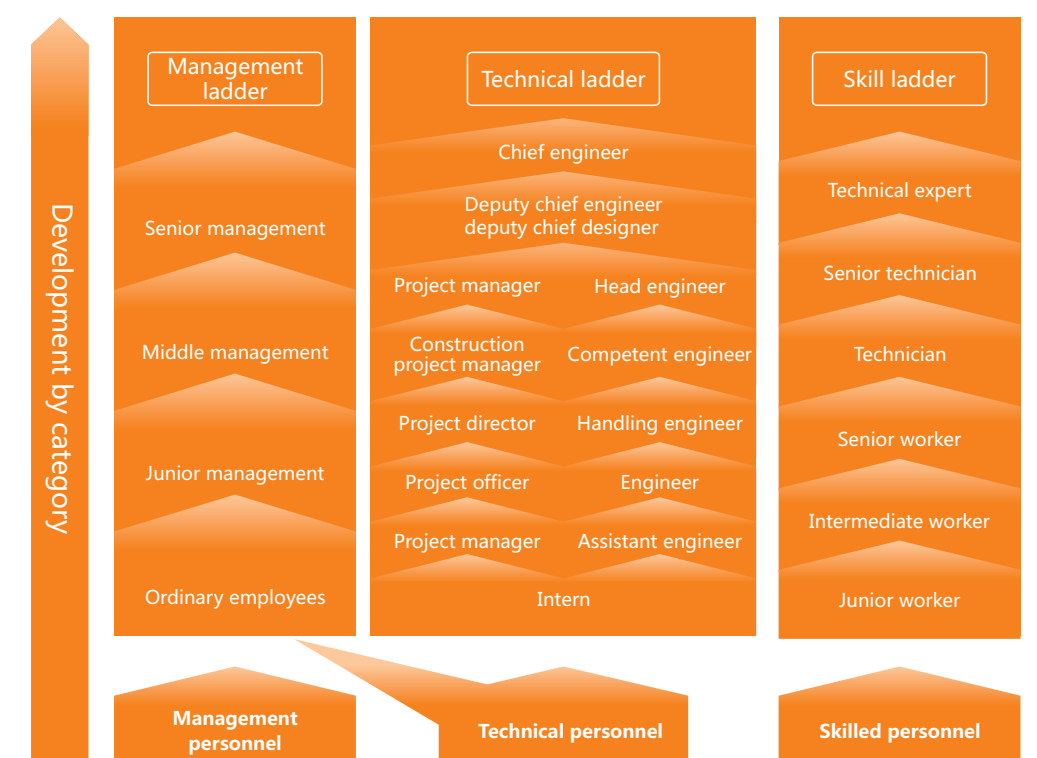
Training hours during the year of  
**187,200**  
hours

**External training:** In addition to internal training organized by the Company itself, depending on the job needs, employees may also can be sent to external training institutions to receive training. The external training is arranged in the principle of "training in the missing knowledge and the knowledge in need" and "what is needed". In general, external training includes the training in operation skills necessary for production and operation, qualification certification projects and training to improve the management quality of employees. We give priority to employees at key positions, academic leaders, core staff and reserve cadres in external training.



### Smooth career development channel

In developing human resources, the Company complies with the creed to respect the will of employees, respect the development path chosen by employees, and assist employees' development. The Company and its subsidiaries have designed a career development path of vertical and horizontal development for employees. The Company provides professional technical personnel with a ranking and remuneration equal to those of managers and more career development opportunities, which will have two parallel development paths: one is the management career path, that is, the management ladder; one is the professional technician career path, that is, appointment as professional technicians (technical/skill ladder).





### Case The first skill competition (welder project)

At invitation of the Guangzhou Federation of Trade Unions, employees of the Company participated in the first skill competition (welder project) of Guangdong-Hong Kong-Macao Greater Bay Area, and won gold award, silver award and Yangcheng craftsmen for individuals, and won many awards including the group gold medal for groups.



## Care for employees

Our care for employees is more than work. We pay attention to the humanistic care for employees by providing assistance to employees with financial difficulties, and providing front-line staff and workers with care in order to enrich their life and enhance the happiness and loyalty of employees, while creating a corporate atmosphere of advancement with harmony and a happy COMEC.

### Help employees with financial difficulties

We help and care for employees with financial difficulties by starting from solving their practical difficulties in their work, life and family. We deliver the Company's care and warmth in a timely manner to employees with financial difficulties through various condolence activities and assistance.

Total consolation money distributed to employees with financial difficulties during the year of approximately RMB  
**1,600,000**



- We arranged employees to participate in renewing and taking out insurance under the Guangzhou Employee Mutual Assistance and Support Program. All members of labour union are involved in the Staff Hospitalization Protection Program, the Guangzhou Employee Special Major Disease Aid and Medical Protection Program, and the Female Employees Mutual Aid and Protection Program of Guangzhou Federation of Trade Unions.
- On holidays including the New Year Day, Spring Festival, Women's Day, Labour Day, Mid-Autumn Festival and National Day, we visited and gave condolences to labour models, employees with financial difficulties, hospitalized due to injury and disabled due to work injury and the surviving family members of the employees deceased due to work injury.

### Care for low-level employees

We adopted various measures to express our care for low-level employees including front-line staff and labour workers in order to fully mobilize the enthusiasm, initiative and creativity of employees.

- **Safeguarding lawful interests of labour workers:** we ensured the payment of salary in full, and on time to labour workers, arranged on-the-job health examinations for labour workers and provided legal advices to them.
- **Care for front-line staff:** we conducted condolence activities such as "For the Labour Worker Service Day", and visited a total of more than 10,000 front-line employees working overtime during the year.



## Enriching employees' life

Guided by corporate culture, we organized activities for in-depth promotion of corporate culture, and held shows including "Our Chinese Dream Culture into Thousands of families" and "Celebrating the Labour Day and the 10th Anniversary of Maritime Workers Landing to Island", and a series of popular cultural and sports activities including the GSI Li Wan plant relocation commemorating torch relay ceremony and orienteering activity, staff tug-of-war, women employee badminton game, photo contests, which helped to build a warm and happy working atmosphere, and inspire employees' spirit of devotion and dedication.



### Case Celebrating the 10th Anniversary of May Day and Haigong's Entertainment on Island







## Case Passing the Flame and Building a dream

Celebrating the Labour Day and the performance of condolence for the 10th Anniversary of Maritime Workers Landing to Island"



4,078,000

Total charity donations during the year RMB

2,200

persons provided volunteer services during the year

8,240

hours of volunteer services were provided

## HARMONY COMMUNITY

The development of an enterprise cannot do without a favorable community environment. While accelerating our own development, we also actively participated in the targeted poverty alleviation cause and volunteer services in the community, in order to achieve a win-win situation for the common development of the Company and the community.

### Targeted poverty alleviation

With a focus on targeted poverty alleviation, we practice responsibilities of the enterprise. In active response to the calls of the nation and the government, we adjusted measures based on local conditions and provided assistance based on individual needs. We adhered to the combination of "providing assistance with fostering self-reliance, poverty alleviation with education improvement", made donations and helped the poverty-stricken areas to get rid of poverty through assistance to counterparts, in order to disseminate the affection and support of COMEC staff using love and care.



- **Industrial poverty alleviation:** we organized employees to purchase chickens in Heqing County, Yunnan Province, with a total amount of RMB3,200,000, and implemented targeted assistance to help the industrial development of Heqing County. We subsidized poverty-stricken students in Heqing County with vocational skills training fee of RMB43,500 to further implement targeted poverty alleviation measures.
- **Funds assistance:** we made a donation of RMB380,000 for poverty alleviation in Dashi Village, Heqing County, Yunnan Province; RMB443,960 for poverty alleviation in Hean Village, Xuwen County, Guangdong Province, and consoled 35 households in need with RMB10,500.

### Volunteer services

With the purpose of building a harmonious society, we disseminated our love, made full use of our professional advantages, and carry out various volunteer service activities such as Learn from Lei Feng, to enhance social understanding and support and contribute to the harmonious development of society.



## Case Learning Lei Feng's Warm Spring Activities

In March, we organized four volunteer service monthly activities, and conducted volunteer service activities in the staff dormitory and factories to provide staff and labour workers with free services such as medical consultation, physical examination and maintenance of home appliances, demonstrating new social morality of youth league members of the Company in the new era and youthful vigor of young volunteers.



## Open communication

We bear in mind the mission of the times in the "Planning and Managing the Sea, Serving the Country with Ships", consider the inheritance of Chinese industrial spirit and publicity of maritime industry culture as our mission, to gain more public understanding and recognition and respond to the concerns of the society with an open attitude.

### Case The 40th anniversary of reform and opening-up achievement exhibition of Huangpu Wenchong

A total of 100 model workers from the National Federation of Trade Unions and the Guangdong Provincial Federation of Trade Unions visited achievements exhibition of Huangpu Wenchong for the 40th anniversary of the reform and opening up, which showed the achievements of China's industrial development since the reform and opening up with the development history of Huangpu Wenchong as an epitome.



### Case Construction of Guangzhou Ship Popular Science base

We received 165 teachers and students from Hong Kong to understand the economic development of the Mainland through the understanding of the operation mode and production development of the mainland shipbuilding industry.



## WIN-WIN COOPERATION

We adhere to the philosophy of win-win cooperation, and strive to build an open and fair platform to connect stakeholders including suppliers, industry peers and government authorities so as to create a favourable atmosphere for intergrowth development, mutual benefit and innovated cooperation, and promote the development and improvement of supply chain products and services.

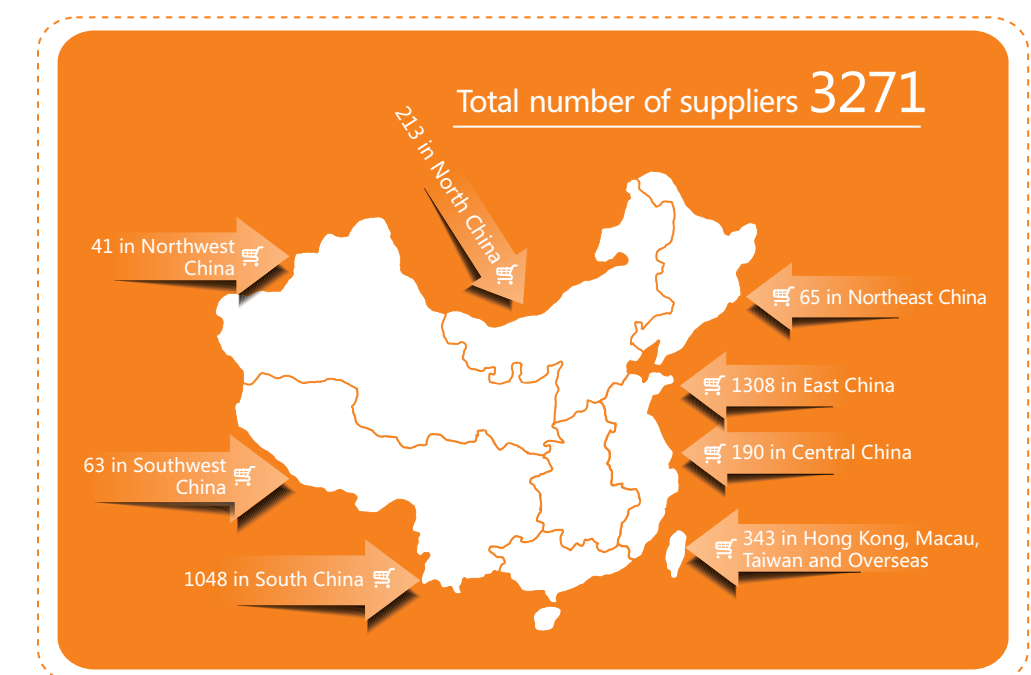
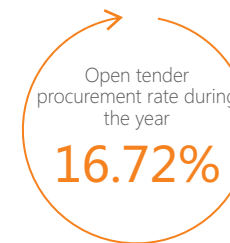


## Supply chain management

Sticking to the principle of open and transparent procurement, we established a standardized procurement management system and a sound supplier management system, and promoted suppliers to improve product quality, abilities to practice integrity and social responsibility management, so as to create a sustainable supply chain, and lead the Company's future development.

### Responsible procumbent

With a commitment to creating a virtuous competition environment, we established a material procurement information platform, built a supplier performance database and conducted centralized procurement through the information platform. We have repeatedly standardized procurement, to avoid procurement risks, ensure procurement quality and control purchasing costs thus optimizing comprehensive benefits.



## Supplier management


In order to ensure material supply capacity and improve supplier management and abilities to perform responsibilities, we have established a sound supplier access and exit mechanism, strictly implemented daily management and annual evaluation, and implemented supplier dynamic management to ensure that responsible suppliers can stand out from others.

- **Supplier access:** we set up new temporary procedures for temporary suppliers to implement standardized audits for supplier access.
- **Supplier maintenance:** we conducted on-site visits or business surveys to update the supplier's production situation; according to department satisfaction and feedback on product quality issues, made written rectification or interview with the supplier in question.
- **Supplier exit:** we list suppliers in question in the "stand-to observation" according to the severity of problems, suspend new cooperation, require to rectify within a time limit, or cancel their supplier qualifications and list them as blacklist suppliers.



OUTLOOK

In 2019, we will continue to thoroughly implement the guiding principle of the 19th National Congress of the Communist Party of China, and closely follow the implementation of national major strategies including building a marine power, rejuvenating the country through science and technology, and building a manufacturing power. We will solidly promote the integration of the military and the people, faithfully fulfill the responsibility of "military products first" and adhere to the philosophy of "Taking Quality as the Top Mission and Keeping Efficiency as the Priority", to build a first-class marine equipment manufacturing enterprise and promote the sustainable development of the shipbuilding industry, thus helping China move from a shipbuilding manufacturer of quantity to one of quality.



### Economic responsibility

- Implement China's major strategies including building a marine power and the "Belt and Road", improve the quality of major products including ships;
- Ensure production safety, continue to deepen 6S management, and strive to improve intrinsic safety;
- Enhance the level of technological innovation, accelerate transformation and upgrading, innovations and informationization to achieve intelligent manufacturing;
- Strengthen the operation and management to enhance the Company's operating efficiency.





### Environment responsibility

- Continue to promote green management and practice green office;
- Take the initiative to implement environmental protection policies, properly manage waste pollution to reduce impacts on environment;
- Endeavour to research and develop green environment-friendly products, and improve the energy efficiency of facilities to cope with climate change.



### Social responsibility

- Establish a rational and sound mechanism for the selection, education, use and retaining of talents, and comprehensively assist staff in realizing value;
- Advance targeted poverty alleviation work, and increase community volunteer service to achieve harmonious development with the community;
- Actively carry out responsible procurement and grow with enterprise along with supply chain.

KEY PERFORMANCE INDICATORS

Economic Responsibility

Performance Indicator	2018	Performance Indicator	2018
Operating income (in RMB100 million)	192.14	First pass rate of process (%)	96.91
Operating profit (in RMB100 million)	-29.5	Number of major safety accidents	0
Total profit (in RMB100 million)	-24.6	Safety education and training (person-times)	46738
Net profit attributable to the Company (in RMB100 million)	-18.69	Research and development expense (in RMB100 million)	6.66
Equity attributable to owners of the Company (in RMB100 million)	97.27	Research and development expense as a percentage of operating income (%)	3.47
Value of social contribution per share (in RMB)	0.4446	Percentage of research and development personnel to total employees (%)	14.63
Product quality assurance expenses (in RMB ten thousand)	19043	Number of patents owned by the Company	389

Environment responsibility

Performance Indicator	2018	Performance Indicator	2018
Environmental protection expenses (in RMB ten thousand)	1441.25	Carbon dioxide emission (ton)	168716
Employees participating in environmental protection training (person-times)	11097	COD emission (ton)	41.08
Comprehensive energy consumption per RMB10,000 of output value (ton of standard coal/RMB10,000)	0.0409	Ammonia nitrogen emission (ton)	3.45
Electricity consumption per RMB10,000 of output value (kWh/RMB10,000)	181.10	Solid waste generated (ton)	39615
Water consumption per 10,000 DWT shipbuilding business (ton/10,000 DWT)	9118.49	Liquid waste generated (ton)	1593.23
Wastewater discharge per 10,000 DWT (ton/10,000 DWT)	6214.54	Number of energy-conserving technological achievements	7
Total exhaust emission (10,000 standard cubic metres)	187409	Number of major environment violation accidents	0

Social responsibility

Performance Indicator	2018	Performance Indicator	2018
Number of employees	15858	Number of employees deceased due to work	0
Percentage of female employees (%)	14.07	Lost days due to work injury (day)	1284
Employee turnover rate (%)	10.88	Total consolation money provided to employees with financial difficulties (in RMB ten thousand)	160
Paid-leave days for each employee (day)	10	Total charitable donations (in RMB ten thousand)	407.8
Total number of hours of training provided to employees (10,000 hours)	18.72	Volunteer services (person-times)	2200
Number of hours of training provided to each employee (hour)	11.8	Total number of suppliers	3271
Staff social insurance coverage rate / Staff health file coverage rate (%)	100	Open tender procurement rate (%)	16.72

INDEX OF INDICATORS

Aspects	Key Performance Indicators	Pages
A Environment		
Aspect A1: Emissions		
General Disclosure	Information on the policies and compliance with relevant laws and regulations that have a significant impact on the issuer relating to exhaust and greenhouse gas emissions, discharges into water and land, and generation of hazardous and non-hazardous waste.	● P30-33
A1.1	The types of emissions and respective emissions data.	● P30-33
A1.2	Greenhouse gas emissions in total (in tonnes) and, where appropriate, intensity.	● P30
A1.3	Total hazardous waste produced (in tonnes) and, where appropriate, intensity.	● P32
A1.4	Total non-hazardous waste produced (in tonnes) and, where appropriate, intensity.	● P32
A1.5	Description of measures to mitigate emissions and results achieved.	● P30-31
A1.6	Description of how hazardous and non-hazardous wastes are handled, reduction initiatives and results achieved.	● P31
Aspect A2: Use of Resources		
General Disclosure	Policies on the efficient use of resources, including energy, water and other raw materials.	● P30-33
A2.1	Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total and intensity.	● P30-31
A2.2	Water consumption in total and intensity.	● P32
A2.3	Description of energy use efficiency initiatives and results achieved.	● P30-31
A2.4	Description of whether there is any issue in sourcing water that is fit for purpose, water efficiency initiatives and results achieved.	● P32
A2.5	Total packaging material used for finished products and with reference to per unit produced.	● Not applicable
Aspect A3: The Environment and Natural Resources		
General Disclosure	Policies on minimizing the issuer's significant impact on the environment and natural resources.	● P28-29
A3.1	Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them.	● P28
B Social		
Employment and labour practices		
Aspect B1: Employment		
General Disclosure	Information on the policies and compliance with relevant laws and regulations that have a significant impact on the issuer relating to compensation and dismissal, recruitment and promotion, working hours, rest periods, equal opportunity, diversity, anti-discrimination, and other benefits and welfare.	● P36-37
B1.1	Total workforce by gender, employment type, age group and geographical region.	○ P36
B1.2	Employee turnover rate by gender, age group and geographical region.	○ P36
Aspect B2: Health and Safety		
General Disclosure	Information on the policies and compliance with relevant laws and regulations that have a significant impact on the issuer relating to providing a safe working environment and protecting employees from occupational hazards.	● P37-38
B2.1	Number and rate of work-related fatalities.	○ P38
B2.2	Lost days due to work injury.	○ P38
B2.3	Description of occupational health and safety measures adopted, how they are implemented and monitored.	○ P37-38

Aspect B3: Development and Training				
General Disclosure	Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities.	●		P38-39
B3.1	The percentage of employees trained by gender and employee category (e.g. senior management, middle management).	○		P38
B3.2	The average training hours completed per employee by gender and employee category.	○		P38
Aspect B4: Labour Standards				
General Disclosure	Information on the policies and compliance with relevant laws and regulations that have a significant impact on the issuer relating to preventing child and forced labour.	●		
B4.1	Description of measures to review employment practices to avoid child and forced labour.	○		No violation of laws or regulations on preventing child and forced labour during the Reporting Period
B4.2	Description of steps taken to eliminate such practices when discovered.	○		
Operating Practices				
Aspect B5: Supply Chain Management				
General Disclosure	Policies on managing environmental and social risks of the supply chain.	●		P44-45
B5.1	Number of suppliers by geographical region.	○		P45
B5.2	Description of practices relating to engaging suppliers, number of suppliers where the practices are being implemented, how they are implemented and monitored.	○		P45
Aspect B6: Product Liability				
General Disclosure	Information on the policies and compliance with relevant laws and regulations that have a significant impact on the issuer relating to health and safety, advertising, labelling and privacy matters relating to products and services provided and methods of redress.	●		P16-20
B6.1	Percentage of total products sold or shipped subject to recalls for safety and health	○		There were no products subject to recalls for safety and health reasons during the Reporting Period.
B6.2	reasons.Number of products and service related complaints received and how they are dealt with.	○		During the reporting period the Company had not received any complaints about products or services and received recognition letters and advices from ship owners
B6.3	Description of practices relating to observing and protecting intellectual property rights.	○		P22
B6.4	Description of quality assurance process and recall procedures.	○		P19
B6.5	Description of consumer data protection and privacy policies, how they are implemented and monitored.	○		The Company has developed and strictly complied with the special confidentiality measures for customer information, and there has never been any leak of confidential information of customers.
Aspect B7: Anti-corruption				
General Disclosure	Information on the policies and compliance with relevant laws and regulations that have a significant impact on the issuer relating to bribery, extortion, fraud and money laundering.	●		P23
B7.1	Number of concluded legal cases regarding corrupt practices brought against the issuer or its employees during the reporting period and the outcomes of the cases.	○		There were no legal cases regarding corrupt practices during the Reporting Period
B7.2	Description of preventive measures and whistle-blowing procedures, how they are implemented and monitored.	○		P23
Community				
Aspect B8: Community Investment				
General Disclosure	Policies on community engagement to understand the needs of the communities where the issuer operates and to ensure its activities take into consideration the communities' interests.	●		P43-44
B8.1	Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport)	○		P37-42
B8.2	Resources contributed (e.g. money or time) to the focus area.	○		P37-42
Note: ● means "comply or explain" indicators, and ○ means "disclosure recommended" indicators.				



ABOUT THIS REPORT

Dear readers, this report is the eleventh social responsibility report issued by CSSC Offshore & Marine Engineering (Group) Company Limited. This report is addressed to all stakeholders of CSSC Offshore & Marine Engineering (Group) Company Limited, and its purpose is to describe the Company's concept of sustainable development and disclose the opportunities and challenged faced by the Company in creating values together with its stakeholders, the measures adopted by the Company to achieve sustainable development and the results. With this report, we wish you can feel our care and support and help COMEC's development.



Time frame

1 January 2018 to 31 December 2018, moderately extended to previous and subsequent years for certain contents.



Boundary of report

This report fully discloses the information and key performance of CSSC Offshore & Marine Engineering (Group) Company Limited and its related entities on fulfilling economic, social and environment responsibilities in 2018.



Basis for preparation

- G4 Sustainability Reporting Guidelines issued by the Global Reporting Initiative (GRIG4)
- Guiding Opinions on Fulfillment of Social Responsibilities by Central State-owned Enterprises issued by the State-owned Assets supervision and Administration Commission of the State Council
- Special Industry Guidelines set out in the Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises 3.0 Version issued by the Chinese Academy of Social Sciences
- Environmental, Social and Governance Reporting Guide issued by the Hong Kong Stock Exchange
- Guidelines for Disclosure of Information by Listed Companies issued by the Shanghai Stock Exchange



Reliability assurance

The Company undertakes that this reports contains no false statements, misleading statements or material omissions.



Source

All information and data used in this report are derived from official internal documents, statistical reports and annual reports of the Company. Unless otherwise specified, all amounts are expressed in Renminbi.



Explanation for titles

For ease of presentation and reading, in this report, "COMEC", "the Company" and "we" mean "CSSC Offshore & Marine Engineering (Group) Company Limited"; "the Group" means "COMEC and its related entities"; "CSSC" means "China State Shipbuilding Corporation"; "GSI" means "Guangzhou Shipyard International Company Limited"; "Huangpu Wenchong" means "CSSC Huangpu Wenchong Shipbuilding Company Limited"; and "Wenchong Dockyard" means "Guangzhou Wenchong Dockyard Co., Ltd.".



Method to obtain this report

You may view or download the electronic version of this report at our website (comec.cssc.net.cn).

FEEDBACK FORM

Dear readers,

Hello! Thanks for reading this report during your busy time. It is inevitable that there may be flaws and omissions in this report. In order to improve our report preparation, we sincerely hope to hear your opinions and suggestions. Please feel free to contact us! Your opinions and suggestions will become an important basis for us to improve our report.

Open questions: (Please mark "√" in the corresponding box)

	Very good	Good	Fair	Bad	Very bad
Your overall impression of this report:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
You think the quality of information on social responsibility disclosed in this report is:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
You think the structure of this report is:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
You think the layout design of this report is:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
You think the readability of this report is:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Which issues disclosed in this report are you most concerned about? (Up to three items)

- ☐ Quality management
- ☐ Technological innovations
- ☐ Compliance operation
- ☐ Green management
- ☐ Green research and development
- ☐ Green production
- ☐ Staff development
- ☐ Targeted poverty alleviation
- ☐ Cooperation and Win-win
- ☐ Production safety
- ☐ Environmental protection business
- ☐ Others (pleas specify)\_\_\_\_\_

Open questions:

What further opinions or recommendations do you have on this social responsibility report or our social responsibility performance?

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