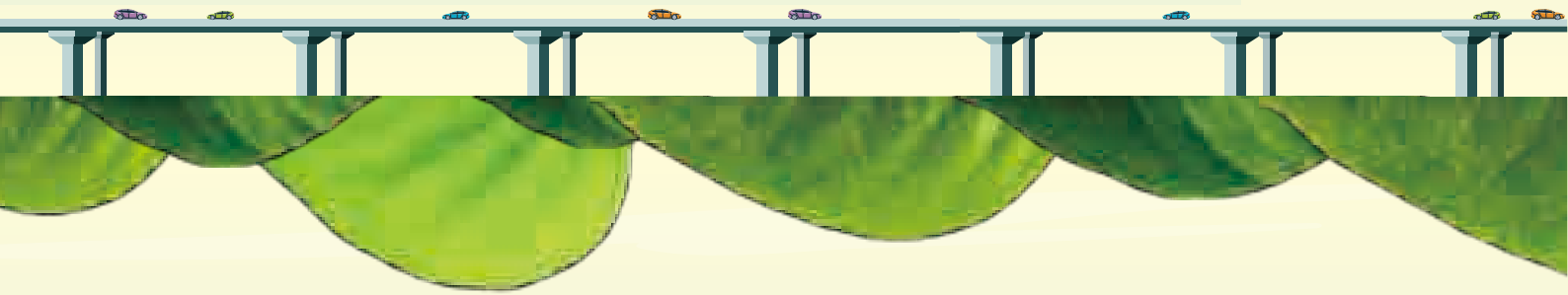
中國建築國際集團有限公司
CHINA STATE CONSTRUCTION INTERNATIONAL HOLDINGS LIMITED

2018
Sustainability Report

Contents



About this Report

About this Report

China State Construction International Holdings Limited, together with its subsidiaries (hereinafter referred to as "CSCI" or the "Group"), is proud to present the Sustainability Report for the period between January 2018 and December 2018. The report is the third Sustainability Report since the Group's replacement of the Corporate Social Responsibility Report. The change aims to present the Group's economic, environmental and social policies, measures and performance in a more comprehensive and diversified manner, so that stakeholders can further understand the Group's development strategies and commitments on the path to sustainability.

Report Characteristics

The Group's responses to current global sustainability trends

Representative cases of measures taken by business divisions or regional companies

Reporting Boundary

This report focuses on the environmental, social and governance ("ESG") performance of the construction and investment business of CSCI and its directly related subsidiaries. The relevant businesses cover Mainland China, Hong Kong and Macau, accounting for 94.4% of the Group's total revenue.

The Group's curtain wall system and operation management business are operated through a listed subsidiary, China State Construction Development Holdings Limited[1] (hereafter referred to as "CSCD") (Stock Code: 00830), which accounted for 5.6% of the Group's revenue. The sustainability performance of CSCD are published in its 2018 annual report. Therefore, the relevant information is not included in the reporting boundary of this report.

CSCD's 2018 Annual Report

Since the overseas operations of the Group (mainly in United Arab Emirates and India) did not involve in any investment activities during the year, the operations in the regions concerned are not included in the reporting boundary of this report. The Group will regularly review the reporting scope based on the principle of materiality to deliver more comprehensive and accurate information to investors and other stakeholders.

[1] Formerly known as "Far East Global Group Limited".

Reporting Standards

This report has been prepared in accordance with the Global Reporting Initiative ("GRI") Standards: Core option and with reference to the GRI G4 Construction and Real Estate Sector ("GRI CRE") Disclosures. This report also complies with the 'comply or explain' and 'recommended disclosures' provisions under the Environmental, Social and Governance Reporting Guide ("ESG Guide") issued by the HKEX Exchange of Hong Kong.

Looking ahead, the Group will take heed of the guidance of the Task Force on Climate-related Financial Disclosures ("TCFD") to prepare for quantifying the financial impact associated with climate change. At the same time, the Group also plans to make reference to the TCFD's recommendations in the preparation of the next Sustainability Report to strengthen governance, strategy, risk management, and disclosure of indicators and targets.

During its preparation, the Group adheres to the reporting principles in the ESG Guide and the GRI Standards: stakeholder inclusiveness, sustainability context, materiality, quantitative, balance, comparability and consistency, reliability, completeness, clarity, timeliness and accuracy. A complete index is presented in the last chapter for readers' reference to the ESG Guide and the GRI Standards.

Reporting Principles and Application

About this Report

Report Content Management

The Group has established internal control and formal review procedures and, under the coordination and supervision of the Sustainability Committee, endeavored to ensure that all information presented in this report is accurate and reliable. To further enhance the efficiency and accuracy of data collection, the Group upgraded the sustainability data electronic collection platform this year, adding functions such as 'Notes' and 'Q&A' to facilitate employees in different regions to directly reflect the problems encountered in data collection. The Group also commissioned a sustainability consultant to provide training to all employees responsible for data collection, so as to enhance employees' understanding of various indicators and reduce the occurrence of wrong and missing entries.

The financial information is reviewed by an independent auditor PricewaterhouseCoopers. For details, please refer to page 97 of CSCI's Annual Report 2018.

CSCI's Annual Report 2018

To ensure the trustworthiness and transparency of this report, the Group continued to commission an independent sustainability consultant, Carbon Care Asia to assist the Group to prepare the report and to conduct a fair review of the Group's sustainability work and progress.

This report has been reviewed by the Group's Sustainability Committee and approved by the Board of Directors (the "Board") in July 2019.

Report Accessibility

The Group's website contains a dedicated webpage on sustainability to facilitate stakeholders' access to sustainability updates of the Group. Stakeholders can also download the Chinese and English versions of this report from the website.

CSCI's website
www.csci.com.hk

Opinions and Feedback

CSCI values the opinion of stakeholders. If you have any questions or suggestions regarding the content of the report or the sustainability progress of the Group, please contact the Group's Corporate Finance Department at csci_esg@cohl.com.

Theme of Report

Promote technological innovation to build a livable and smart city

We are in the age of urbanisation that the population continues to migrate from the rural areas into cities. The United Nations estimates that the global urbanisation will reach 67.2% by 2050; cities will become the main driver of economic development. While the level of urbanization continues to increase, the conflict between infrastructure system, transportation system efficiency, quality of life, health, environmental protection and resource allocation is further highlighted. The concept of 'Smart City' is therefore proposed as an alternative to traditional urban planning and design solutions.

As an important component of building a 'smart city', intelligent architecture has also become a global development focus. Relying on the development and application of technological innovation, CSCI tackles new challenges with new thinking, making its building construction, civil engineering works, mechanical and electrical engineering works, prefabricated construction and other construction related business better aligned with economic development, users' needs and environmental changes, creating a livable and smart city and shouldering responsibility in business operation, society and environment.

The introduction of the report focuses on the Group's sustainability governance approaches and stakeholder engagement strategies. It then details the Group's economic, environmental and social efforts in 2018 in three thematic chapters: Operational Responsibility, Social Responsibility and Environmental Responsibility.

Message from the Chairman

Mr. YAN Jianguo

Chairman of the Board and Non-executive Director

During nearly four decades of development, CSCI had leveraged its core strength in high-quality technical construction to promote the long-term vibrant development of construction, cities and communities. We adhere to technological development and innovation and continue to improve our core competitiveness in digitalisation, intelligentisation, refabricated construction and green construction. At the same time, we gradually incorporated sustainability principles such as business integrity, a people-oriented approach, community care and environmental protection into our day-to-day work to actively tackle various risks and challenges.

To further enhance the Group's work and performance in sustainability, we have formally established a Sustainability Committee early this year, which is fully responsible for establishing and implementing the Group's sustainability roadmap. On this basis, a comprehensive sustainability strategy is the key to driving our sustainability business decisions and operation.

What is the aim of the Group's 2030 Sustainability Strategy?

In recent years, global concern about sustainable development continues to grow. The United Nations proposed 17 Sustainable Development Goals ("SDGs"). The Chinese government subsequently issued the China's National Program for Implementation of the 2030 Sustainable Development Agenda to clearly indicate its direction of driving sustainability agenda. With regard to 'social mobilisation', 'resource input' and 'risk prevention and control', the government has emphasised the importance of corporate and public recognition and participation in sustainable development. As one of the pillar industries of the country, the construction industry has played a significant role in promoting economic, environmental and social development. Therefore, it has also become an important driver for promoting sustainable development. We are going to formulate a 2030 Sustainability Strategy with a focus on the Group's hurdles to achieving sustainability, enabling the Group to establish a solution mechanism that guides regional companies to make contributions to communities in which they operate as well as in wider areas of sustainable development.

How important is sustainability to the stakeholders of CSCI and CSCI?

The growth and development of an enterprise are inseparably connected to the stakeholders along the value chain, as well as on the path to sustainable development. Taking the building energy conservation advocated by the Chinese government as an example, the Group promotes the low-energy construction process to achieve this goal, which will inevitably affect the belief and routine operation of stakeholders: sub-contractors need to implement new processes; suppliers have to provide green building materials; customers and the public need to accept the concept of low-energy buildings. The expectations and transformation of stakeholders in sustainable development will also affect the Group's operations. We have always valued the views of stakeholders and provided various channels to communicate with stakeholders on a regular basis. Through engagement we became aware of the strong expectations of stakeholders in the Group's business integrity, green development and social contribution. Communicating with stakeholders in a wide range of sectors also enables us to analyse the changing trends in the world, contributing to the continuous improvement of the Group's sustainability strategies, policies and measures. We believe that stable operation and continuous growth of the enterprise are inseparable from the sustainable development on the local and global levels. Upholding the concept of sustainability, the Group identifies risks and improves management mechanisms to actively deal with the challenges it faces in the domestic and international environment. This also enables the Group to seize development opportunities and maximise value for stakeholders.

How is the Group's non-financial performance related to its financial performance?

A combination of financial and non-financial performance assists us to analyse and report on corporate value more intuitively. Financial performance reflects the Group's economic development and structural status, while non-financial performance reflects the Group's commitment to social responsibility and the long-term development capabilities in face of future environmental and social risks.

Therefore, in addition to financial performance assessment, we have also developed a series of non-financial performance assessment indicators, including construction quality, safety and environmental protection, and effectiveness of anti-corruption measures, as well as relevant management systems and measures. These indicators assist the management in measuring the past performance of the Group and provide guidance on the Group's future development direction, which plays an important role in the formulation and management of new decisions.

Looking ahead, we believe that the construction industry will play an increasingly important role in global achievement of sustainability. The Group hopes to tackle the conflicts and problems in development through its endeavours. It will continue to work closely with various stakeholders to build a better living and working environment to make further contribution to creating a sustainable future.

Sustainability Management

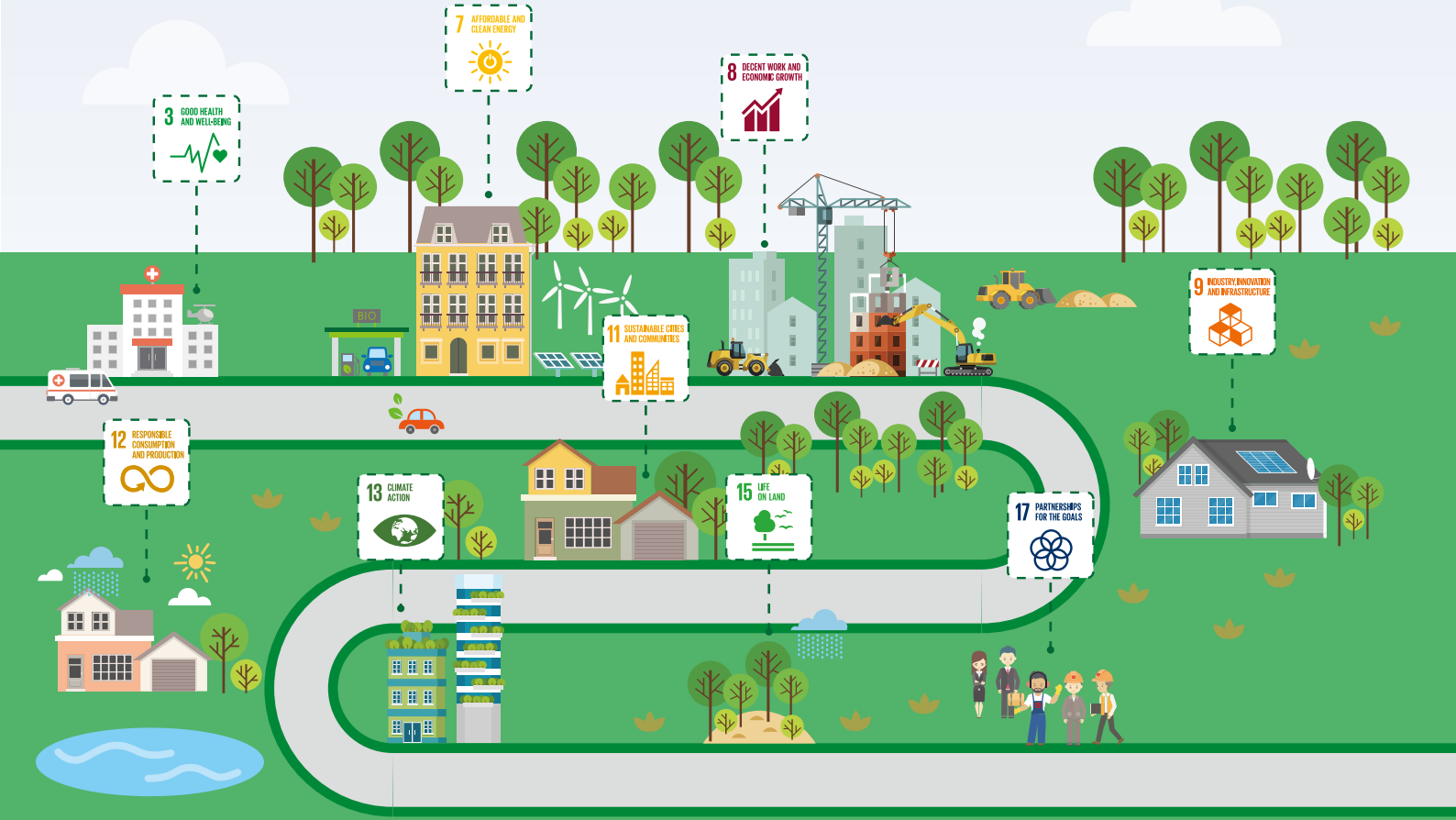
In the pursuit of economic growth, companies should strike a balance between sustainable development of economy, society and environment. CSCI explores and develops a model of sustainability management bearing its own characteristics, listens to and collects the opinions of stakeholders to further integrate sustainability concepts and strategies into the day-to-day operation of the Group, so as to achieve the co-existence of reasonable profit, social responsibility and environmental responsibility.

Respond to the Global Trend 1: United Nations Sustainable Development Goals

In 2015, all 193 member states of the United Nations formally adopted the 2030 Agenda for Sustainable Development, which includes 17 SDGs and 169 specific targets. These goals take into account the three dimensions of sustainable development: economic, social and environmental. Their aim is to eradicate poverty, hunger and inequalities, promote empowerment and capability of women and girls, build a peaceful, just and inclusive society, and protect the planet and its natural resources.

The achievement of the 17 SDGs will only be possible through collective actions and effective partnerships of the government and social organisations, including companies. In the process, companies can also use these goals as the basis for their framework of sustainable development strategy, linking operations to global priorities and embracing future growth opportunities.

CSCI reflects on the impact of the industry and its operations on sustainability and focuses on business-related SDGs. To contribute to the achievement of these goals, the Group plans to comprehensively assess its business's impact, either positive, negative, current or potential, on the SDGs in the future to prioritise issues, and set the Group's objectives and adopt targeted measures, embedding SDGs into the operations.



Sustainability Management

Respond to the Global Trend | Sustainability Committee | Stakeholder Engagement

Sustainability journey

2019

- Begin works in laying the foundation for a sustainability roadmap which includes the Group's sustainability policy and approach
- Plan to review the positive and negative impact of the Group on the 17 United Nations SDGs

2018

- Establish the Sustainability Committee which is responsible for establishing and formulating the Group's sustainability strategy direction, focus areas and targets
- Establish a stakeholder engagement plan according to AA1000 to strategically understand the opinions and expectations of stakeholders

2017

- Develop and design a sustainability data electronic system, assisting the Group in collecting and managing environmental and social performance data
- Report all environmental and social key performance indicators in the ESG Guide, and follow international reporting trends to upgrade current reporting standard to GRI Standards, enhancing disclosure and transparency of sustainability information

2016

Switch from Corporate Social Responsibility Report to Sustainability Report to improve reporting quality

2012-2015

Establish the Corporate Social Responsibility Reporting Committee to release the annual Corporate Social Responsibility Report

Sustainability approach

In 2019, the Board adopted a sustainability policy and guidelines to further enhance the Group's operational norms, improve the employees' development, create a safe and healthy operating environment, comprehensively improve product quality and service, and adhere to low-carbon compliant purchasing, creating a harmonious and inclusive community environment, focusing on green building applications, and laying a stronger institutional foundation for the Group's sustainability.

Sustainability Management

Sustainability Committee

Mr. ZHANG Haipeng
(Executive Director and Chief Executive Officer)

As an important player in the construction industry in Mainland China, Hong Kong and Macau, it is our unshirkable responsibility to provide building solutions in creating inclusive, safe and sustainable cities and to contribute to the fight against common challenges facing humanity such as climate change. In the past few years, the Group adopts both a microscopic and a macroscopic perspectives to promote awareness of and a system of sustainability risk management in a top-down approach, striving to ensure sound operations while bringing a positive impact on society. The Group gradually accumulates engineering technical experience and coordination management capability in the development process. Combined with a belief in the role of science and technology in guiding innovation, it has become the basis for the Group to lead its peers and contribute to the sustainable development of society.

Mr. ZHOU Hancheng
(Executive Director and Financial Controller)

We value legal compliance and continuously improve the risk management system. A risk team is established for each specific project to identify and manage risks, and report to the regional company's risk-related departments. The Group also organises several meetings each year to discuss risk-related issues and identify control measures. The Group pays attention to changes in policies and regulations in a timely manner, regularly reviews and optimises internal systems, and provides appropriate guidance and training to employees. These ensure that the Group's operations meet increasingly stringent environmental and social regulations.

Mr. HUNG Cheung Shew
(Executive Director, Vice President)

We focus on the quality, safety and environmental protection of the building environment. The Group is looking into experimenting with smart sites, including research of smart wristbands that can accurately locate the construction workers and detect workers' motion and physical condition, as well as cloud platforms with video surveillance, noise and dust monitoring, safety supervision, and online alert functions. These can improve project management efficiency and production safety. The Group's application of prefabricated construction in many areas can shorten construction cycle while enhancing construction quality, site safety and environmental performance.

Mr. LUO Haichuan
(Assistant President)

We consider it an important task of the Group to encourage the all-round development of employees. The Group continuously improves its training system and pays attention to the development needs of employees in different stages. It arranges various specific training schemes and develops electronic training platforms to create opportunities for employees to achieve personal development and career development. The Group also values employees' rights and physical and mental health. While employees are protected by the system, they can also voice out their needs and opinions through channels such as questionnaire survey. Such measures are expanded to include workers in construction sites to create an inclusive, equal and collaborative working environment of mutual trust.

With regard to social aspects, the Group promotes harmony between its operations and the community. Before the commencement of construction, the construction site project manager will learn about the needs of the public in the proximity and make appropriate adjustment to the construction arrangement. Besides, the Group participated in donations and assistance to schools by supporting renovation in infrastructure facilities. During natural disasters such as typhoon, it allocated labour and resources to conduct rescue, contributing to post-disaster community rebuilding.

Sustainability Management

Sustainability governance structure

To fulfil the sustainability visions of CSCI, the Group formally established the Sustainability Committee (the "Committee") in 2018. The Committee is responsible for coordinating the sustainability management, strategy planning and target setting of the Group. Four subcommittees, namely Operation Management, Human Resources, Social Investment and Compliance and Risks, are responsible for promoting the relevant policies and implementing the relevant measures. The Committee comprises Executive Directors and members of the senior management to ensure its decision making and execution powers.

Stakeholder Engagement

Regular means of engagement

Stakeholder[2] participation is a key component in the business management of CSCI, which helps the Group review the potential risks and business opportunities. In its day-to-day operation, the Group has always maintained open communication with internal and external stakeholders through meetings, workshops, and other events. We hope that through diverse communication channels stakeholders can understand the Group's development and operation approaches. It also provides the Group a chance to understand their opinions and needs in order to develop the relevant policies in response and fulfill their expectations.

Employees	• General meeting • Public information such as annual report, interim report and announcement • Performance roadshow and reverse roadshow	**Investors**	• Conduct community opinion survey • Organise charity event
• Group publication • Grievance mechanism	**Customers**	• Tender meeting • Project briefing • Tea gathering and academic activity	**Community Groups**
Suppliers/ Contractors	• Establish the relevant management system • Supplier/Contractor meeting	**Regulators**	• Cooperate with government policy

2 Stakeholder refers to groups or individuals materially influencing or affected by CSCI's business. Its internal stakeholders include employees, management and directors. Its external stakeholders include customers, business partners, investors, regulatory agencies and various community groups.

Sustainability Management

Materiality analysis

During the preparation of this report, to identity the material issues for the Group and their priorities, the Group commissioned an independent sustainability consultant, Carbon Care Asia, to conduct a series of stakeholder engagement and materiality assessment in four phases:

1 Identify sustainability issues

- The consultant made reference to international trends, industry practices and the results of the Group's stakeholder engagement over the years, and assisted the Group to identify 34 issues that are the most closely related to its business and impacts. They cover the five aspects of Economic Performance, Environmental Protection, Employment and Labour Practices, Operating Practices and Community Investment. These serve as the foundation of internal and external stakeholder engagement.

2 Collect stakeholders' opinions

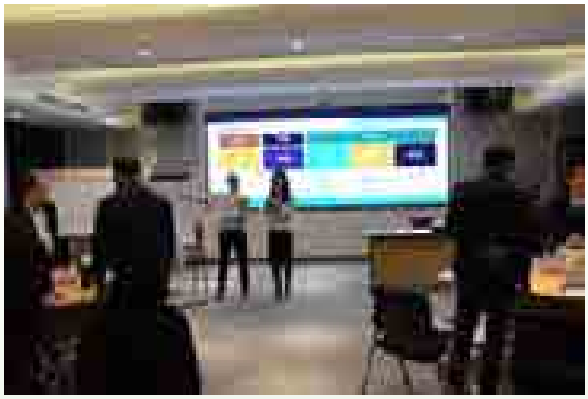
- The consultant conducted 1) four sessions of in-depth interviews with the Chief Executive Officer and all senior management; 2) a focus group discussion for internal stakeholders; and 3) internal training and on-site investigation in Anhui Hefei company, to enhance internal stakeholders' awareness of different sustainability issues while understanding their degree of concern on different issues and collecting their opinions and suggestions on sustainability risks and opportunities faced by the Group.
- To further collect the opinions of different stakeholders, the Group for the first time invited external stakeholders to score 34 sustainability issues through participating in an online questionnaire. Together with the responses from internal stakeholders, the Group received 1,275 valid questionnaire in total.

3 Conduct a materiality assessment

- The consultant developed a materiality matrix and conducted an assessment according to the stakeholders' replies, with which nine 'most material' issues and eight 'material' issues were identified. Same as last two years, stakeholders were more concerned about the aspects of Employment and Labour Practices, and Operating Practices. Among them, the three most material issues were 'A safety and healthy working environment', 'Employment management system' and 'Anti-corruption'.

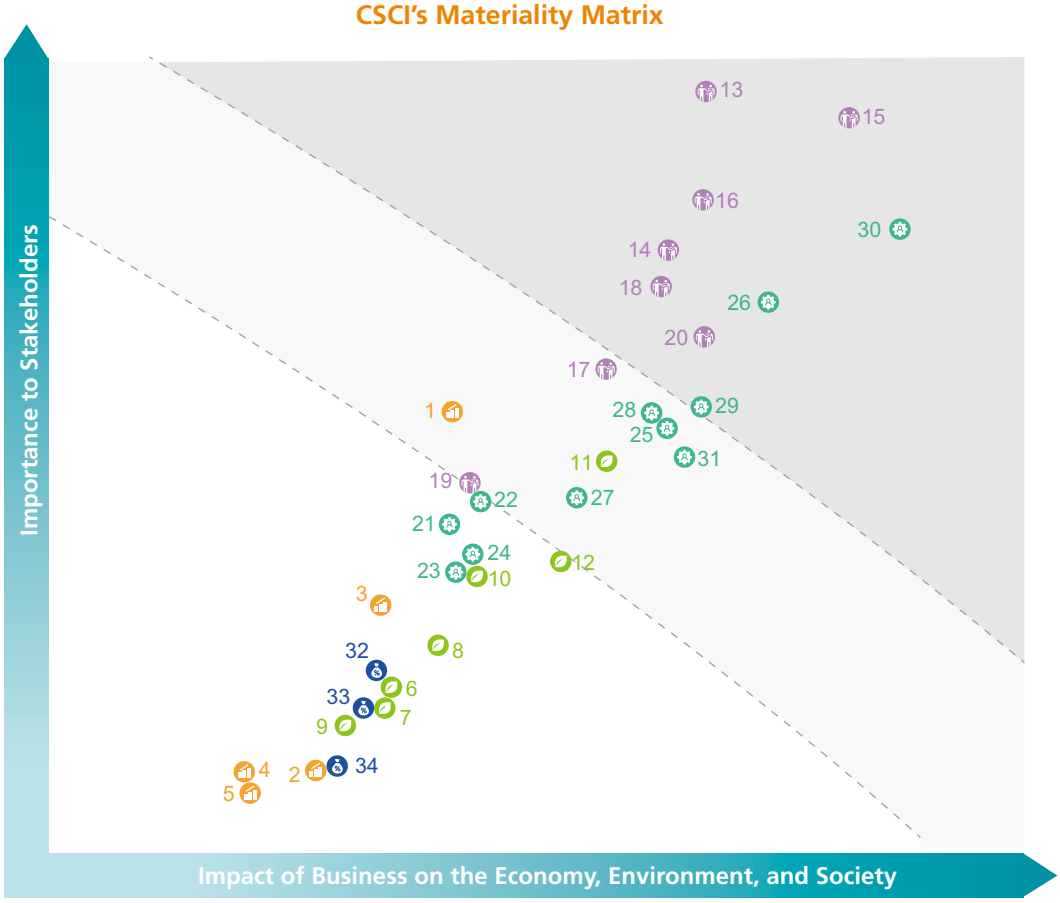
4 Confirm material sustainability issues

- The consultant aggregated and reported the stakeholders' opinions and the results of materiality assessment to the Sustainability Committee of the Group.
- The Committee discussed and confirmed to incorporate the 'most material' and 'material' issues in the Group's 'material sustainability issues' in the year as key disclosure in the report.



Sustainability Management

CSCI's Materiality Matrix



17 key sustainability issues are listed below in descending order of importance according to where impacts occur:

	Most Material Issues	Impact boundaries		GRI Standards	Relevant chapters
		Inside CSCI	Outside CSCI		
15	A safe and healthy working environment	✓	✓	GRI 403	Social Responsibility – We and Employees
13	Employment management system	✓	✓	GRI 401	Social Responsibility – We and Employees
30	Anti-corruption	✓	✓	GRI 205	Operational Responsibility – Corporate Governance
16	Training and development	✓		GRI 404	Social Responsibility – We and Employees
26	Protection of customer information and privacy	✓	✓	GRI 418	Social Responsibility – We and Customers
14	Employer-employee relations	✓		GRI 402	Social Responsibility – We and Employees
18	Employee diversity and equal opportunities	✓		GRI 405	Social Responsibility – We and Employees
20	Prevention of child labour or forced labour	✓	✓	GRI 408, GRI 409	Social Responsibility – We and Employees
29	Management of product quality and after-sales service	✓	✓	Not applicable	Social Responsibility – We and Customers
	Material Issues				
17	Elimination of discrimination	✓		GRI 406	Social Responsibility – We and Employees
28	Protection of intellectual property rights	✓	✓	Not applicable	Operational Responsibility – Corporate Governance
25	Health and safety of customer and the public	✓	✓	GRI 416	Social Responsibility – We and Customers
31	Anti-competitive practices	✓	✓	GRI 206	Operational Responsibility – Corporate Governance
11	Wastewater and waste generation and management	✓	✓	GRI 306	Environmental Responsibility – We and the Environment
27	Fair and responsible marketing	✓	✓	GRI 417	Social Responsibility – We and Customers
1	Economic performance	✓	✓	GRI 201	Operational Responsibility – About the Company
19	Respect for freedom of association and collective bargaining	✓		GRI 407	Social Responsibility – We and Employees

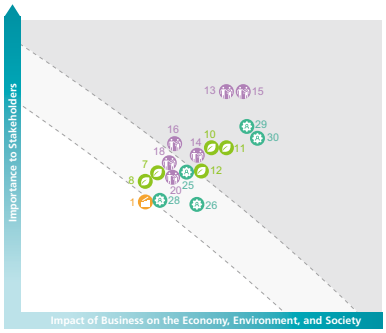
Sustainability Management

Compared with 2017, 'Respect for freedom of association and freedom of collective bargaining' is a new addition to the key sustainability issues this year. Apart from this, there has been no significant change in the Group's key sustainability issues. Due to the diversity of the Group's businesses, to fully understand stakeholders' concerns on different business segments, the Group sorted and analysed stakeholders' views on the 'construction and investment projects', 'concrete production and prefabricated construction' and 'thermal power generation', so as to continuously improve the relevant performance.

Construction and investment projects

Concrete production and prefabricated construction

Thermal power generation



Economic Performance | Environmental Protection | Employment and Labour Practices | Operating Practices | Community Investment

Upon comparison and analysis, stakeholders' concerns on 'construction and investment projects' and 'concrete production and prefabricated construction' are similar to those of the Group's matrix in general. For the operation of 'thermal power generation', stakeholders are more concerned about its impact and performance of issues related to environmental protection (as shown below). These issues have also been disclosed in this report.

12
Land degradation, pollution and restoration

8
Water use and efficiency

10
Greenhouse gas and other significant air emissions

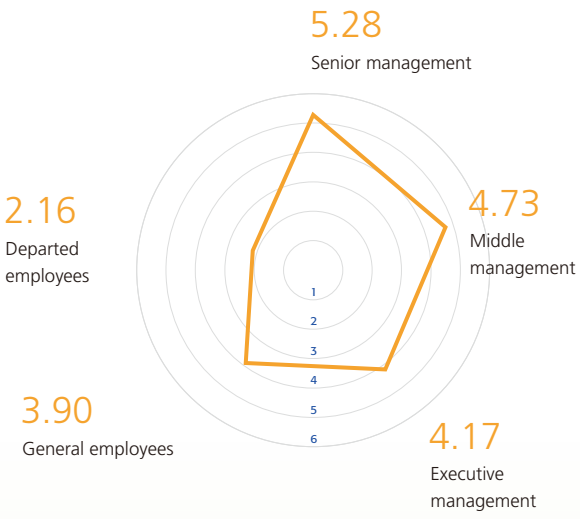
7
Energy use and efficiency

Future plan

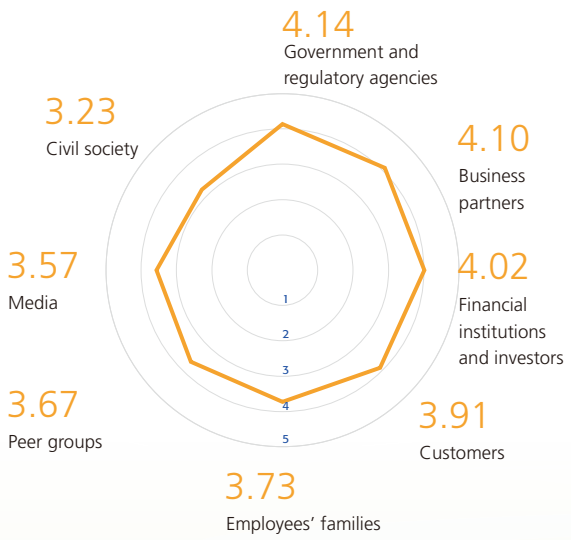
To ensure the effectiveness of stakeholder engagement, CSCI is committed to developing systematic communication with transparency, integrity and accuracy, and providing timely response. During the year, the Group began the preparation for launching a six-year stakeholder engagement plan. Under the guidance of the consultant, members of the Sustainability Committee identified key stakeholders according to the seven standards in AA1000 Stakeholder Engagement Standard, namely dependency, affectedness, responsibility, influence, representation, proximity and tension. Through analysis of the survey, the Group will determine the engagement level each stakeholder group needs to formulate measures and enhance the method of stakeholder engagement in the future.

The results of stakeholder prioritisation are summarised below in descending order of stakeholders' importance:

Internal stakeholders



External stakeholders



Operational Responsibility

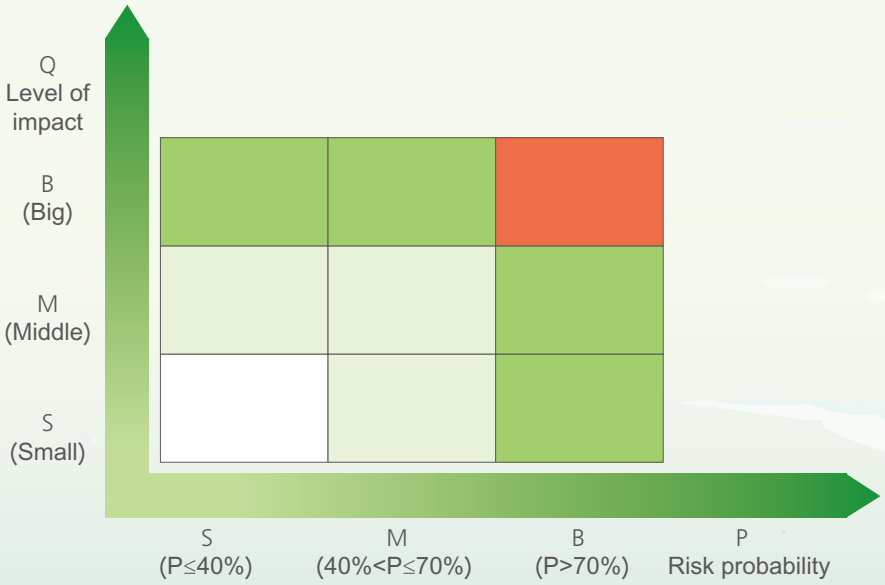
Sustained and steady operation is the foundation of business development. Adhering to the principles of honesty, trustworthiness, fairness and justice, CSCI enhances the Group's ability to scientifically manage and mitigate risks through compliance management, the rule of law and institutional constraints, in order to continuously create industrial and corporate value, and lead social and economic development.

Respond to the Global Trend 2: Management of Sustainability Risks

Globalisation, technological innovation and business development constantly change the business environment. While providing companies with opportunities for development, they also increasingly create risks in economic, social, environmental aspects and political regulations. Especially for the construction industry, risks are more probable due to the high investment, the large volume, involvement of numerous participants and wide impact of construction projects. Therefore, appropriate risk aversion and management methods are indispensable. In this context, the 'private-public partnership' ("PPP") model enables enterprises and the government to establish a communal relationship of 'sharing interests and risks', reducing the investment risks of enterprises and the financial burden of the government. Widely used in infrastructure projects, this model can enhance social benefits.

Long-term infrastructure investment projects could be easily affected by regional economic fluctuations and policy adjustments. In addition, the natural conditions and cultural environment vary across regions in Mainland China, and thus different project faces different challenges such as high production cost, long distances and construction period, high level of technical difficulty, complex geological conditions and varied climatic conditions. The Group made full use of the PPP model, avoiding the drawbacks of instability in the long-term operation of the traditional model, and shouldered the project with the government, reducing operational risks.

To manage and control risks, the Group quantifies risks and analyses the probability and impact of risks with risk impact assessment tools to divide the risks during the construction period into nine categories. According to the results of the assessment classification, the Group formulated the strategy to focus on and eliminate risks of medium probability and with greater impact (M-B interval); at the same time, it also pays attention to the changes of risks in the M-M interval, to effectively resolve and respond to risks.



Operational Responsibility

Through the above means, the Group identified key risks, namely project management risks, risks of national policies changes, risks of investment overrun, quality and safety risks, and risks of breaching contract terms regarding project deadlines, as well as formulated the respective preventive measures.

Key risks	Details	Preventive measures
Project management risks	Due to involvement of multiple parties with different demands and ways of management, powers and duties are not defined clearly.	• Innovative joint management model, adopting the model of 'Project Company (Social Capital Party) + Chief Supervising Engineer Office (Government Funder)' to clarify management path. • Discussed and negotiated with the government several times to clarify the detailed division of labour and responsibilities of the project personnel assigned by the social capital parties, as well as the work flow.
Policy risks	Launch of national policies regulating PPP projects may bring changes to the operational model.	• Combine the actual learning documents of the project, list and interpret the specific requirements and instructions in the policy. • Through communicating with the government and consulting agencies, formulate special rectification plans for the project according to the policy content and contract requirements to ensure compliance with regulations and the law of the project.

Key risks	Details	Preventive measures
Investment risks	• The geological conditions of project are complex and changeable, and the increased cost of material may raise expenditures. • Increased costs of technologies, services and consultancy.	• Introduce design supervision and consulting units to track the whole design process and continuously improve the project construction design. • Introduce tunnel with high geo-stress and gas detection unit to optimise testing in the relevant sections. • Adopt dynamic design in extra-long tunnels and high-speed slopes of over level four to reduce the probability of change in design • Establish and control the tender price limit of the construction costs, and submit the relevant documents to the government for verification.
Safety and quality risks	The complicated geological conditions of the project and the variable construction environment lead to difficulty in safety and quality control.	• Implement safety production responsibility system in accordance with the Group's safety management and quality assurance system to implement the production safety accountability system. • Perform daily inspections, quarterly comprehensive inspections and leadership shifts, strengthen safety and quality control, and supervise monitoring units and construction units to perform their duties.
Project deadline risks	Lagging in land acquisition, demolition and construction.	• Communicate and cooperate with the government to provide construction site in stages. • Improve the schedule management and participate in the schedule planning.

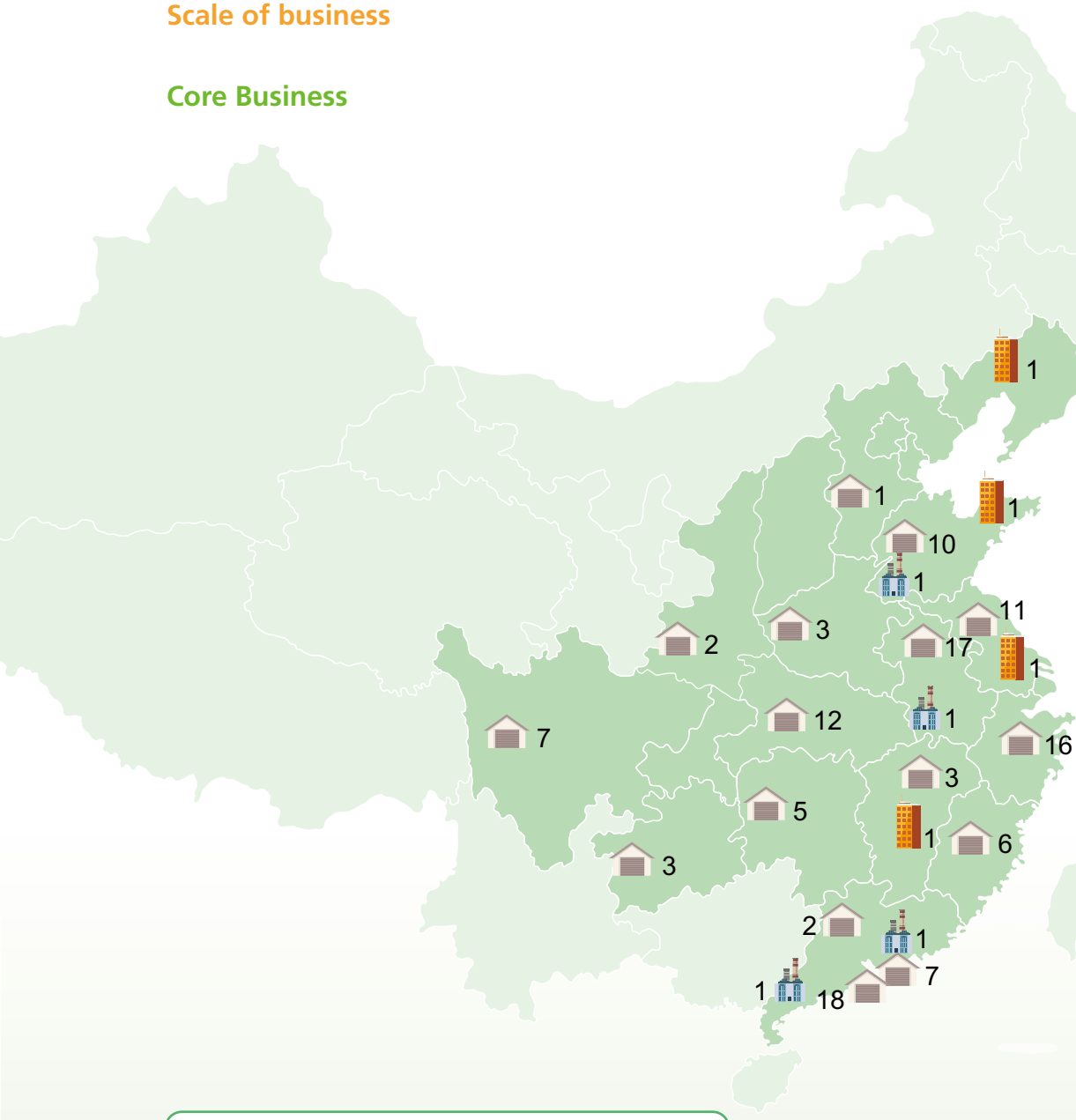
Operational Responsibility

About the Company

China State Construction International Holdings Limited began its construction business in Hong Kong in 1979. It is a construction company with a vertically integrated business model. Over the years, the Group has participated in the construction industry with excellence and quality management, mainly undertaking building construction, civil engineering works, foundation engineering works, and mechanical and electrical engineering works. The Group is also actively engaged in infrastructure construction investment and government security housing construction in Mainland China, and promotes the transformation of industrial new city business while developing high-quality PPP projects. The Group established its headquarters in Hong Kong and became listed on the Main Board of the HKEX Exchange of Hong Kong in July 2005 (stock code: 3311.HK).

Scale of business

Core Business



Construction Project in Progress

Operation and Management Project

Prefabricated Construction Industrialization Base

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Operational Responsibility

Value creation[3]

While creating economic value, the Group also strives to give back to all stakeholders, pursue the maximisation of the common value of the Group and its stakeholders, and achieve win-win cooperation and harmonious development.

Target Vision
A leading corporation with competitive international complex construction and infrastructure investment

Core Value
Good quality and value creation

Long-term Business Philosophy
Sustainable growth for mutual success with harmony

Financial Capital
Shareholder's equity: HK$43,078 million
Total borrowings: HK$41,041 million
Total assets: HK$136.1billion

Manufacturing Capital
19 completed projects
93 new projects
217 projects in progress with an aggregated attributable contract value of HK$ 365.3 billion

Capital Input ►►

Infrastructure Investment Projects
Infrastructure and security housing investment as core business, including highway investment, municipal project investment, public building investment and security housing investment

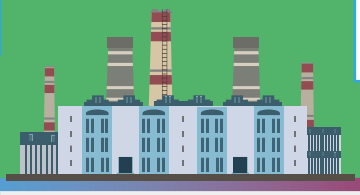
Civil Engineering Works
Construction of public foundation engineering works: bridge construction, tunnel, roads, harbour projects (reclamation), site leveling, water treatment plant and sewage treatment plant, etc.

Toll Roads
Mainly operates Shanxi Yangquan Yangwu Expressway and Shanxi Yangquan Niangziguan Class 1 Highway

Thermoelectric Plant
Operates Huanggu Thermal Power Plant in Shenyang

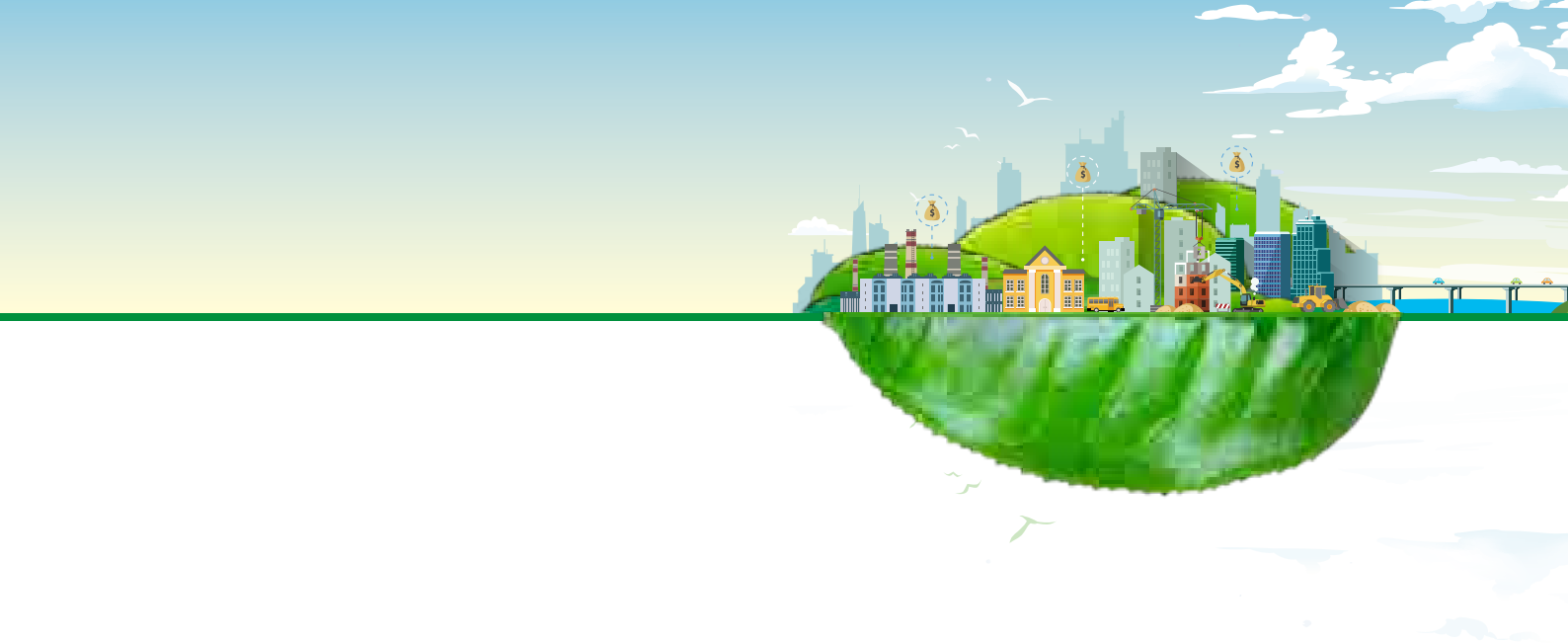
Bridge Management
Mainly operates the toll bridge Nanjing No.2 Yangtze River Bridge

Employee Salary
HK$4.41 billion



Economic Value ►►

[3] All date include CSCD, except natural capital and human capital.



Development Strategy
Project construction and infrastructure investment as double business drivers

Business Strategy
Exercising caution in details and implementation; building a strong foundation to seek greater success

Business Approach
Progress with prudence, the precedence of efficiency, heritage and innovation, and the priority of quality

Natural Capital
Energy consumption: 2,675,791 MWh-e
Water consumption: 5,779,710 cubic metres

Human Capital
Number of employees: 10,521
Average training hours: 14.6 hours

Social and Relationship Capital
Building long-term partnerships with contractors, suppliers and customers
Organised multiple voluntary disaster rescue missions

Building Construction
Construction of private and public buildings, education institutions, hotels, commercial buildings, etc.

Intellectual Capital
Promote application of Building Information Modeling (BIM) in the entire project cycle
Number of patents approved: 60

◄◄ Business Model

Costs of Sales
HK$46.9 billion

Interest and Dividends
HK$3.55 billion

Taxes
HK$1.65 billion

Key awards and participation in industry associations

During the year, CSCI won numerous awards and recognitions with a sustainable model of operation while actively participating in activities held by different associations.

Earned the distinction of 'Most Honored Company' in Asia in the annual poll of 'Institutional Investor' for the sixth consecutive year

Selected as a constituent of FTSE4Good Index for two consecutive years

Awarded the 'Listed Company with the Most Valuable Brand' in the China Securities Golden Bauhinia Awards 2018

Awarded the highest ranking of 'CarbonCare ESG Label' by Carbon Care Innolab

Name of key associations	
The Hong Kong Chinese Enterprises Association - Construction Industry Committee	Macau Construction Association
The Hong Kong Construction Association	Macao Wo Kuong Advancement Association
The Macau Chinese Enterprises Association	Association of Study of Environmental Science and Technology of Macau
Associacao Geral do Sector Imobiliario de Macau	Macau Construction Safety Association
School of Business Advisory Board, Macau University of Science and Technology	Si Chuan Association For Construction Quality and Safety Supervision
Macau Construction Industry Association	Chengdu Con struction Quality Association
Macao Association of Building Contractors and Developers	Yunnan Construction Industry Association

Hang Seng Corporate Sustainability Index Series Member 2018-2019

Corporate Governance

Through a clear corporate governance structure, CSCI continuously strengthens the functions of the Board and improves internal control, and strives to achieve sound operations through enhancing the competitiveness, and risk management and control capabilities of the Group.

The Board of Directors is the Group's overall decision-making body. The Board of Directors comprises nine directors with extensive operational and academic experience, including four independent non-executive directors. The Chairman is responsible for the management of the Board, while the Chief Executive Officer performs the day-to-day management of the Group's business. The Board held a total of four meetings in 2018, and the total attendance rate was 96.97%. The Nomination Committee, the Audit Committee and the Remuneration Committee under the Board support directors in making decisions.

To ensure that directors can continuously make relevant contributions to the Board and its committees, the Group provides ongoing training and up-to-date information to the directors to regularly update their knowledge, skills and understanding of the business and the markets in which the Group operates. In addition, to further integrate sustainability concepts and strategies into the Group's operations and roadmap, the Group plans to better utilise its technological advantages in the future by using electronic platforms to provide directors with information on sustainability and enhance their awareness and decision making of relevant issues.

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Operational Responsibility

Risk management

The Board is fully responsible for determining the overall business strategy and objectives of CSCI. It assesses and determines the nature and extent of the risks it is willing to take when achieving strategic objectives, and ensures that the Group establishes and maintains appropriate and effective risk management and internal control system. Under the supervision of the Board, the management of the Group is responsible for designing, implementing and monitoring the risk management and internal control system to ensure sufficient controls to safeguard the Group's assets and the interests of stakeholders.

To continuously identify and strengthen the risk management, and establish a risk awareness and control conscious culture, CSCI sets up the Risk Management Control Committee mainly in response to strategic risks, financial risks, market risks and operational risks. Chaired by the chairman of the Board, the Risk Management Control Committee comprises executive director and senior management from Finance Department. Departmental reports and periodic reports shall be submitted to the Risk Management Control Committee for review.

The Group has also in place the Audit Department, which continuously review the adequacy and effectiveness of the risk management and internal control system. The Audit Department formulates an annual audit plan and mainly reviews the financial management, operation management and internal control of the business segments. It serves to assist business segments to implement risk management and improve their systems. It also assists the Board and the management to evaluate and review the deficiency and weakness of the system, and make recommendations on improvement wherever appropriate. The Department is independent of each business segment and is directly responsible to the Chief Executive Officer to ensure the neutrality of the control.

CSCI's Annual Report 2018 (Page 75-77)

Corruption-free business

The Employee Handbook of CSCI stipulates that when conducting business, the Group's employees cannot provide, request or receive any benefit. At the same time, employees are obliged to defend the Group's interests. They should report possible conflict of interests to the management of their department or construction site, or the Human Resources Department. Activities such as concluding private business contracts, and benefiting relatives and friends during the course of employment are prohibited to avoid corruption, misconduct or fraud caused by conflicts of interest. Employees who violate these codes of conduct will be subject to disciplinary action or termination of employment. Violators of the law will be transferred to the judiciary.

The Group carried out investigations on corruption risks and established the Management System of Letters and Visits Matters and Clues to strengthen the anti-corruption system. Employees and other stakeholders can report suspected violation of laws and code of conduct to the Group through various channels such as letters, visits, telephone and the Internet. The Group's investigators will follow up the clues collected and report it. The Group also requires senior management to sign a letter of integrity responsibility to ensure accountability to any corrupt conducts under their supervision.

CSCI's Sustainability Report 2017 (Page 40-41)

To raise employees' awareness of anti-corruption and business ethics, the Group expands the promotion of the Corruption Risk Prevention Education Guidelines prepared by its parent company, China Overseas Holdings Limited ("COHL"), by arranging the relevant education and training. During the year, China State Construction Engineering (Hong Kong) Limited invited the Independent Commission Against Corruption to conduct a training for new employees and organise a talk titled 'Corporate Governance — Business Ethics of Listed Companies' for frontline management and key personnel of various functions. Approximately 820 employees attended the training. Employees of China Construction Engineering (Macau) Company Limited (hereafter referred to as "CSC Macau") and China State Construction International Investments (China) Limited (hereafter referred to as "CSCIICL") also attended.

Prevention of anti-competitive practices

A market of fair competition is the prerequisite and condition for enterprises to carry out effective competition and realise the optimal allocation of social resources in the market. The Group is committed to maintaining a fair and just competitive order. The Code of Conduct and Compliance Manual stipulate that employees and directors must adhere to good faith and fairness in all business activities. All activities must abide by the relevant laws and regulations such as the Competition Ordinance, Anti-Unfair Competition Law of the People's Republic of China, the Anti-Monopoly Law of the People's Republic of China and the United Nations Guiding Principles on Business and Human Rights. The Group opposes any form of unfair competition, in order to achieve a high standard in business ethics, governance and integrity.

Protection of intellectual property rights

From design to construction, different steps including building appearance, planning, use of materials, construction technology crystallise the application of wisdom and may involve multiple intellectual property rights. The Employee Handbook stipulates the code that employees cannot adopt others' ideas, products and goods without authorisation.

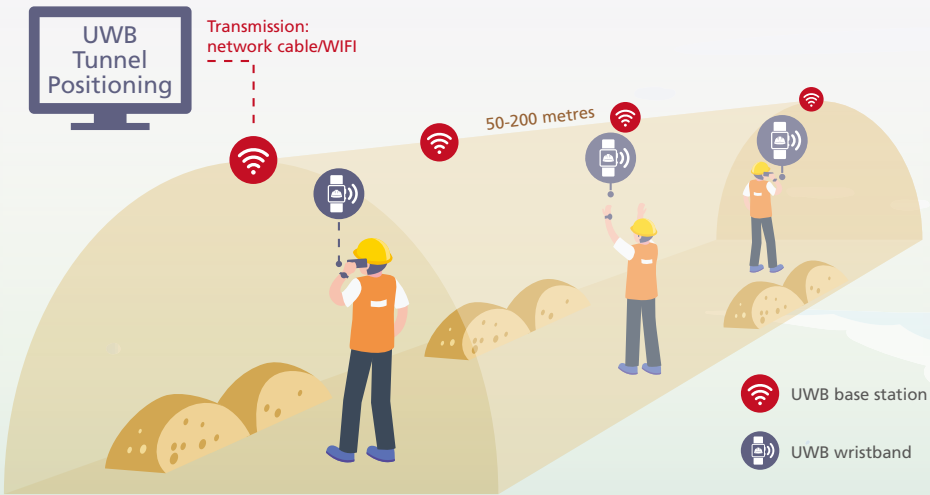
Social Responsibility

Rooted in society, the operation of businesses is closely linked to various social groups. The Group shoulders the social responsibility of creating value for various stakeholders and actively promoting the well-being and development of the community where it operates by building a livable environment.

Respond to the Global Trend 3: Ageing Population

Around the world, the rate of population ageing keeps increasing. According to the figures of the World Health Organization, from 2015 to 2020, the proportion of global population aged over 60 will increase from 12% to 22%, while their total number will increase from 900 million to 2 billion. Globalisation, technological development (such as transportation and communication), urbanisation and migration directly and indirectly affect the lives of the elderly. Changes in the demographic structure bring opportunities and risks to local governments, and different sectors and industries. Optimisation of the working and living environment can promote the overall development of society and enhance its competitiveness, achieving sustainable development in the long run.

The construction industry is supported by a large number of labour force and aging of workers is a common phenomenon. As shown by an employment survey conducted by the Census and Statistics Department of Hong Kong and the Hong Kong Construction Association Limited ("HKCA") in 2018, approximately 190,000 Hong Kong construction workers are over 55 years old, accounting for about 40% of the total. Finding growth opportunities amidst the trend of ageing population while ensuring employee health and well-being is a challenge that the construction industry must face. In this regard, CSCI adopts a scientific and innovation-oriented approach to provide a more suitable, convenient and safer working environment for all workers to ensure the safety of workers of different ages. Adopting technology enables the Group to manage and improve the working environment more effectively, to understand the needs of and assist workers, and to further develop their strengths in different positions.



Social Responsibility

Smart safety management system

To tackle difficulties involved in real-time communication in the complex trenches due to narrow trenches in individual sites and lack of public network signal coverage, CSCHK has established a smart safety management system for trench construction projects with the funding granted by HKCA Construction Safety Fund. Utilising the ultra-wide band (UWB) communication system, it can accurately locate workers and conduct real-time body monitoring to provide a comprehensive trench monitoring to ensure employee safety.

Before entering the trench, each construction worker must wear a smart wristband, which is connected to the monitoring system via Bluetooth to record the whereabouts and location of the wearer in real time, as well as to measure the heart rate and blood pressure. The wristband has a fall alarm function. In case the worker falls or loses balance in the trench, the wristband will immediately alert the monitoring personnel outside the trench to arrange for assistance or rescue in time. Site employees can also press the "Help" button to alert supervisors when in need.

The trench environment is complex while projects involve different categories of work and construction workers of different professional backgrounds. In order to prevent safety incidents caused by workers' entry into non-designated zones, the monitoring personnel can set access permission for different areas with the access control function of the wristband. When a construction worker enters a non-designated zone, the wristband will alert both the worker and monitoring personnel simultaneously.

The Group believes that construction environment safety rests on mutual supervision, restraint and cooperation of the project management personnel and the construction team, which is conducive to the improvement of occupational safety standards. Management personnel of CSCHK regularly inspect the trench and record the construction progress with smart filming flashlights. The images captured are immediately transmitted to the monitoring system to facilitate record checking and follow-up actions in the future by management personnel and supervisors.

The trenches smart safety management system is a testimony to the Group's innovative and creative approach in promotion of safety and health in the construction industry and has won the Gold Award for the Safety Operational Device of the 2018 Innovation Safety Initiative Award.

The Group has applied more innovative technologies to the management of construction sites to enhance the implementation of safety measures and the development of a safety culture.

Artificial intelligence monitoring system

Combined with artificial intelligence technology, the CCTV monitoring system can identify whether workers are correctly wearing personal protective equipment, such as safety helmets and reflective vests. The system can also identify fires to help management personnel detect fires on the site and take follow-up actions in a timely manner.

Safety behaviour reward management system

To encourage good site safety habits, the Group developed an electronic behavioural safety reward management system by utilising the internet and mobile cloud platform technologies to distribute digital 'commendation cards' to workers with good performance.

Construction site management collaboration cloud platform

When the Group's designated personnel inspect the construction site, they can immediately record safety, environmental or other quality issues through the cloud platform, and assign rectification tasks and track follow-up measures with subcontractors through the platform.

The platform can also conduct statistical and classification analysis on issues such as quality, safety and progress to generate analysis reports to facilitate comprehensive control of construction details.

The Group is aware of the fact that young people are a key element in the continuous growth of the construction industry. Apart from adopting innovative construction technology and enhancing construction site safety to change young people's traditional perception on the construction industry, the Group also attracts new talents by developing diverse employment channels, offering a wide platform for development, and competitive compensation and welfare. At the same time, the Group respects employees' social values and protects employees' rights. The Group provides employees with positive encouragement in terms of culture, career and at work in order to enhance employees' sense of belonging and cohesion.

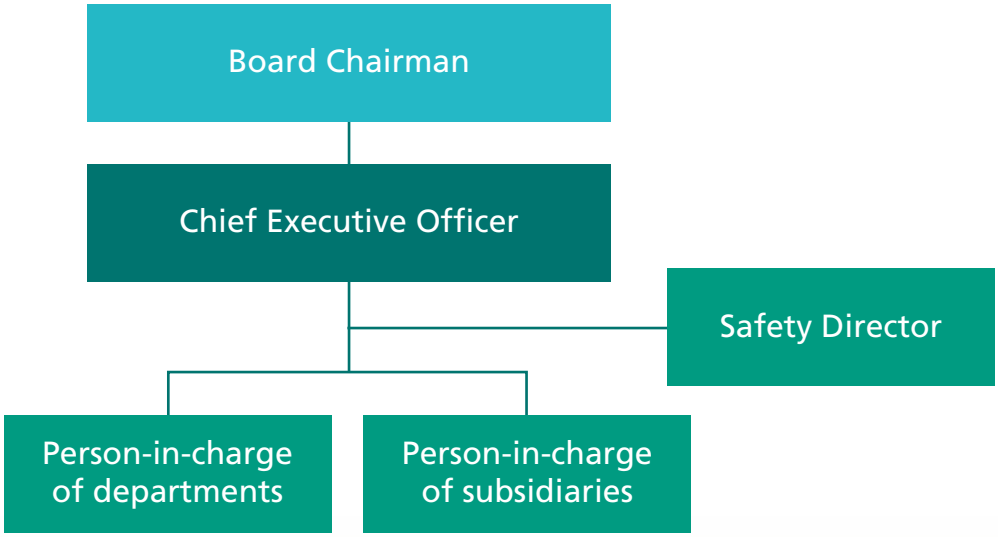
For details, please refer to sections on 'Protecting Employees' Rights' and 'Training and Development'.

We and Employees

CSCI upholds the ideal of prioritising life and operational safety. It adopts the approach of 'safety first, prevention based and comprehensive governance' in production safety and is dedicated to improving internal organisation and communication to ensure the safety and health of all employees and workers.

Employee safety management system

This year the Group further improved the Safety and Health Management Methods to refine the leadership accountability system in production safety. The system focuses on the main person-in-charge of the Group to recognise the responsibility of the Group and the production units at each level in production safety.



The Group also adopts a comprehensive approach to safety and health management, including the establishment of a Production Safety Supervision and Management Committee, certified occupational health and safety management system, development of safety policies and guidelines, safety production inspections, provision of safety and health training, and response to safety incidents to prevent accidents at work and improve employees' safety and health awareness.

Production Safety Supervision and Management Committee

To promote various safety and health management tasks, the Group has set up a Production Safety Supervision and Management Committee (referred to as the "Safety Committee" below). Chaired by the Chief Executive Officer, the Safety Committee comprises key person-in-charge of subsidiaries, division in-charge and key person-in-charge of different functional departments. The Safety Committee meet once every six months to discuss and make decisions regarding relevant issues like safety targets, establishment of a production safety system and key production safety issues, and pass down instructions for each unit for execution.

Occupational health and safety management system

The Group's subsidiaries, CSCHK, China Overseas Building Construction Limited, China State Mechanical & Electrical Engineering Limited, Shenzhen Hailong Construction Science Co., Limited and Alchmex International Construction Limited began to develop OHSAS 18001 occupational health and safety management system in 2002 and commissioned the Hong Kong Quality Assurance Agency to conduct an annual external audit every year. It enhances all employees' awareness and management of occupational health and safety risks, actively building a working environment in compliance with health and safety regulations.

Safety policy and guidelines

The Group formulates the Safety and Health Management Policy and sets out a number of specific guidelines, including the Safety and Health Working Guidelines, the Safety Guide for Site Hoisting Signalman, the Safety Management Guidelines for Site Lifting Devices and the Safety Management Guidelines for Construction Site High-risk Processes, for employees. At the same time, subcontractors and other relevant individuals should abide by the Group's policies and guidelines, and commission a safety officer and safety supervisors to patrol the site and ensure working environment safety.

Production safety inspection

The Group has established a safety production inspection system to identify potential safety hazards and problems in a timely manner and effectively implement rectification. While the Group conducts special safety inspections and supervision on key areas and key projects of its subsidiaries, each subsidiary shall conduct a comprehensive inspection every quarter, and each production project shall organise at least one comprehensive safety inspection every month.

Safety training and equipment

With regard to the development of employee safety awareness and skills, the Group plans various safety and health trainings each year to strengthen its awareness of hazards and safety concepts. At the same time, the Group equips its employees with appropriate protective equipment and provides fire safety equipment in each project site to reduce the risk of accidents.

Emergency management

For urgent handling of incidents, the Group requires all subsidiaries to establish an incident handling and investigation management system and set up an emergency response team to handle and investigate accidents in a more timely and effective manner. The preparation of the emergency plan also contributes to the orderly launch of the emergency procedures and reduces losses caused by accidents. At the same time, the Group conducts emergency drills every year to simulate each type of possible accident, improve the emergency response of employees, and continuously improve emergency measures and plans according to the problems spotted in the drills.

The Safety and Health Management Methods details the report and handling of safety incidents, requiring the relevant units to arrange staff to follow up with the rescue in a timely manner, and report the details of the incident to the production safety supervision management department. During the year, the Group recorded a total of 17 work-related injuries. According to the analysis report, the accidents were due to slipping, tripping, lifting or moving objects. The Group has already enhanced the relevant work training and provided relevant guidelines.

Case:
Safety Measures of Construction and Investment Projects

Involving many construction workers, procedures and use of equipment, the construction industry is often exposed to higher safety risks. The Group values the safety of the construction sites and that of every worker. It develops and implements safety measures in every region to prevent and mitigate potential risks.

CSCHK formulated the Safety and Health Policy, which is implemented, reviewed and supervised through the Integrated Management Committee, the Safety and Environmental Protection Department, the Company Safety Management Working Group and the Construction Site Integrated Management Working Group. Under the guidance of the policy, CSCHK sets specific safety management objectives and targets each year, and sets goals and work plans for the following year by reviewing the completion of targets and indicators. During the year, the Engineering Department and all construction sites of CSCHK signed the 2018 Responsibility Undertaking on Management of Safety Production on Construction Sites, which includes the annual safety management target of 'eliminating serious incidents and prosecutions, reducing general industrial accidents, and limiting the annual incidence of occupational injury per thousand persons to below 8.8[4]'.

To realise this goal, CSCHK insists on implementing the Working Procedure of Safety and Health Management. All construction sites are required to establish a corresponding safety management organisation according to the nature and scale of the project. Members of such organisation include site management personnel, engineers, safety representatives of foremen and subcontractor, and workers' representatives to deepen the divisional responsibility system and clarify the duties of frontline management personnel. The construction sites safety management organisation coordinates the implementation of various safety measures such as construction safety and health checks, safety and health training, safety promotion and quarterly production safety monitoring, as set out in the Working Procedure of Safety and Health Management. During the year, there were no serious accidents in CSCHK. However, the incidence of occupational injury per thousand persons was 9.24[4], which slightly exceeds the annual target. CSCHK analysed the launch of construction safety campaigns at different construction sites. Improvement to safety management system and measures at construction sites were made in response to higher incidence of civil works projects, such as formulating the Hong Kong International Airport Construction Safety Management Precautions. In addition, CSCHK also improved the End of Quarterly Safety Management Inspection Assessment Interview Mechanism and the Construction Site Subcontractor' Supervisors Safety Management Methods to further enhance the safety management at construction sites.

[4] Including data of contractor workers.

Social Responsibility

CSC Macau formulated the Safety and Health Policy, the implementation of which is achieved, evaluated and supervised through its Production Safety Commission, the Project Contract Department and each construction site, to meet the goals of preventing occupational hazards and improving the working environment. To continuously improve the safety management standard in construction, during the year, CSC Macau improved its safety measures as below:

Safety management system

In addition to formulating the Management Measures for Comprehensive Management Reward Scheme of Sites, cross examination of the overall safety performance of construction sites led by the CSC Macau, the Engineering Department and construction site managers was organised for assessment every month. At the same time, the occupational health and safety assessment of the Labour Affairs Bureau was introduced to take into consideration the monthly incidence of wok-related injury. A safety ranking of construction sites was compiled to encourage continuous improvement.

Safety equipment

- Platform work fall prevention layer: in positions with five metres of height, a compact fall prevention layer is set up about 1.7-1.8 metre below the floor to effectively prevent falls from working at height.
- Central wireless electric tools charging station: prevent fires caused by overloading.
- Qualified lifting platform operator fingerprint recognition unlock system: fingerprint identification is required before operation of lifting platform to prevent hazards to workers resulting from unauthorised operation.

Safety training

- Virtual reality: allow workers to experience the hazards of incidence without being on the construction site. It can help participants stay vigilant and alert of unsafe behaviour.
- Safety experience zone: the equipment set up in the construction site gives workers a first-hand experience before entering the site to promote stronger safety awareness. At the same time, enhanced training for specific roles can be provided.

Emergency response

Formulated code of practice during typhoons in advance. When typhoon information is available, the Project Department should immediately announce work guidelines to each construction site and formulate a typhoon prevention plan. Tiered risk control and typhoon prevention measure checks should be conducted in each construction site. It will assist the Group's Safety Department exchange experience in typhoon prevention, increase the typhoon alertness of platforms in affected areas and formulate the relevant typhoon prevention measures, in order to significantly reduce the level of damage and loss, and to shorten the time of recovery.

CSC Macau allocated sufficient budget for employee health and safety facilities, and formulated a series of management methods and safety promotion training measures to enhance the safety awareness of construction workers to improve construction site safety protection according to the formulated safety plan. During the year, the accumulative incidence of occupational injury per thousand persons of CSC Macau was lower than the safety indicator of 6.5 (including contractor workers).

In relation to the Group's investment businesses in the Mainland China, CSCIICL formulated the Safety and Health Management Method to develop a comprehensive production safety management system. CSCIICL has established a Production Safety Commission and requires subsidiaries to establish their own production safety commissions, responsible for leading production safety efforts and the decision-making in important issues. The independent Production Safety Commission supervises the management organisation to implement the Production Safety Supervision Management System to urge subsidiaries to implement production safety and supervise the launch of the relevant safety work.

Social Responsibility

Evaluate the project before commencement, establish safety management objectives and targets, and prepare an implementation plan that includes safety cost management, education and training, operational procedures, and emergency plans.

Organise experienced personnel to form a working group to compile the List of Major Hazards of the Company and the Occupational Health and Safety Management Plan of the Company, and assess the risk factors of the project based on the documents before commencement of new project, and control major hazards and prepare remediation plan in a timely manner.

Review safety technical measures regarding on-site conditions, construction features and surrounding environment in each construction plan to prevent possible dangerous situations during construction.

The technical director and safety director of the general contractor shall explain the technical requirements of the operation and the safety matters to be followed to the subcontractors and worker teams to ensure that the frontline workers are aware of the technical characteristics, dangers and preventive measures of the construction operations.

During the year, the construction and investment projects of multiple regional companies including the Anhui, Shanxi, Zhejiang and Shandong companies received a total of 32 national, provincial, city-level and district-level safety recognitions. For example, the Anhui International Women and Children Medical Center Project, Changgang Elementary School, the Airport Initiation Area, the Water Source Protection Area Resettlement Point Project Section 2 Project and the Tri-medical Innovation Centre (Phase 3) of Chengdu Medical City all received the recognition of National Construction Project Construction Safety Production Standardisation Demonstration Site. Besides, CSCIICL actively undertook to organise six provincial, city-level and district-level safety demonstrations during the year. For example, Shaanxi company's Xixian Economic Exchange Center Project hosted a dust prevention on-site observation meeting in Xi'an Xixian New District; Guizhou company Zhengxi Expressway Project organised the Guizhou Province Traffic Construction Quality Engineering Promotion Conference; the municipal project of Zibo High-tech Zone of Shandong company hosted the on-site observation meeting of the government of Zibo City, Anhui company undertook the safety production knowledge competition in the construction field under the Production Safety Month activity of the Economic Development Zone of Hefei City in 2018. Through these activities, CSCIICL hopes to drive the whole industry to strengthen production environment safety and establish a safety culture.

Case:
Safety and Health Management in Prefabricated Construction Production Plant

Guangdong Hailong Construction Technology Company Limited (hereafter referred to as "Guangdong Hailong") under CSCIICL is mainly engaged in the development, design, production and construction business of prefabricated construction products and owns two production plants in Shenzhen and Zhuhai. Abiding by the approach of 'safety first, prevention based and comprehensive governance', Guangdong Hailong actively promotes safety production inspection in the factory area, and corrects problems spotted and hidden dangers to prevent incidents in accordance with the 'five fixed' principle (fixed responsible persons, fixed time limit, fixed funds, fixed measures, fixed plans).

In addition, in response to emergencies, Guangdong Hailong compiled the Production Safety Emergency Response Plan and familiarised all employees with the training procedures through regular training and regular drills, in order to effectively control the impact and reduce the loss of personnel and equipment during the accident.

To arouse attention to safety among personnel in the production plant, Guangdong Hailong actively implemented the Project Production Safety and Civil Construction Reward Scheme and the Methods of Safety Coupon Reward Scheme. At the same time, Guangdong Hailong also attaches great importance to the health of employees. It continuously improves the responsibility system for occupational disease prevention and control, identifies and detects hazards on site, and regularly arranges general medical examinations and occupational disease examinations for employees, and establishes health monitoring files. In addition, through posters, leaflets, health training, etc., Guangdong Hailong publicises health knowledge and ideas to employees and strengthens their own health management.

Case: Safety Management in Thermal Plant

Shenyang Huanggu Thermal Power Plant (hereafter referred to as "Huanggu Thermal Power") under CSCIICL is principally engaged in electric power, heat production, sales and energy development. As a cogeneration thermal power enterprise, production safety is the basis for ensuring stable heating and power supply, affecting the lives of tens of thousands of households.

In order to strengthen production safety, fire safety management, and clear management responsibility, Huanggu Thermal Power revised the safety production organisation structure this year to improve its three-level safety management network and implement safety management responsibilities at each level. At present, Huanggu Thermal Power has a Production Safety Commission, and its office is located in the Safety Supervision Department, headed by Huanggu Thermal Power's General Manager. There are five leading groups under the committee. The groups perform production safety tasks under the guidance of Huanggu Thermal Power's Safety Supervision Department.

Production Safety Commission

- Implements national production safety policies, laws and regulations and rules
- Wholly responsible for the supervision and management of Huanggu Thermal Power's production safety
- Research and formulation of internal production safety management standards and guidelines and, organisation of various safety activities.

Safety Director

- With direct leadership responsibility for production safety
- Responsible for the planning and implementation of production safety management
- Responsible for development of a sound safety production management system
- Hosts production safety meetings and inspections

Production Safety Office

- Responsible for assess to and keeping up with changes in national, regional and industry laws and regulations, standards and rules on safety and to amend Huanggu Thermal Power's safety management system in due course.
- Responsible for developing a comprehensive occupational health and safety management system and organisation of occupational disease prevention campaigns
- Responsible for approval of the safety qualifications of external construction teams and production safety measures, and supervision and inspection during the process of production
- Responsible for inspection and monitoring of implementation and progress of tasks of various subsidiary groups

Production Equipment Safety Leading Group

- Responsible for the production safety of heat and power generation system

Heating Safety Leading Group

- Responsible for the inspection and repair of heating equipment, operation of heat networks and daily maintenance and management

Construction Safety Leading Group

- Responsible for safety management of new projects and expansion of projects

Materials Safety Leading Group

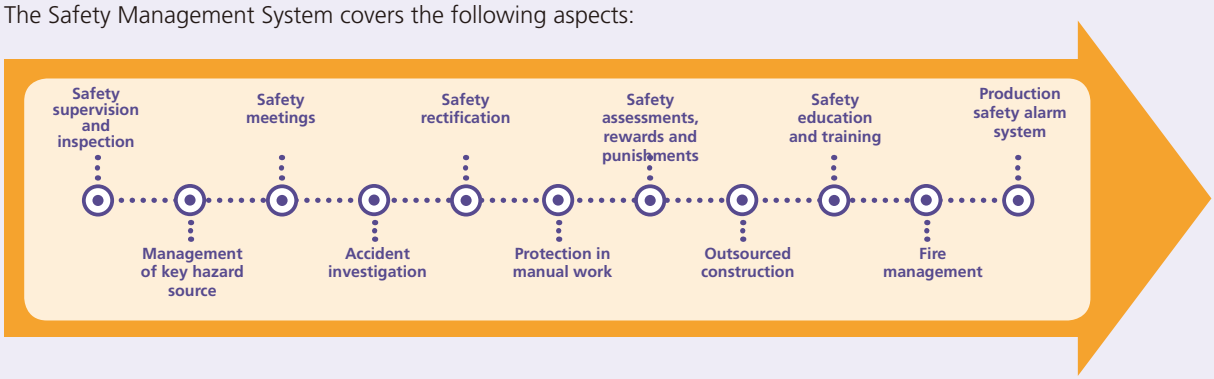
- Responsible for the safe acceptance, storage and distribution of materials
- Responsible for purchase of employee protective equipment for manual work

Comprehensive Safety Leading Group

- Responsible for motor vehicle, archive room, employee canteen and dormitory, and full management of information security

At the same time, Huanggu Thermal Power adopts the approach of 'safety first, prevention based and comprehensive governance' to implement the Safety Management System according to the national laws and regulations to ensure the safety of employees, and maintain the safety and reliability of electricity generation of the thermal power plant. The system is applicable to all production departments of Huanggu Thermal Power. Each department has clear duties to ensure production safety.

The Safety Management System covers the following aspects:



Protection of employee rights

As at end of 2018, the total workforce of CSCI in Hong Kong, Macau and Mainland China were 10,521[5].

CSCI attaches great importance to the protection of employees' rights and interests. The Group has signed an employment contract with each employee in accordance with local employment laws and regulations. Through the terms of the contract and the Employee Handbook, the Group communicates with employees about employment arrangements such as recruitment and promotion, working hours and attendance, remuneration and dismissal, holidays and benefits, and employee transfer.

Case: Labour Relations Management at Construction Site

There had been repeated cases of deduction of wages or request of referral fees by intermediaries in the construction industry, which seriously jeopardise workers' rights and interests, and weaken the overall competitiveness of the industry. The Group does not tolerate such actions and has taken a number of measures to protect construction site workers.

The Group appoints a labour relations commissioner at each site to handle employee labour relations matters. The Group encourages workers at their construction sites to report any unfair treatment and, through regular questionnaire surveys, proactively checks with workers for any infringement of their interests, such as wage arrears. The Group also posts declarations in public areas at each site to emphasise the importance of safeguarding employee rights and lists means of remedy.

The Group's site labour officers are required to have monthly labour relations review meetings with all subcontractors. In the event of unpaid wages, late payment of wages and Mandatory Provident Fund ("MPF") contributions, the site labour officer is responsible for requesting rectification from the subcontractors and notifying the site managers and representatives so that all parties can carry out effective response measures.

[5] Employees of CSCD and joint ventures are not included.

The Group is committed to establishing and maintaining a diverse, inclusive and discrimination-free work environment, and providing equal opportunities to current and future employees so that they are treated justly on the basis of gender, marital status, pregnancy, disability, family status and ethnicity in employment, dismissal, promotion, transfer and training, etc. The Group also attaches importance to the promotion of family-friendly measures. Employees are entitled to marriage leave, maternity leave, paternity leave, compassionate leave and medical benefits that are extended to family members. In the aftermath of Typhoon Mangkhut, the Group provided family assistance services, including door and window repair, and labour and financial assistance. The Group also identified employees in need and provided assistance to their families. In May 2018, the Group received the 'Family Friendly Employer Award' awarded by the Women's General Association of Macau for the first time.

The Group has developed policies to prevent discrimination and harassment, which provide more detailed guidance on the definition, forms of discrimination and harassment, and avenues of grievance. During the year, the Group did not receive any complaints about discrimination and harassment.

The Employee Handbook stipulates that employee's remuneration is determined based on multiple factors such as academic qualifications, professional qualifications, experience, performance, length of service, responsibilities and market conditions. The management also regularly reviews the Group's remuneration policy with reference to relevant industry benchmarking and salary survey results, and adjusts the remuneration level to make it more competitive. At the same time, the Group also provides a variety of benefits and paid holidays to cater for the individual needs of employees based on the actual situation in each region. For employees who have served the Group for five years in a row, the Group will award a long-term service award to recognise and encourage their contribution.

The Group prohibits the use of child labour and checks the applicant's identify card and other documents of proof during recruitment to ensure that the applicant has reached the local legal working age. Also, the Group prohibits any form of forced labour. If employees have to work overtime, the Group will provide compensation arrangements. Employees are entitled to overtime leave or allowance according to local regulations after approval by supervisors. Apart from the internal implementation of the policy and measures for the prevention of child labour and forced labour, the Group understands that it has oversight responsibility for the compliance of site subcontractors in hiring workers. Therefore, it arranges the construction site labour relations commissioner to review the identity of workers with the electronic entry system to ensure compliance with legal and regulatory requirements.

Training and development

CSCI attaches great importance to the development of employees' capabilities, and let employees clearly understand the group's training policies and arrangements through the Employee Handbook. Through developing annual training programs, conducting internal standard courses, and providing external course funding, the Group enhances employee expertise and motivates employees, thereby improving employee performance and creating higher corporate value. During the year, the Group aims at improving the talent development system and enhancing the effectiveness of training. It planned and carried out a series of diverse and targeted training courses to ensure that all employees received suitable training.

CSCIICL developed PPP and project development training series

The headquarters conducted the 11th round of training covering residential industrialisation, analysis of the business model of investment development, planning construction management, taxation and contract risk management, etc. On average, each round of training attracted over 200 participants.

CSCHK developed construction site management course series

Building companies and civil engineering companies conducted a series of training covering quality management system, building craftsmanship and construction skills for corresponding businesses. Over 500 participants were trained.

CSC Macau developed the construction site '6+3' management course series

Training covers areas including quality management, progress management, safety management and environmental management to help employees understand the detail of construction project management.

Trainee engineer/ apprentice scheme

Nurture civil engineering, building science or mechanical and electrical engineering graduates interested in joining the construction industry to become engineering professionals and future management of the Group.

Training on prefabricated construction, seismic retrofitting design and construction environmental protection

CSC Macau cooperated with CED School of Business, Macau Construction Association and academic institutions such as Macau University of Science and Technology to conduct external training and research into the relevant professional content; at the same time, prefabricated construction companies such as Anhui Hailong, Guangdong Hailong and Shandong Hailong provided frontline employees with training on product design, job specification, key procedures, etc.

To improve training effectiveness, CSCI launched the first phase of leadership development training course. A six-day closed training was organised for 60 management personnel at the rank of grade two deputy general manager and assistant general manager, with a focus on helping participants establish a macroscopic perspective and a long-term vision to broaden their horizons and explore new work concepts.

Case: Talent Acquisition Scheme

The Group has developed different recruitment methods in response to the needs of each business, ensuring that it can attract talents with diverse backgrounds from multiple channels, support business development, and provide employees with targeted career development directions to encourage employees to grow continuously.

Haina Professional Recruitment Program

Haina scheme is the Group's recruitment platform tailored for hiring professionals with working experience. In 2018, the Human Resources Department of the Anhui company organised a joint recruitment campaign in six cities, to recruit talent for project management, business contracts, finance, human resources, etc.

The Human Resources Department used a variety of channels, including recruitment platforms, WeChat, internal referral, and self-screening, to promote the recruitment and collect resumes. The recruitment day attracted more than 150 applicants. After a series of interviews, Anhui company successfully recruited 20 new employees.

Haizhizi Graduate Recruitment Program

The Group focuses on cultivating management talents as part of its corporate responsibility. It conducted recruitment activities at universities across the country to introduce the Group's culture to graduates and to arouse their interest in joining CSCI.

The recruitment activities in 2018 included Wuhan, Nanjing, Changsha, Guangzhou and Shanghai. The COHL's Haizhizi Graduate Recruitment Program 2019 extended to Hong Kong for the first time, further expanding the channels for recruiting talents and laying a solid foundation for the Group's future development.

The campus recruitment programme is themed 'Build your dream with unlimited possibilities' and highlights the Group's emphasis on talent and corporate culture. We tailor made training programs for management trainees, preparing them to meet every stage of their careers and grow with the Group.

The Haizhizi program is divided to four key stages in paving a sound way to success for management trainees. The Human Resources Department will regularly summarise the work of management trainees to report to the Group's management to monitor their adaptation and development.

We and Partners

Supply chain management

The Group's supply chain mainly includes suppliers of building materials equipment such as concrete, steel, sand and gravel, as well as energy such as diesel and coal, services providers of processing, labour services and consultants, and subcontractors for construction projects. During the year, the Group has more than 600 major suppliers of products and services in Hong Kong, Macau and Mainland China.

Number of major suppliers

187	10	14	396
Category: Material	**Category:** Equipment	**Category:** Energy	**Category:** Service
Product and services Steel, steel bars, sand, hardware, fly ash, concrete, insulation boards, metal embedded parts, etc.	**Product and services** Site equipment and machinery, factory equipment, etc.	**Product and services** Diesel, coal, etc.	**Product and services** Project contracting/ subcontracting, production labour, property, security, design consultants, transportation leasing, etc.

The Group is committed to ensuring high standards of project safety and quality. In this process, suppliers' quality, delivery, supply status, business performance, reliability, management, communication, etc. will have a close impact on the Group's operations. Therefore, proper management of suppliers is essential. The Group follows the Procedures for Materials Procurement to standardise the suppliers' inspection and evaluation procedures to ensure that suppliers meet project quality, safety, health and environmental requirements. The relevant departments also establish and maintain a list of suppliers as required. All approved suppliers on the list share the same tender opportunity; the Group's tender ratio is 100% to guarantee openness, impartiality and fairness.

For existing suppliers, the Group conducts a comprehensive assessment of their performance each year and updates the list of suppliers. In addition to on-time delivery, quality, service and finance, the assessment criteria also include the safety and environmental performance. Suppliers are required to attain the scores of above 75% and 70% in safety performance and environmental performance. If a supplier fails to meet the comprehensive management requirements of the Group, it will be suspended from submitting tender and rectification should be made; if it fails to make improvements in the short term, the Group will remove it from the list and disqualify it from submitting tender. This year, the passing rate of supplier's performance evaluation was 100%.

Under the guidance of the Group's policies and system documents related to supplier management, CSCIICL has established and implemented the Project Management System, which combines the requirements of local laws and regulations with the actual situation, and refines the process of the subsidiary's management of the project contractor.

Written review

The Contractual Business Department of the subsidiaries arranges registration of contractors, provides the company's supporting documents, as well as information such as business performance and management system; and reviews authenticity, legality, integrity and validity of the contractor's documents and the contractors' reputation and market share, product and service quality, turnover and performance in the last three years, and compliance and assurance capabilities in quality, environmental and occupational health with the Project Management Department.

On-site investigation

The manager of the subsidiaries in charge of contract arranges contract, engineering, finance and other relevant staff to conduct on-site investigation into the contractor to gain an in-depth understanding of the contractor's technical equipment level, staff quality, construction practices and safety management on site. Approved contractors who pass through the investigation are included in the Qualified Contractor Register.

Contract fulfillment evaluation

The subsidiary conducts performance evaluation of the contractors every year. The evaluation includes: project quality, work efficiency, performance capability, cooperation degree, legal compliance and safety and environmental performance. Evaluation results are reported to the Project Management Department, which will decide whether disqualification is required. Contractors who fail the contract fulfillment evaluation are disqualified and shall not participate in any tender projects within one year. Previous steps of review have to be conducted again before it can submit tender again.

The Group attaches great importance to maintaining long-term relationships with suppliers and, through constant communication, strives to enable suppliers to establish a consensus on environmental and social risks with the Group. It provides channels to suppliers to reflect their needs and opinions to ensure all suppliers are treated fairly and reasonably. In order to collect the opinions and suggestions of suppliers more systematically, the Group invites suppliers to participate in the satisfaction survey through questionnaires every year. The survey covers the two aspects of corporate social responsibility (including waste reduction measures and integrity) and employee attitude at work (including behavioural performance, collaborative effectiveness and results). In 2018, the Group distributed questionnaires to 100 key suppliers and received 50 replies, showing a level of satisfaction of 87.8% on average.

Case:
Promote Green Procurement

Reduce carbon emissions and wastage of resources to protect the environment

In order to achieve a sustainable society where development is in harmony with the environment, the Group is committed to reducing environmental impact throughout the building life cycle from design, procurement, construction, use to final disposal. In 2015, CSCHK formulated the Procurement Policy, which sets out the codes to be followed by each unit in conducting procurement activities. Green procurement is one of them.

In line with the policy requirements, the Materials Department of CSCHK has developed guidelines on the selection and use of various office and site materials and facilities, and further increased the use of environmentally-friendly products during the year.

Achievements in 2018	Plans in 2019
Introduce new variety of recycled paper to encourage its use in construction site	Full use of environmentally-certified paper of offices and sites
About 90% of plywood and beams are environmentally certified	Gradually increase the ratio and fully adopt environmentally certified plywood and beams in 2023
Approximately 92% of rental generators with Quality Powered Mechanical Equipment ("QPME") certificate	Gradually increase the ratio and fully use the QPME certificate generator in 2021
Over 90% rental cranes used by the company meet the Euro V standard	Euro V standard complied with in all rental cranes
Over 90% of office furniture is made with boards of E1 standard	All office furniture is made with boards of E1 standard
LED lights used for over 90% of temporary lighting in construction sites	LED lights used for all temporary lighting in construction sites

Social Responsibility

Respond to the Global Trend 4: Innovation

The continuous growth of the global population has led to a surge in the rate of consumption of natural resources and energy demand. On the social front, people's demands and expectations of quality of life such as healthcare, educational opportunities and standard of living continue to increase. To resolve the conflict between social and environmental development, global innovation plays an increasing role, making significant progress in various fields and providing important support for the development in areas of economy, ecology, and people's livelihood.

CSCI has long adhered to the strategy of technological innovation, supporting business development and operational management of the Group through innovative investment in materials, equipment, craftsmanship and technology, and promoting continuous optimisation of product and service management. Advanced project models and building technology are employed to support the economic, environmental and social sustainability.

The Group participated in the construction of the Causeway Bay Typhoon Shelter Section Tunnel project of the Central-Wan Chai Bypass (hereafter referred to as "Typhoon Shelter Tunnel Project"), which includes construction of 587 metres of cut-and-cover tunnel and 167 metres of mined tunnel in the Causeway Bay Typhoon Shelter and ex-Wan Chai Public Cargo Working Area. Not only is the project large in scale, but it also involves temporary reclamations, underground continuous wall, pile foundation, open-cut tunnel, drill-type undercut tunnel and other professional technical work. When the tunnel structure is completed, the relevant reclamation was removed to restore the seabed.

Multiple constraints

- There are many vessels and busy traffic in Causeway Bay Typhoon Shelter. Waters available for construction are limited. Rearrangement of the mooring facilities in the typhoon shelter in stages is required.
- Land transport is subject to strict restrictions. Only sea transportation is available.

Technical difficulties

- It involves various types of sub-projects such as temporary reclamation, underground continuous wall, pile foundation, open cut backfill tunnel, drill type undercut tunnel, etc.
- The construction area intersects with the existing underground public facilities. There are also cross-operation areas with other contractors' construction area.
- Completing large-scale underwater concrete cutting within a short period.

High risks

- Drilling tunnel under the Hung Hom Cross Harbour Tunnel may affect its normal operation
- Undercut tunnel crosses the absorption layer and underground water, which may lead to risks of geological disasters.
- The commissioned project plan for the MTR Sha Tin to Central Link was finalised after the commencement of this project. Uncertainty increases the risk faced by the construction parties.

Faced with many engineering difficulties, CSCHK focused on the leading role of technological innovation and actively applied the 'Ten new technologies in the construction industry' released and promoted by the Ministry of Housing and Urban-Rural Development in 2010. Nine major items and 19 sub-items were successfully implemented with satisfactory results. At the same time, CSCHK has developed a series of engineering innovation, including the application of New Austrian Tunneling Method in super-large cross-section undercut tunneling, excavation and support technology in large-scale foundation pit in new reclamation area, structural safety monitoring (control) technology and structural non-destructive demolition technology. CSCHK successfully overcame technical challenges with excellent performance in environmental protection, energy conservation and green construction, while ensuring project quality, safety and project completion requirements.

Application of the ten new technologies in the construction industry by the Ministry of Housing and Urban-Rural Development in Typhoon Shelter Tunnel Project

Category of new technologies	Item of new technologies
Foundation and underground space engineering technology	Underground continuous wall post grouting technology
Concrete technology	High durability concrete
	Self-compacting concrete technology
	Concrete crack control technology
Steel bars and prestressing technology	High strength steel application technology
	Large diameter steel straight thread connection technology
Template and scaffolding technology	Reel type steel pipe scaffolding and support frame technology
	Tunnel formwork trolley technology
Steel structure technology	Thick steel plate welding technology
Green construction technology	Foundation pit construction closed precipitation technology
	Construction wastewater recycling technology
Waterproof technology	Pre-grouting system construction technology
	Swellable waterstop construction technology
	Polyurethane waterproof coating construction technology
Seismic strengthening and monitoring technology	Structural non-destructive dismantling
	Deep foundation pit construction monitoring technology
	Structural safety monitoring (control) technology
Application of information technology	Virtual simulation construction technology
	High precision automatic measurement control technology

This year, the Typhoon Shelter Tunnel Project stood out from 139 project and won the Tien-yow Jeme Civil Engineering Prize, which is the highest award in China in civil engineering construction project innovation. The project is the only winner from Hong Kong this year. In addition, the Typhoon Shelter Tunnel Project was also granted a Hong Kong patent and formed three enterprise-level construction methods, reflecting the advanced nature of the technical level and construction capability. The development and application of innovation technology with scientific and technological achievement worth of HK$97 million, and a technological advancement benefit rate of 1.80%. The project received the Institution of Civil Engineers NCE Tunneling Award for projects worth US$500 million, and a certificate of science and technology promotion demonstration from CSCI. At the same time, the project has outstanding performance in safety and environmental protection, and has won over 30 awards in the safety and environmental protection categories such as the Gold Safety Award, Outstanding Environmental Management and Performance Award (Gold Award) and Wastewi$e Certificate – Excellence Level.

Groundwater may seep through fine joints as the Typhoon Shelter Tunnel Project is located deep under the ground or seabed. The engineering personnel carried out regular inspections on the Typhoon Shelter Tunnel Project. In case of water seepage in the tunnel, follow-up action and repair grouting treatment were carried out in time. Since then, CSCHK has continued to arrange for the closely monitoring of the engineering staff to ensure the quality of the project.

The 4.5 km Central – Wan Chai Bypass is located along the north shore of Hong Kong Island. The construction commenced in December 2009, and was commissioned at 20 January 2019. The Bypass is the second tunnel on the Hong Kong Island to alleviate the traffic congestion along the existing Gloucester Road – Harcourt Road – Connaught Road Central corridor and meet future needs of the expansion of traffic. Upon its completion, it only takes about five minutes to drive from Central to the Island Easter Corridor at North Point.

CSCHK was awarded the Typhoon Shelter Tunnel Project by the Highways Department in September 2010. The total contracted sum was HK$5.377 billion, the highest of any project awarded to CSCHK alone at the time.

We and Customers

Quality management

At present, the Chinese economy is shifting to a high-quality and fully-automated development stage, and requires companies to attach great importance to the quality of products and services. This is consistent with the core values upheld by CSCI: 'Good Quality and Value Creation'.

The Group continues to strengthen and improve the quality standards of construction engineering and products, abiding by applicable laws and regulations in relation to quality management, such as the Buildings Ordinance of Hong Kong and the Construction Law of the People's Republic of China. Further, it established a quality management system covering the Group's all business units, strengthened standardisation management, and safeguarded the health and safety of users based on the requirements of ISO 9001 combined with the Group's situation.

At present, the major subsidiaries of the Group have obtained the ISO 9001 quality management system certification, and several subsidiaries have completed the transfer audit in response to the new ISO 9001:2015 standard. The practice is based on process orientation, risk considerations and PDCA management system. We believe that the continuous review and improvement of the quality management system will help the Group identify risks and opportunities at different stages of construction, so as to formulate and implement appropriate measures to improve the Group's quality management performance.

ISO 9001:2015 quality management system certification

- China State Construction Engineering (Hong Kong) Limited
- China Overseas Building Construction Limited
- China State Civil Engineering Limited
- China State Foundation Engineering Limited
- China State Mechanical & Electrical Engineering Limited
- Treasure Construction Engineering Limited
- Alchmex International Construction Limited
- China Construction Engineering (Macau) Company Limited
- Guangdong Hailong Construction Technology Company Limited
- Anhui Hailong Construction Technology Company Limited
- Shandong Hailong Construction Technology Company Limited
- Shenyang Huanggu Thermal Power Company Limited
- China Overseas Harbour Affairs (Lai zhou) Company Limited
- Shenzhen China Overseas Construction Company Limited
- China State Construction International Engineering Limited

In response to construction projects, CSCHK has developed a complete set of quality management working guidelines and key construction process quality monitoring procedures covering various processes, covering building construction, civil engineering works, foundation engineering works and mechanical and electrical engineering works, such as building and concrete structure measurement positioning, plumbing installation, large bracket construction and disassembly, underground continuous wall, etc. Before commencement of large-scale and complex projects, it must pass the design assessment of the construction party of the project to ensure the quality requirements can be met and to enhance the level of technology. The procedures also clarify the responsibilities of the following monitoring personnel to implement quality management and monitoring.

Relevant site personnel

Check and save records according to program requirements, notify other monitoring personnel to conduct joint inspection

Project chief engineerer and department supervisor

Spot check and review of site records, and check whether the key processes carried out by site frontline staff meet construction requirements

Internal review staff of quality and technical department

Review and monitor the supervision of various processes according to progress at construction sites

Further, the Construction Site Quality Incident Notification and Follow-up Work Procedures stipulates the quality incident notification mechanism of CSCHK. It details the notification process, quality accident report and closing report according to the category of quality accidents, so that in the event of an accident, CSCHK can obtain and handle information about the quality incident and formulate an emergency response plan in a timely manner.

Item	Number	Achievement of target
Minor quality incidents	Building construction: 0	Yes
	Civil engineering works: 0	Yes
	Foundation works: 3	No
	Electrical and mechanical works: 0	Yes
General quality incidents	Building construction: 1	Yes
	Civil engineering works: 1	Yes
	Foundation works: 1	Yes
	Electrical and mechanical works: 1	Yes

Item	Number	Achievement of target
Serious quality incidents	Building construction: 0	Yes
	Civil engineering works: 1	No
	Foundation works: 0	Yes
	Electrical and mechanical works: 0	Yes
Non-compliance reports	Building construction: 0	Yes
	Civil engineering works: 0	Yes
	Foundation works: 0	Yes
	Electrical and mechanical works: 0	Yes
Warning letters, compliant letters and delayed delivery	Materials procurement: 0	Yes
	Prefabrication structures production: Warning letters: 0 Compliant letters: 3 Delayed delivery: 1	Yes
	Machinery: 0	Yes
Initial acceptance rate by owners	Building construction: 96-100%	Yes
	Civil engineering works: 91-100%	Yes
	Foundation works	Not applicable
	Electrical and mechanical works: 100%	Yes
Various acceptance rate of initial waterproofing test (Building construction)	100%	Yes
Initial acceptance rate of the welding process (Civil engineering works)	94-100%	Yes
Pass rate for load test acceptance (Foundation works)	100%	Yes
Pass rate for masonry block compressive strength test (Foundation works)	100%	Yes

Case:
Strengthen Project Inspection and Document Management

CSCI participated in a large number of projects, each of which involves complicated procedures. Effective and comprehensive engineering records management can ensure the quality and progress of the project. The Group has developed a complete inspection process to ensure the quality at different stages of the construction and follow up with projects with problems. Besides, the Group has started to implement mobile monitoring through designated Apps reporting and tracking.

The quality inspection of each project is divided into self-check and external check:

Self-check

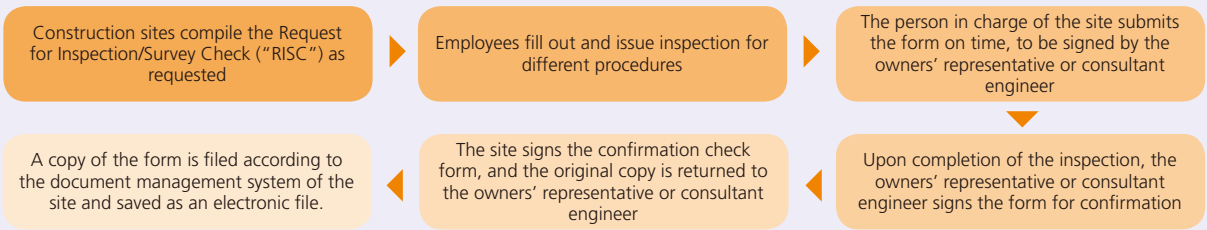
Three-check system:

1. Workers check the quality of the process
2. Subcontractor checks the completed process
3. Company reviews completed product

External check

1. The site issues a procedure inspection request form, and invite the owners' representative or consultant engineer to conduct on-site inspection work according to the contract requirements
2. The owners' representative or consultant engineer must sign and return the form after the inspection
3. Only upon the acceptance by the owners' representative or consultant engineer can the next process be carried out

In the quality inspection, the Group attaches great importance to the procedures and monitoring systems for filling out, submitting and storing the engineering records:



The Group is concerned about compliance in terms of filling in RISC forms and has compiled key data check items. Each site carries out inspection according to the inspection items, and the subsidiaries will sample a specific number of RISC forms from each site for analysis. Finally, the subsidiaries will submit an analysis report to the Group and conduct regularly check to monitor the submission of RISC forms from each site.

In response to loss of documents relating to the MTR Shatin to Central Link Hung Hom Station project uncovered in early 2019, CSCHK had requested relevant sites to implement the following measures to strengthen the management of project documents:

All sites must submit the required inspection, tests and acceptance records as required by the contract

All sites are required to review the Request for Inspection (RFI) forms and RISC forms submitted previously

All sites must report the status of the RISC form submission, the problems identified and the corrective measures carried out within one week after the end of each quarter

Case:
CIMS Project Management

With the development of digital construction in the global construction industry and the promotion of "Internet Plus" by the Chinese government, CSCI followed the trend to promote the application of construction site management collaboration cloud platform ("CIMS") in the construction site by supporting the integration of the Internet and engineering construction. CIMS can assist engineers who perform engineering inspections, process management and building inspection management on the construction site to instantly record the problems identified through mobile Internet tools such as mobile phones. They can also assign rectification tasks to subcontractors online to track the overall progress.

Compared with the traditional methods of keeping record of problems and information transmission, CIMS significantly improves the communication efficiency in the management process, and facilitates the parties to understand their own responsibilities and work arrangements. The cloud platform has the function of archiving the entire process information, reducing the possibility of data loss and facilitating accountability tracing and improvement.

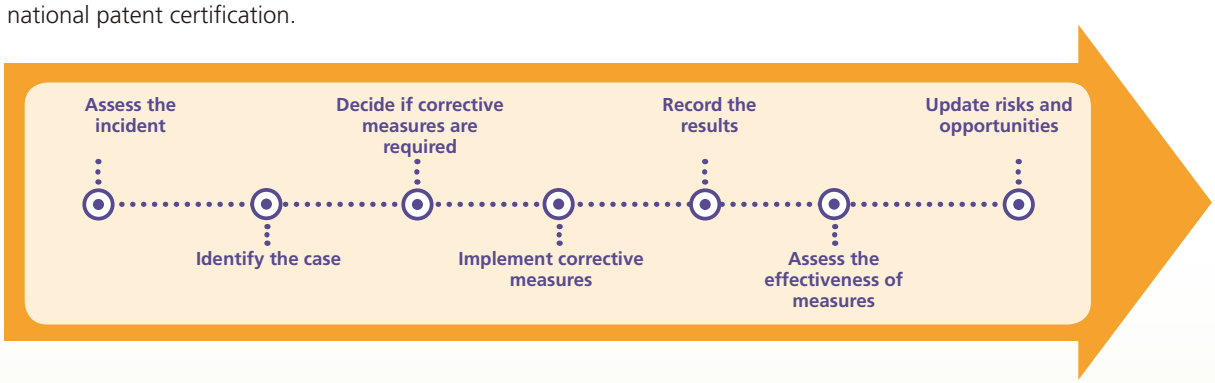
In addition, CIMS can survey issues such as quality, safety and process progress, and simultaneously generate various data analysis reports, so that users can more clearly understand the engineering details to carry out appropriate follow-up and control potential risks.

At present, CIMS is used in 12 sites in Hong Kong and 5 sites in Macau, recording more than 30,000 questions covering quality, safety, process and household acceptance. Through the systematic analysis report, the Group found that nailing, bar bending and concrete pouring are the processes where quality issues are most probable, so and thus strengthened training and supervision in these areas.

Social Responsibility

For the quality management of the prefabricated construction business, Shenzhen Hailong Construction Science Co., Limited[6] (hereafter referred to as "Shenzhen Hailong") formulated and implemented the Quality Management System to stipulate the duties of the Quality and Safety Department, and the responsibility of employees for product quality to ensure that quality management is carried out normally in every aspect to continuously enhance the quality of products. In order to further improve the information management and monitoring of products in production and use, Shenzhen Hailong developed prefabricated components and monitoring systems that can be monitored in real time by using radio-frequency identification ("RFID") technology, so that the required components can be found during installation process quickly and accurately in the construction site. It can also feedback abnormal state of the parts during the use of the building and carry out maintenance work in time. The invention has obtained national patent certification.

If a product or service complaint is received, Shenzhen Hailong will handle and follow up the complaint in accordance with the Complaint Handling Procedure to evaluate and investigate the cause of the incident that does not meet the customer's requirements, and take appropriate corrective measures to avoid similar situations in the future. During the year, the Group's prefabricated construction business received three cases of complaints related to product quality. Upon investigation, the complaints were related to shortcomings in transportation and construction. The Group had formulated and executed the solutions, including replacing faulty parts and increase protection of special products with small sectional area during transportation in order to ensure construction quality and prevent similar events from happening in the future.



Adhering to its promises and upholding quality, Shenzhen Hailong constantly improves its quality management. As a result of its quality products and services, Shenzhen Hailong has become a long-term qualified supplier of industrial construction products for various government departments, and has been awarded the title of 'National Housing Industrialisation Base' and 'National High-Tech Enterprise'.

6 A subsidiary of CSCIICL under the Group.

Case:
Measures to Ensure Stable Supply in Thermal Power Plants

Huanggu Thermal Power is committed to providing customers with sufficient and reliable energy products and services, from the stable operation of equipment, personnel production safety awareness and emergency response capabilities, to ensuring the safety and stability of electricity and heat supply.

In order to ensure the safe and stable operation of the equipment, Huanggu Thermal Power implements a risk control plan to carry out hidden danger investigation and management, and seasonal safety inspection. The Production Safety Management System stipulates the specific management process for the rectification of safety hazards, requiring the Safety Supervision Department, and the heads of various departments and team leaders to carry out hidden dangers identification on electrical equipment, mechanical equipment, pressure pipes, safety devices, etc. according to the Huanggu Thermal Power inspection system. Hidden dangers and problems found are reported to the relevant departments in a timely manner. Rectification is supervised, inspected and reported to form a closed-loop management. For the rectification of hidden dangers, the Huanggu Thermal Power requires that general safety hazards should be handled within 24 hours. For major safety hazards, hidden danger verification and formulation of preventive measures should be completed within 72 hours. The rectification solution and plan should be completed within seven days.

In response to the seasonal safety inspection, Huanggu Thermal Power formulated and issued the 2018 Spring Inspection and Autumn Inspection Work Arrangements to determine the focus of the two major inspections. While paying attention to fire prevention, the relevant personnel conducted in-depth inspections on typhoon prevention, flood prevention, anti-pollution, lightning protection, and cold protection and anti-freeze work, laying the foundation for the normal operation of equipment during heating season.

Employee participation is also key to safe management and stable heating supply. Huanggu Thermal Power incorporates safety education and training into the annual training program, and organises a safety knowledge test for all employees every quarter based on the principles of effectiveness, promoting learning with assessment, and full participation. The test scores are linked to the employee's monthly assessment.

In order to further ensure electricity and heating supply, Huanggu Thermal Power has formulated an emergency work plan to establish an emergency response mechanism for the accidents caused by power outages, tripping of units, natural disasters, etc. This ensures that emergency measures can be quickly initiated in case of an accident and the accident is reported to the relevant departments of the local government to respond to public queries and complaints, and prepare for the inspection and start-up after the unit is out of service, restore the supply in time, and reduce the adverse impact on society. At the same time, in order to improve employees' response, Huanggu Thermal Power organised six accident drills to prepare for flooding in the heat exchange station, burst pipe, poisoning in confined space, desulfurisation system fire, factory blackout, and firefighting and escape.

In addition, Huanggu Thermal Power understands that with the development of economy and technology, industrial control systems are facing more and more safety threats, which will also affect safe and stable production. By setting up an information security officer to conduct daily system inspections, restricting unrelated personnel from entering the equipment room, and conducting regular safety assessments on the system, Huanggu Thermal Power strengthens the daily management of the industrial control system. At the same time, with regard to public information security and industrial control system failures, Huanggu Thermal Power has developed the Production Real-Time System (SIS) Failure Handling Plan, Distributed Control System (DCS) Troubleshooting Solution and Network and Information Security System to guide the handling of emergencies to minimise impact and loss.

Case: Bridge Maintenance Management System

The purpose of infrastructure is to enhance the quality of life of users and increase the overall competitiveness of society. CSCI's commitment to society goes beyond construction, and is reflected in long-term maintenance of facilities. Supporting the long-term development of society with reliable and high-quality construction is one of the beliefs of the Group in contributing to society.

Connecting bridges throughout the city is the key to diverting urban traffic. The Second Nanjing Yangtze Bridge Limited Liability Company (hereafter referred to as "Nanjing Second Bridge Company") under CSCI is responsible for the management and operation of the Second Nanjing Yangtze Bridge. Over the years, it has been continuously improving its maintenance system in accordance with the requirements of 'Excellent engineering, first-class management'. Based on 'Society-based maintenance, streamlined inspection, professional repair, science-based management', the system is dedicated to improving the quality of maintenance with innovative and scientific methods, while reducing costs and achieving higher social benefits. It has become a role model for bridge project maintenance.

Nanjing Second Bridge Company adopts scientific management, and its achievement of 'orthogonal steel bridge deck epoxy asphalt pavement maintenance technology' and 'steel box beam fatigue damage research and repair technology' are among the top technologies in the country. The orthogonal steel bridges of traditional steel bridges are prone to fatigue cracking and the pavement layer is often damaged, which is a common problem worldwide. Since the completion of the bridge, Nanjing Second Bridge Company has commissioned scientific research units including Southeast University to set up special research projects to explore the maintenance methods of steel bridge decking. In response to the gradual fatigue cracking problem after ten years since commencement, Nanjing Second Bridge Company also commissioned institutions and experts to study and analyse the mechanism of disease generation and formulate scientific and reasonable solutions. Therefore, Nanjing Second Bridge Company successfully formulated the steel bridge deck pavement maintenance plan, and provided reference for the treatment of fatigue cracks in the same type of bridge orthogonal orthotropic steel bridge deck in the country. The experience of the Second Nanjing Yangtze Bridge has been successfully applied to large bridges such as Anhui Anqing Bridge and Hubei Wuhan Junshan Bridge.

To ensure the effectiveness of the maintenance management system, Nanjing Second Bridge Company has established a comprehensive inspection system, which is included in the Second Nanjing Yangtze Bridge Maintenance Manual, requiring the relevant personnel to conduct daily inspections, monthly inspections, special quarterly inspections and an annual census. This system guarantees drivers' safety, stability of bridges and the normal operation of equipment. At the same time, the Nanjing Second Bridge Company emphasised the establishment of a sound project maintenance file management system, which complies with national and archival management requirements, and properly preserves the technical parameters accumulated in the maintenance jobs, providing a reliable basis and scientific reference for decision-making.

In addition, in view of the technical characteristics of the Nanjing Second Bridge, the Nanjing Second Bridge Company established the South Bridge structural health monitoring system in addition to routine and special inspections. The stress and strain of the cable-stayed bridge, the base sinking, change in deflection, the cable force, ridge deck pavement and collision avoidance were monitored on a 24-hour dynamic system to ensure the overall safety of the bridge, and effectively grasp the real-time status of the bridge structure and provide a scientific basis for project maintenance.

The Second Nanjing Yangtze Bridge, an important infrastructure project managed by the Group, is of a total length of 20.963 kilometers, consisting of the South and North Bridges and the South Bank, Baguazhou and North Bank. The whole bridge is designed according to the standard of two-way six-lane expressway with two super bridges, four interchanges and six bridges. Among them, South Bridge is a steel box girder cable-stayed bridge, and North Bridge is a reinforced concrete prestressed continuous box girder bridge with spans in the lead in the country. The Nanjing Second Bridge was completed and commenced on March 26, 2001, and has been in operation for 18 years.

Maintaining customer rights

Protecting data security is one of the Group's key responsibilities. Stipulated in the Employee Handbook, the Group is committed to maintaining the confidentiality of all confidential or special information provided by customers, employees and business partners. Authority limits are set in the information system of each department and employees are not allowed to access and use materials that are not related to their work without authorisation. In addition, all of the Group's computer equipment are equipped with anti-virus software and firewall to prevent data leakage due to virus intrusion or hacking.

In addition, in communication with customers and marketing, the Group has always maintained a fair and responsible attitude to provide customers with adequate and correct information to protect customer rights.

Respond to the Global Trend 5: Build an Inclusive and Supportive City

Giving back to society is a form of corporate responsibility. As a member of the construction industry, CSCI pays attention to people's livelihood and community development by broadening the cooperation with the government, business partners, the community and the public to promote the building of an inclusive and supportive city.

In 2017, Typhoon Hato hit Hong Kong, Macau and the coastal area of Pearl River, resulting in serious damage to large number of infrastructure and public facilities, including Barrier Gate Terminal, the most important and the busiest public transport hub of Macau. Due to the typhoon, the electricity system, firefighting facilities and ventilation system of Barrier Gate Terminal were seriously damaged and the terminal was shut down, leading to significant impact on the city transportation in Macau.

To speed up repair of Barrier Gate Terminal and improve the waiting area, the Infrastructure Development Office of Macau began the remedial construction project of the Barrier Gate Terminal early this year. The Group understands the pressing needs of the public and is committed to contributing to the public and the society with the advantages of its skills and experience. Therefore, during the project tender process, CSC Macau gave priority to shortening the construction period and resuming convenience in public transport. With sufficient discussions and proof, CSC Macau took the initiative to shorten the construction period to half of the government of the Macau Special Administrative Region's and the industry's estimate, 255 days.

Barrier Gate Plaza – Underground Public Transport Terminal Traffic and Waiting Area Improvement Project
Area: 13,500 square metres
Duration: 255 days

Ground floor

- Dismantled two flower beds
- Construct a new refrigeration plant and a generator plant
- Change a stairhood to a cooling tower

Basement

- Remove the surface plaster, part of the electromechanical pipelines and equipment for rebuilding

Challenges

- The project needs to retain some of the original pipelines and protect the existing equipment, which is more difficult than the general demolition and reconstruction projects
- The construction process cannot affect the operation Barrier Gate Plaza, to ensure smooth border crossing of 350,000 round trips per day
- Tight schedule, limited space and complex processes

Since the undertaking of the project, CSC Macau focused on coordinating the distribution of resources and promised to complete the project regardless of the costs while ensuring the quality. Since exemption from the Law on Prevention and Control of Environmental Noise of the project was approved by the government, CSC Macau reasonably adopted a two-shift schedule to carry out work from eight in the morning to ten in the evening. Government departments such as the Transport Bureau and the Municipal Affairs Bureau assisted by speeding up administrative tasks such as approval. Consultancies on design, supervision, and quality control also maintained close communication with CSC Macau to complete the submission and approval of technical documents efficiently, allowing the project to be smoothly implemented. During the construction, CSC Macau insisted on being open to cooperation and valued cooperation with local capital. It worked with 44 local small and medium enterprises including professional constructors and materials suppliers to tackle challenges in the project.

Under the support and cooperation between the government, consultancies and partners, CSC Macau completed the Barrier Gate Terminal project in November ahead of the schedule and handed the project to the Transport Bureau after 251 days of work. The improvement project moved equipment that is prone to impact of flooding to the ground floor to strengthen the resilience of the bus terminal against natural hazards. It also improved the ventilation system and the environment of the waiting area. An air-conditioned waiting room and queuing facilities are installed in the passenger loading and unloading area in the terminal, with special waiting area for pregnant women, the elderly and persons using a wheelchair, so as to satisfy the demands and expectations of different individuals to achieve an inclusive society with mutual trust.

We and Community

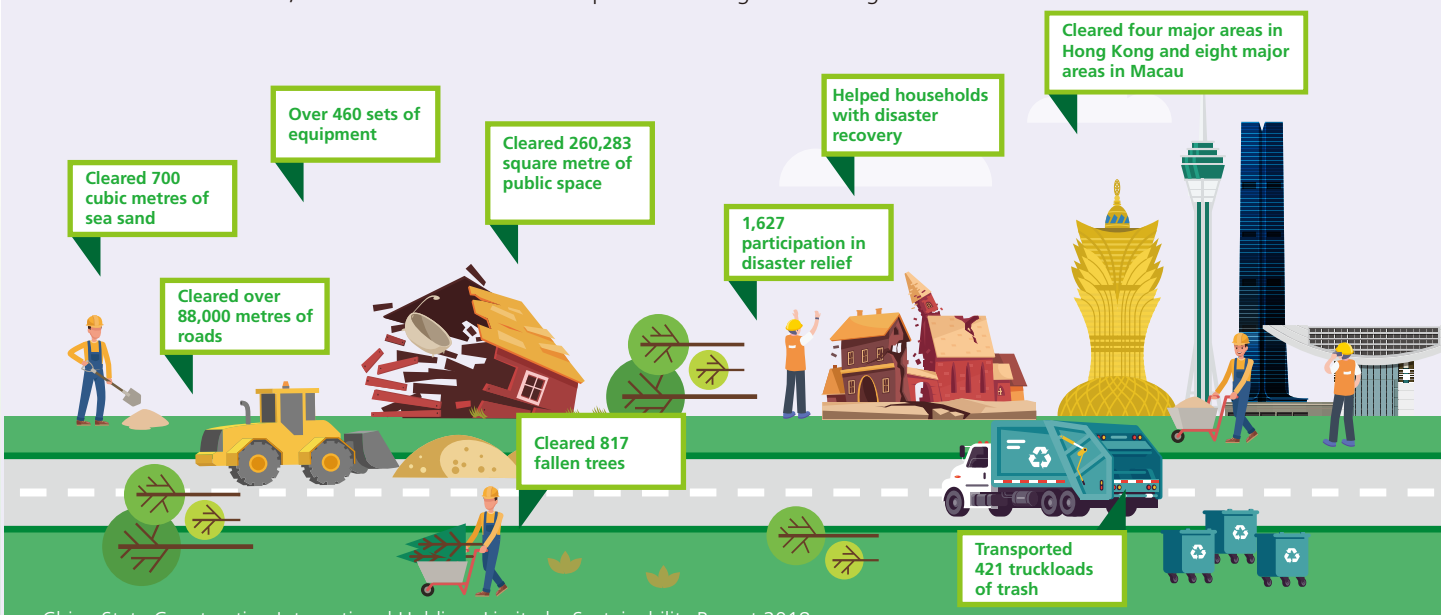
CSCI fulfills its responsibility in serving the community and responding to the needs of society. For many years, it has been enhancing the regional development potential by investing in infrastructure, donation to educational purposes and initiating volunteer campaigns. To further regulate activities of community investment, the Group's Sustainability Committee formulated a policy in 2019, which pledges to continuously strengthen connection with community and understand the needs of the residents. Its focuses on three scopes, including community infrastructure construction projects, building a livable community and supporting charity. Leveraging its business strength, it will seek more opportunities to contribute to the community.

Case: Disaster Relief

Under climate change, extreme weather has become more frequent, which not only threatens the lives and property of citizens, but also disrupts social order. CSCI has always participated in disaster relief work in various places, fulfilled its corporate citizen responsibility, and contributed to the communities where it operates.

Super typhoon Mangkhut

In September 2018, the Super typhoon Mangkhut hit Hong Kong and Macau. The Hong Kong Observatory and the Macao Meteorological and Geophysical Bureau both issued typhoon signal No. 10 for 10 hours. It was the second longest typhoon signal since the war. Mangkhut brought destructive winds and severe storm surges along the Pearl River Estuary. In Hong Kong, there were at least 458 people injured, more than 60,000 reports of fallen trees and at least 500 reports of damaged glass windows or facades. In Macau, 40 people were injured, more than 5,500 people needed to be evacuated, and there were numerous reports of damage to buildings.



CSCI issued Notice on Preparing for Mangkhut before the typhoon hit Hong Kong and Macau, and convened a video conference for work deployment, set up a working group to coordinate wind protection in construction sites and offices. At the same time, the Group promptly organised volunteer teams to assist the underprivileged groups, and pre-allocated materials for disaster relief to ensure smooth rescue work.

Among them, CSC Macau established a 335-person disaster relief volunteer team. Before the typhoon, it prepared 65 sets of machinery and equipment, 360 chain saws and 1,500 shovel to provide support for the typhoon rescue and relief operations.

After the disaster, the Group invested a large amount of human and material resources in Hong Kong and Macau, and contributed to the restoration of local social and economic order with efficient organisation and execution.

Shandong Shouguang and Qingzhou Flood

In August 2018, Shouguang, Qingzhou and other places in Shandong Province recorded the largest rainfall since 1951, and about 52,648 people were affected by the floods. China State Construction International Investments (Shandong) Limited and China Overseas Harbour Affairs (Laizhou) Limited under the Group collaborated with other subsidiaries in Shandong Province under its parent company, COHL, to organise more than 130 employees to form a volunteer team to fight floods and deliver disaster relief for eight consecutive days. The volunteer team provided basic supplies, such as rice, noodles, oil, water buckets, iron shovel and mosquito coils, to the people in the disaster area, with a total value of more than RMB200,000, to help them quickly resume production and maintain their living standards.

Case: Targeted Poverty Alleviation

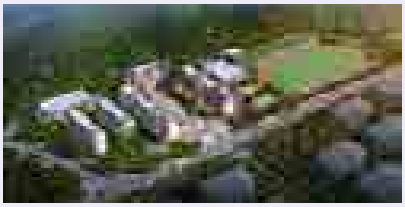
The Group is committed to responding to China's strategy of 'Precise poverty relief and precise poverty alleviation'. Education is an important step in helping the community to get rid of poverty. The Group focuses on investment and education-related projects and hopes that the next generation will enjoy a better life.

Building Congjiang County Meie Primary School

CSC Macau first visited Congjiang County in Guizhou Province to learn about the local situation of multi-ethnicity, backwards infrastructure and lack of educational resources. In order to solve intergenerational transmission of poverty in the community, and allow immigrant children to go to nearby schools, CSC Macau decided to use RMB 5 million to help build a comprehensive teaching building, COHL Meie Primary School, in Congjiang County.

In order to smoothly implement education and poverty alleviation work, CSC Macau and the Congjiang County Government of Guizhou worked closely together to fully utilise their resources to improve educational facilities. The Congjiang government is mainly responsible for the early-stage land acquisition, project establishment, planning, geological exploration, design, supervision, etc. CSC Macau is responsible for the investment and construction of the integrated teaching building. In the future, CSC Macau will continue to carry out school-enterprise co-development activities, support school management, maintain communication with teachers and students, and organise employees and members of the community to visit the school.

Information of Congjiang County COHL Meie Primary School	
Target	1,080 school age children in the proximity
Area	Total area: 33,335 square metres Construction area: 9,037 square metres
Facilities	Integrated teaching building (Construction area: 3,364 square metres), student residence, canteen, bathroom, teacher residence, playground, basketball field and volleyball field
Investment	About RMB 28.1114 million



Caring for Dabie Mountains

In December 2018, CSCIICL took the lead in holding a charity campaign, 'Caring for Dabie Mountains without barriers'. The event combines community care and visits, and specifically invites local education departments, governments and media to participate to strengthen communication and maximise benefits.

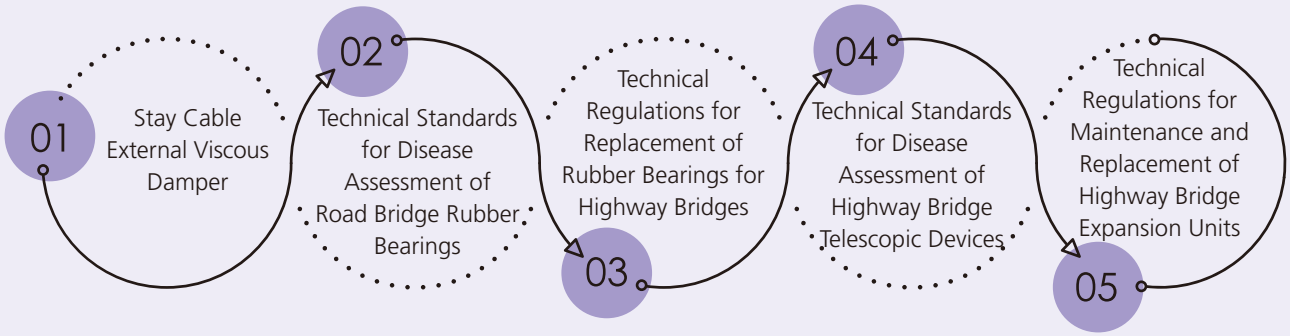
Representatives of CSCIICL first visited the Anhui Suzhou Special Education Center to interact with local teachers and students through seminars and painting classes to understand their lives and needs. The CSCIICL volunteer team drew with students with special educational needs to increase their exposure to different people and feel the care of volunteers. It also allowed volunteers to understand the needs of the community.

In order to understand the natural environment and closed economy of the Dabie Mountains area in Lu'an City which leads to poverty and backwards development, the volunteers team visited three villages: Bailongjing Village, Hepeng Village and Gaozhuang Village. The volunteer team communicated in depth with the poverty alleviation team leader in each village to identify the needs of the villagers. Finally, the volunteer team delivered materials villagers need to improve their current living environment. The beneficiaries included 40 students, 10 teachers and 10 families.

This event is the starting point for CSCIICL's community investment in Anhui Province. CSCIICL will continue to uphold the corporate mission of serving the society to continue to connect with local poverty alleviation offices and local governments, forming a peer-to-peer poverty alleviation system to help more people in need.

Case:
Preparation of the Provincial Construction Industry (Prefabricated Construction) and Transport Industry Standards

The Group is committed to contributing to society with its expertise. In order to enhance the overall living standards and safety of the community, the Group combined the team's professional skills and experience to participate in the preparation of a number of construction industry and transportation industry standards. Combining its experience and technology in cross-river bridges maintenance, the Nanjing Second Bridge Company participated in various transportation and scientific research projects of the ministry and provincial levels. It not only helps improve infrastructure and benefit the society, but also enhances the Group's reputation in the industry. The transportation industry standards that the Nanjing Second Bridge Company has participated in include:

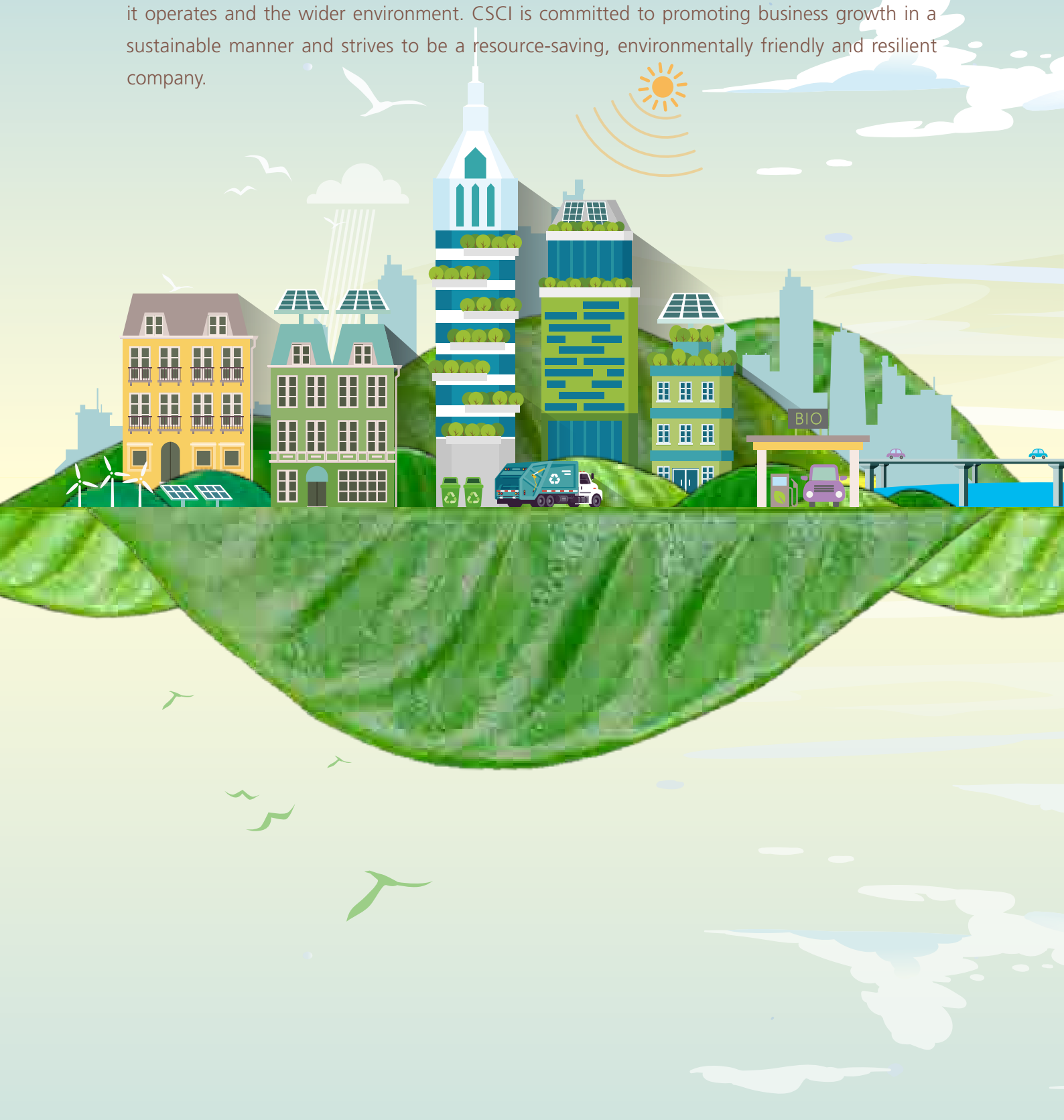


In terms of construction, Shenzhen Hailong Construction Science Co., Limited cooperated with the Building Industrialisation Association of Shenzhen by combining domestic and international engineering experience to prepare two Shenzhen City building industrialisation group standards, including Procedures for the Prefabrication and Acceptance of Precast Concrete Parts and Technical Regulations for the Fabrication of Precast Parts of GRC Finished Reinforced Concrete. Guangdong Hailong was responsible for explaining the specific technical content. The two standards stipulate the production standards and quality inspection, which helps promote the safety level of the industry and the long-term development. Among them, Procedures for the Prefabrication and Acceptance of Precast Concrete Parts includes chapters about production safety and environmental protection to help improve the overall safety and environmental protection awareness of the industry.

In the future, the Group will continue to pay attention to changes in industry standards and regulation in different places to strive for continuous development, help enhance the quality of local industry and improve the infrastructure of society.

Environmental Responsibility

Business development and operation inevitably create an impact on the communities in which it operates and the wider environment. CSCI is committed to promoting business growth in a sustainable manner and strives to be a resource-saving, environmentally friendly and resilient company.



Respond to the Global Trend 6: Climate Change

Climate change caused by greenhouse gas emissions (or "carbon emissions") has a serious impact on humans and the environment. It can be seen in the increasing incidence of extreme weather events such as floods, droughts and typhoons in the world in recent years. In 2015, countries around the world adopted the Paris Agreement to pledge to reduce carbon emissions and keep global average temperature rise below 2°C. This year, the report of the United Nations Intergovernmental Panel on Climate Change ("IPCC") pointed out that according to the current heating rate, the world will heat up more than 1.5 °C in 12 years, and urgently recommended that the rise of global temperature should be limited within 1.5 °C by halving carbon emissions by 2030. At the same time, with the restriction of greenhouse gas emissions and as the fight against climate change becomes a pressing issue for human beings, investors would view it not only as corporate social responsibility, but also as an important factor in assessing capability of corporate risk identification and management. They are concerned with corporates' preparation mechanism to mitigate and adapt to climate change.

CSCI attaches great importance to climate change response and continuously pays attention to local and international industry trends. CSCI combines environmental protection and building industrialisation with its development strategy, and promoting green building and prefabricated building by strengthening carbon management capabilities in operations. It also incorporates the construction of disaster-resistant cities into development plans, further reduces the impact of buildings on climate change, creates higher value for the environment, and strengthens the competitiveness of sustainable development.

Taking the development of prefabricated buildings as an example, the Group has planned 6 production bases and actively adopts more prefabricated buildings in infrastructure and security housing projects. Compared with the traditional on-site slip forming construction method, the standardisation of the prefabricated building design and the characteristics of the production industrialisation are beneficial to improving production precision, and reducing material wastage and waste generation. In addition, finished product can be quickly installed after being transported to the site, which not only reduces production noise and dust, but also shortens the lead time. Therefore, with regard to resources, and production and construction processes, prefabricated building has the potential to reduce energy consumption and greenhouse gas emissions.

Design standardisation

Ensure the accuracy of components and improve the utilisation of materials through standardising design and templates for the manufacture of components.

Production industrialisation

The prefabricated structure in the factory reduces wet work on the construction site, reducing noise, wastewater and waste generated in the traditional cast-in-place method. At the same time, a semi-automated production model saves manpower and improves construction efficiency.

Construction prefabrication

The assembly and hoisting of components after transporting to the construction site simplifies the traditional construction process and reduces labour intensity, the impact of manual work on building quality and the waste of materials.

At the same time, prefabricated construction is often complemented by Building Information Modeling ("BIM") management. BIM's visualisation and parameterisation features provide advantages in optimising design solutions, eliminating component conflicts, coordinating different work phases, and reducing construction errors. These optimise quality and cost control while reducing material loss and energy consumption.

Advantages of BIM application in prefabricated construction

Improve design accuracy

Improve design accuracy and facilitate subsequent operations by enabling three-dimensional collaborative design of the building model, structural model and electromechanical model through parameterised components. Any view as well as material statistics, area calculation and cost calculation can be generated as needed.

Automatic collision notification

Automatic collision notification is available upon assembly simulation. The current collision components and collision positions can be visualised, which facilitates the simultaneous modification of the building, structural and electromechanical models to reduce the occurrence of problems during the construction process.

Optimise material inventory and procurement management

Extract the information required for factory production and on-site assembly, including building type and quantity of raw material, to make accurate prediction of material consumption and optimise material inventory and procurement management.

RFID

Through the RFID technology, it allows information sharing in relation to component design, production, transportation and assembly, specify production, loading, transportation planning, and strengthen construction process management, reducing rework and rectification.

Meter with sensor

By installing a meter with sensor, the system can realise real-time collection, analysis and upload of building energy consumption data, identify abnormal energy use and alert the user through the development of energy management function modules.

We and the Environment

Environmental management system

CSCI has established and continues to improve the Group's environmental management system in accordance with ISO 14001, integrating environmental management into its general policies and daily operations. It pledges to avoid pollution, reduce construction waste, reduce natural resource consumption, comply with environmental laws and related contractual terms while continuously improving environmental performance and striving to reduce or eliminate the negative impact of operations on the environment.

Through the environmental management system, the Group specifies the leadership function, and the responsibilities and authority of employees involved in environmental management. It also requires all units to analyse the main environmental factors in their operations and keep up-to-date with the latest development of local environmental regulations and standards. Environmental targets and indicators are developed to formulate a well-directed environmental plan and allocate appropriate budgets for environmental measures to continuously improve the Group's environmental performance.

For example, CSCHK formulated the Environmental Management Manual and Energy Management Manual based on ISO14001:2015 and ISO50001:2011 standards, to provide the relevant management suggestions with regard to aspects such as policy formulation, implementation and operation, inspection and assessment, and employee participation. Under the leadership of the Integrated Management Committee, CSCHK also continuously formulates a series of key environmental targets and indicators with regard to areas such as consumption of electricity, water and construction materials, and develop comprehensive action plan to realise these goals. At the same time, CSCHK arranges designated personnel to be in charge of the data collection, aggregation and reporting of each project and department to measure the progress of reaching targets.

Scope	Target	Key measures	2018 indicator	Performance	2019 indicator
Construction sites	Electricity conservation	• Eliminate construction equipment and machinery with low efficiency and high energy consumption; • Adopt energy-saving lamps; • Install solar water heater to provide hot water	Below HK$240,000/ HK$100 million of revenue	Target met for all construction sites	Electricity tariff below HK$230,000/ HK$100 million of revenue
	Water conservation	• Strengthen the maintenance and management of water equipment in the projects, rectify the water supply failure in time, and eliminate water running, leaking, dripping and long flowing water in taps; • Forbid the use of high-pressure water spray to wash vehicles and the ground to reduce water wastage; • Set up a storage tank to recycle treated sewage for reuse	Less than HK$60,000/ HK$100 million of revenue (General construction sites) Less than HK$650,000/ HK$100 million of revenue (Bored pile construction sites)	Target met for all construction sites	Water tariff below HK$59,000/HK$100 million of revenue (General construction sites) Below HK$640,000/ HK$100 million of revenue (Bored pile construction sites)
	Reduction of timber use	• Recycle and reuse old timber	Less than 131 cubic metres/HK$100 million of revenue	Target met for all construction sites	Consumption below 130 cubic metres/ HK$100 million of revenue
	Reduction of paper use	• Promote electronic office; • Adopt cloud technology to save and access documents to reduce printing paper use	Less than 350 packs of A4 paper/HK$100 million of revenue	Target met for 95% construction sites (Reasons for some sites failed the target: In the later stage of construction, more documents and reports have to be submitted to the owners and government departments)	Consumption below 350 packs of A4 paper/HK$100 million of revenue
	Reduction of concrete loss	• Strengthen solution formulation, and calculation, order and verification of quantity of concrete; • Strengthen supervision of model construction to prevent wastage due to problems in work process; • Formulate a solution to utilise leftover concrete	Loss rate: Below 2.0% (General construction sites) Below 6.0% (Bored pile construction sites)	Target met for all construction sites	Loss below 2.0% (General construction sites) Below 6.0% (Bored pile construction sites)

Scope	Target	Key measures	2018 indicator	Performance	2019 indicator
Construction sites	Reduction of reinforcing bar loss	• Strengthen formulation of construction plan and calculation, order and verification of quantity of iron	Loss rate: Below 4.5% (Housing construction sites) Below 3.0% (Civil and mechanical engineering construction sites) Below 4.0% (Foundation construction sites)	Target met for all construction sites	Loss below 4.5% (Housing construction sites) Below 3.0% (Civil and mechanical engineering construction sites) Below 4.0% (Foundation construction sites)
Offices	Electricity conservation	• Purchase air conditioners, lighting and electronic office supplies that meet energy efficiency standards; • Change employee behavior, implement office power-saving measures such as forming the habit of turning off lights and shutting down office equipment	Reduce total electricity consumption by 1.0% compared to 2017	Target met for all offices	Reduce total electricity consumption by 1.0% compared to 2018, i.e. electricity consumption below 120kWh per square metre
	Paper conservation	• Promote paperless office; • Promote double-sided printing, and reduce printing and copying	Reduce total paper consumption by 3% compared to 2015-2017	Five support departments slightly exceeded the limit (individual departments failed the target because the number of tender projects increased during the period, and consumed more paper for the documents required)	Reduce total paper consumption by 3% compared to 2016-2018
	Recycling and reuse	• Set up a waste paper recycling bin; • Launch long-term cooperation with qualified recyclers	Recycle all waste paper, computers, monitors, printer toner cartridges, hard drives and other accessories	Target met for all offices	Recycle all waste paper, computers, monitors, printer toner cartridges, hard drives and other accessories

Environmental Responsibility

By examining the progress towards reaching this year's targets and indicators, CSCHK analyses the effectiveness of existing measures and thereby sets future environmental goals. For example, CSCHK plans to further increase the electricity conservation target of construction sites in 2019, by reducing electricity expenditure from HK$240,000 to HK$230,000 per HK$100 million of revenue. Use of timber will be reduced by one cubic meter per HK$100 million of revenue based on the consumption of the current year.

In order to ensure that all business activities comply with relevant local laws and regulations, and the Group's policies and measures, CSCHK has established an environmental management monitoring system to carry out various types of site inspections and environmental inspections, including inspections of daily construction environmental pollution control measures, rest day and nighttime noise inspections, site drainage and sewage treatment system inspections during rainy season, and third-party environmental monitoring and audit of projects with significant environmental impacts.

Effective implementation of environmental management is built on the support and cooperation of employees. CSCHK compiled the Environmental Safety Quarterly Newsletter to share the latest safety management news of the quarter with site workers, covering the safety management focus of the quarter, site safety management experience sharing, recent awards, environmental safety warnings, and recent publications of the Environmental Safety Department of Hong Kong. At the same time, CSCHK organised a series of environmental training and activities, such as environmental training for new employees, BEAM Plus training for site management personnel and China State Construction Environmental Day to enhance employees' environmental awareness. In addition, in response to the revision of ISO50001 in this year, CSCHK provided ISO50001:2018 energy management system awareness training for site management personnel, environmental safety personnel and internal auditors to ensure that relevant staff members were informed of the new content and prepared for the audit of the energy management system revision.

2018 CSCI environmental expenditure

Unit: HK$

Environmental performance

Air pollutants

By controlling the source, including using less polluting fuels, improving the efficiency of desulphurisation and denitrification equipment in thermal power plants, using automatic spray heads to sprinkle water and reduce dust, and strengthening the management of company vehicles, the Group is committed to improving air pollution control efficiency and reducing air emissions. During the year, the Group's air emissions mainly included nitrogen oxides, sulphur oxides and respirable suspended particulates, and were mainly from emissions generated by fossil fuel consumption.

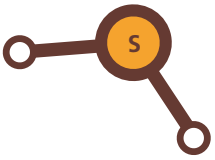
Among them, the emissions of nitrogen oxides, sulphur oxides and respirable suspended particulates by the lignite combustion in Huanggu Thermal Power accounted for 26%, 76% and 17% of the total emissions respectively. Respirable suspended particulates emitted by the remaining subsidiaries of CSCIICL accounted for 44% of the total emissions, and CSCHK's nitrogen oxides emissions accounted for 49% of the total emissions. Volatile organic compounds were only produced in the loading and unloading and storage of crude oil of the China Overseas Harbour Affairs (Laizhou) Company Limited under the Group.

2,471 tonnes

Nitrogen oxides

501 tonnes

Sulphur oxides



234 tonnes

Respirable suspended particulates

2 tonnes

Volatile organic compounds

In May 2018, the Shenyang Environmental Protection Bureau raised the standard for special restrictions on sulphur dioxide in flue gas emissions for coal fired power plant according to the latest Boiler Air Pollutant Emission Standards released by national authorities, and requested affected organisations to execute the new standards in November 2018. Huanggu Thermal Power inspected the desulphurisation equipment in the plant and found that five steam boilers fail to meet the new emission limits in the desulphurisation processes. Therefore, equipment upgrade plan was carried out in July 2018. After repeated demonstration of the design solution, Huanggu Thermal Power finally decided to upgrade the desulphurisation system by increasing the liquid to gas ratio. This includes increasing the spray density in the absorption tower and expanding the contact surface area between the liquid and gas, thereby improving the desulphurisation efficiency. After the upgrade, all steam boilers in the plant reached the new sulphur dioxide emission standards for flue gas to meet environmental requirements.

Greenhouse gases emissions and energy

CSCI commissioned a professional consultancy to quantify the greenhouse gases emissions of the Group. The quantification process and emission factors referenced the standards[7] and guidelines[8] published by the National Development and Reform Commission of the People's Republic of China, guidelines compiled by the Environmental Protection Department ("EPD") and the Electrical and Mechanical Services Department of Hong Kong[9], guidelines compiled by the University of Hong Kong and the City University of Hong Kong[10], and international standards such as ISO14064-1 and the GHG Protocol. These covers direct and indirect emissions of six types of greenhouse gases controlled by the Kyoto Protocol. Data is divided by region and business nature to provide stakeholders with more comprehensive data of carbon footprint.

By region

Scope	Hong Kong	Macau	Mainland China	Greenhouse gases emissions by scope	Unit
Scope 1[11]: Direct greenhouse gases emissions	47,752	3,959	846,327	898,038	tonne of CO_2-e
Scope 2[12]: Energy indirect greenhouse gases emissions	4,289	713	127,250	132,252	tonne of CO_2-e
Scope 3[13]: Other indirect greenhouse gases emissions	6,402	2	43,007	49,411	tonne of CO_2-e
Total greenhouse gases emissions by region	58,443	4,674	1,016,584	1,079,701	tonne of CO_2-e

7 Guidelines for Accounting and Reporting Greenhouse Gas Emissions China Electricity Generation Enterprises

8 Guidelines for Accounting and Reporting Greenhouse Gas Emissions China Public Building Operation Units (Enterprises) (Trial) and Guidelines for Accounting and Reporting Greenhouse Gas Emissions Other Industrial Enterprises (Trial)

9 Guidelines to Account for and Report on Greenhouse Gas Emissions and Removals for Buildings (Commercial, Residential or Institutional Purposes) in Hong Kong

10 SME Carbon Audit Toolkit

11 Includes greenhouse gases released from fossil fuel combustion in stationary and mobile sources, and industrial production welding processes.

12 Includes greenhouse gases generated by purchased electricity, purchased heat, and the Group's supply of electricity to project contractors at the site.

13 Include greenhouse gases emitted from waste paper disposal, water use and sewage treatment by CSCHK, the Group' air business travel and fuel combustion by the Group's contractors.

By business nature

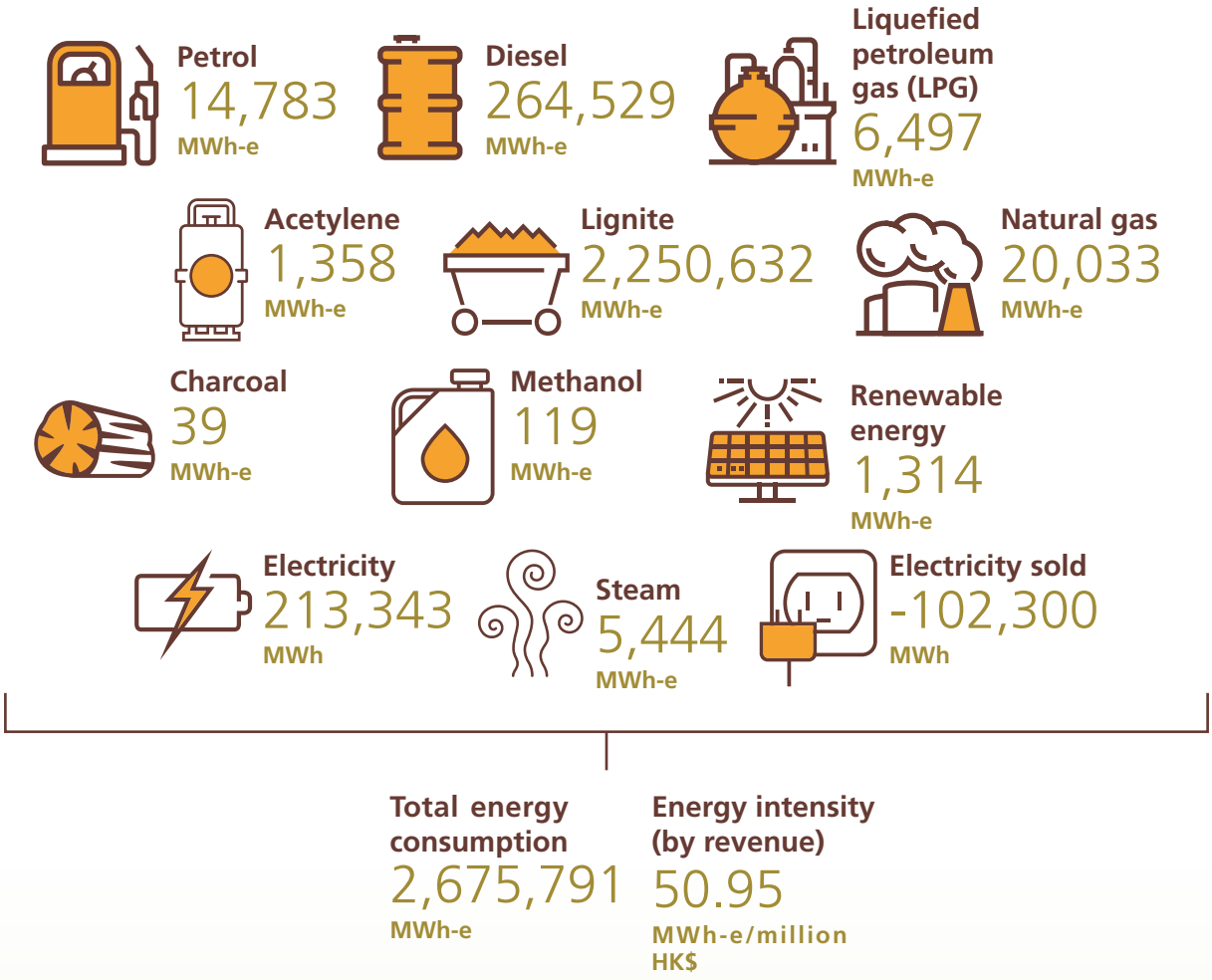
Scope	Construction and factory	Huanggu Thermal Power	Greenhouse gases emissions by scope	Unit
Scope 1[11]: Direct greenhouse gases emissions	78,612	819,426	898,038	tonne of CO_2-e
Scope 2[12]: Energy indirect greenhouse gases emissions	106,861	25,391	132,252	tonne of CO_2-e
Scope 3[13]: Other indirect greenhouse gases emissions	49,405	6	49,411	tonne of CO_2-e
Greenhouse gases emissions by business nature	234,878	844,823	1,079,701	tonne of CO_2-e
Greenhouse gases emissions intensity (by revenue)	20.56			tonne of CO_2-e/million HK$

According to the results of greenhouse gases assessment, the Group's emissions mainly came from combustion of fossil fuels in Scope 1, which accounted for 83.2%, of which the highest proportion was attributed to the emissions of Huanggu Thermal Power. Therefore, Huanggu Thermal Power carried out energy-saving retrofits of equipment and regularly conducted energy consumption assessments to determine whether equipment repair, modification or replacement is needed, which resulted in a 3.8%[14] reduction in greenhouse gas emissions compared to last year.

In addition, the Group also achieved energy conservation and emissions reduction by installing reactive power compensation devices in prefabricated construction plants, using solar and energy-saving lamps at construction sites, and actively promoting power-saving behaviors.

14 Total greenhouse gases emissions of Huanggu Thermal Power in 2017 were 885,448 tonnes of CO_2-e

Environmental Responsibility



The Group will continue to assess, record and disclose annually its greenhouse gases emissions and energy consumption data, in order to evaluate the efficiency of current measures, and to further formulate energy saving and emissions reduction targets.

The Group understands that the carbon emissions of buildings are not limited to the construction phase, but also arise from the production of building materials, daily use, maintenance and repair, and the final dismantling process. Currently, the Group's carbon assessment covers site operations and production processes from its prefabricated construction plants. In order to realise comprehensive and systematic assessment, the Group will gradually improve the data collection system. It plans to first expand the scope of assessment to the upstream of the supply chain, including building materials producers and processors, and raw material suppliers.

Water resources

All water consumed by CSCI was sourced from municipal water supply or other public or private organisations. There was no problem in sourcing water. However, the Group is aware of the current and future water shortage around the world. Therefore, it has formulated water-saving strategies and has installed water-saving facilities, such as the grey water reuse system in Huanggu Thermal Power, which can save about 50 tonnes of water per hour. During the heating season, it can save approximately 181,200 tonnes of water to improve the water efficiency of industrial production processes.

On the other hand, the Group's operations inevitably produce domestic wastewater, construction wastewater and industrial wastewater. By setting up appropriate sewage treatment facilities, all wastewater has been treated and discharged according to local laws and regulations.

Type	Consumption/discharge	Unit
Total water consumption[15]	5,747,673	cubic metre
Water intensity (by revenue)	109.44	cubic metre/million HK$
Sewage discharge through municipal sewage system/sewer pipes	1,363,549	cubic metre
Sewage discharge (treated) into ocean, river or lake[16]	304,570	cubic metre
Total discharge	1,668,119	cubic metre
Sewage discharge intensity (by revenue)	31.76	cubic metre/million HK$
Total water recycled	156,579	cubic metre

15 Includes the Group's supply of water to project contractors at construction sites.

16 Mainly includes wastewater generated during the construction processes in Hong Kong, which was treated by sewage treatment plant (precipitated suspended solids, and neutralisation of acid and alkaline) and discharged into rainwater drain after meeting the discharge standards according the requirements of sewage discharge license.

Environmental Responsibility

Waste

The Group promotes optimal design, process and material management to improve resource utilisation and reduce waste. The Group strictly follows the relevant local regulations to handle the hazardous and non-hazardous waste generated by construction and production processes, as well as the office operations. Non-hazardous waste such as construction and demolition ("C&D") materials, waste concrete components from factory, coal ash and coal slag in thermal power plant are first sorted in the construction site or in the plant before waste collection, recycling or final disposal according to regulations. Hazardous waste such as chemical waste, metal sludge in wastewater treatment facilities, and fluorescent tubes have been entrusted to qualified organisations for disposal.

Type	Production	Unit
Hazardous waste		
Hazardous waste[17]	51.9	tonne
Hazardous waste intensity (by revenue)	0.001	tonne/million HK$
Non-hazardous waste		
Inert C&D waste (sent to public fill reception facilities)	631,100	tonne
Non-inert C&D waste (sent to landfills)	63,958	tonne
C&D waste (sent to construction waste sorting facilities)	17,170	tonne
Inert C&D waste (sent to other authorised sites for reuse)	567,772	tonne
Other non-hazardous waste	258,573	tonne
Total non-hazardous waste	1,538,573	tonne
Non-hazardous waste intensity (by revenue)	29.29	tonne/million HK$

In April 2018, a construction site of CSCHK violated the Air Pollution Control (Construction Dust) Regulation as a construction crawler failed to spray water on stone before loading and unloading. The incident resulted in prosecution by the EPD and a fine of HK$15,000. The Group immediately arranged a temporary water source at the location concerned and enhanced training for workers. The relevant procedures had been completed. Further, a construction site of CSCHK was prosecuted by the EPD in June when car wash wastewater leaked into the public drainage near the exit of the site, breaching the Water Pollution Control Ordinance, which resulted in a fine of HK$20,000. The Group moved the car wash location inwards and added concrete ramps and deepened the seepage trench to prevent leakage of car wash wastewater.

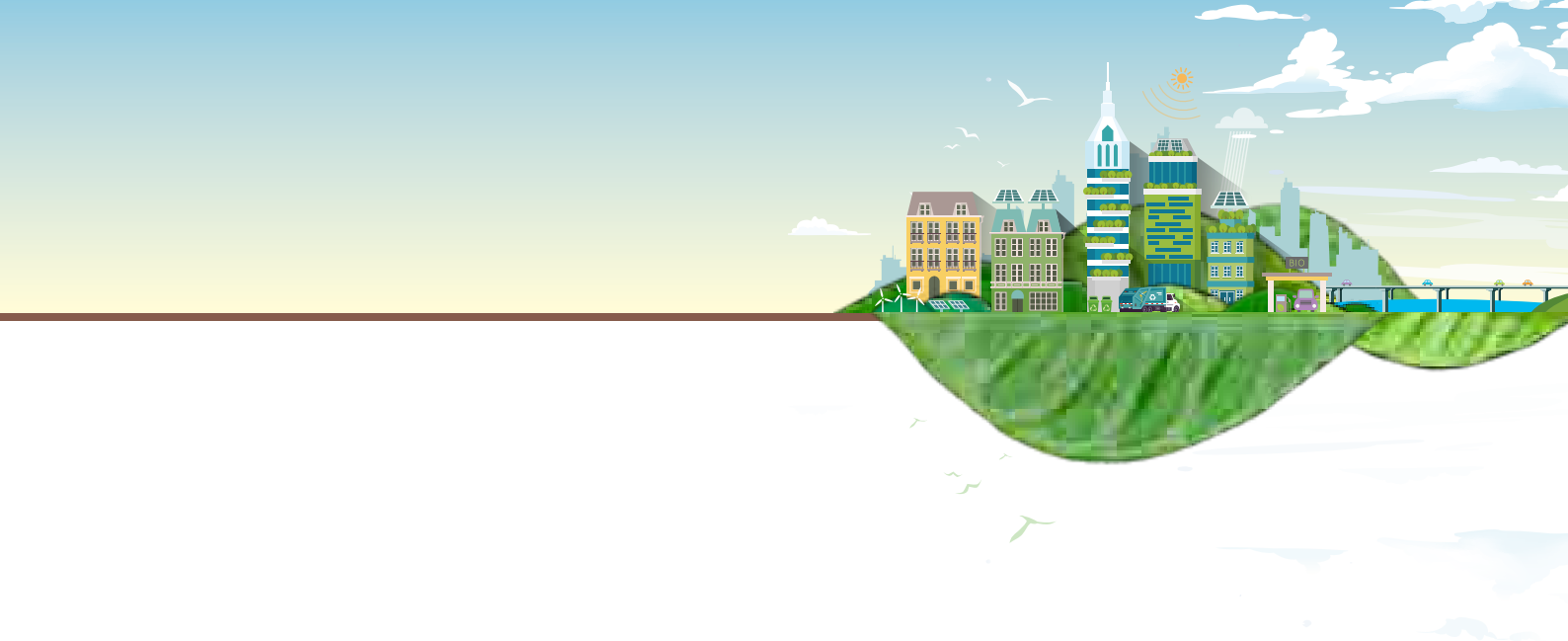
17 Hazardous waste includes chemical waste and other hazardous waste.

Case: Waste Management at Construction Sites

In order to reduce the environmental hazards of construction sites, the Group requires the project-in-charge and contractors to submit a site management plan before project commencement, and strengthen the implementation and supervision of environmental protection measures during the construction. Waste management is an important component.

Construction waste is mainly non-hazardous C&D materials. Inert (including mud, sand, stone and concrete) and non-inert (including bamboo branches, wood, rubber and metal) C&D materials are separately placed at designated spots, and are regularly cleared and collected. During the year, in order to further strengthen the management of C&D materials, the Safety and Environmental Protection Department of CSCHK has formulated the Guidelines for the Management of Site Demolition Materials Disposal to regulate the disposal and monitoring of materials at all construction sites.

Types of waste	Inert C&D materials	Non-inert C&D materials
 Disposal methods	Sent to public fill reception facilities/ waste sorting facilities/for reuse at other authorised sites	Sent to landfills/waste sorting facilities
 Monitoring measures	The construction site assigns a personnel to monitor the use of valid chits or construction waste disposal trip-ticket, and issue and register the information of each note, including number, date, time, material disposal point, vehicle license plates, etc. Records are checked every week to ensure that the materials have been transferred to the registrated sites for disposal in accordance with laws and regulations. At the same time, all construction sites must arrange document registration, photographing and CCTV system at the vehicle exit to record the actual disposal, and ensure that the materials have been properly covered, and the body and wheels of the vehicles have been washed to avoid environmental impact caused during transportation.	



If the sub-contractor intends to transport inert C&D materials to private locations for disposal for special reasons, the construction site will further strengthen supervision to prevent illegal dumping. The monitoring process includes:

Document submission

- Request the sub-contractor to present documents confirmed by the EPD, detailed information of the fleet responsible for materials transport, and the expected total amount and time of the materials to be disposed of.

Review and confirmation

- The supervisors will conduct on-the-spot investigations and take photographs of the private land to be used for disposal to ensure that the site has been confirmed by the EPD, and measures such as fencing have been carried out to define the dumping area;
- Review the information submitted by the sub-contractor with the forms confirmed by the EPD to ensure consistency.

Disposal monitoring

- Disposal must be scheduled within the registered time. Only preregistered vehicles will be allowed to pass;
- Require the driver to take a photo of the dumping site after each disposal and send it immediately to the site supervisor;
- The construction site carries out random inspections of vehicles at least once a month by tracking and recording the entire process from collection to dumping.

In addition, the Group encourages the promotion of circular economy, so it values waste recycling. For example, measures include making concrete blocks with waste concrete for use at the construction sites, internal allocation of old steel for reuse at other sites, and recycling of expired helmets, etc., to improve resource utilisation, thereby achieving the goal of energy saving, carbon reduction and green construction.

Case: Promote Green Building

In recent years, the government has actively promoted green buildings. With the Group's positive response, during the year, more than 30% of the projects under construction in Hong Kong are undergoing certification by the Hong Kong Green Building Council (BEAM Plus), while the Group also increased the proportion of green building certification in its portfolio in the Mainland China.

Take Chengdu Medical City Tri-medical Innovation Centre (Phase III) project, which attained two-star standard for green buildings, as an example, the Group seeks to achieve the goal of achieving harmony between people and architecture, nature, and sustainable development. At the planning stage, the Group has enhanced the building energy efficiency, unconventional water use and proportion of recyclable construction material use in architecture, structure, water supply and drainage, HVAC, and electrical power and equipment according to the two-star Green Building Label.

Architecture

Design feature

The area of shading meets the Design Standard for Energy Efficiency of Public Buildings; the airtightness and openable area of exterior windows and curtain walls meet the requirements on heat preservation, energy saving and ventilation; and environmentally friendly and sustainable green building materials are used.

Structure

Design feature

Use of high-strength and high-performance concrete, and lightweight aggregate concrete to optimise the connection of steel bars and save steel consumption

Water supply and drainage

Design feature

Operate water-saving system, set up sewage treatment station, collect and reuse rainwater and grey water; adopt environmentally friendly, hygienic and green water-saving products in sanitary equipment

HVAC

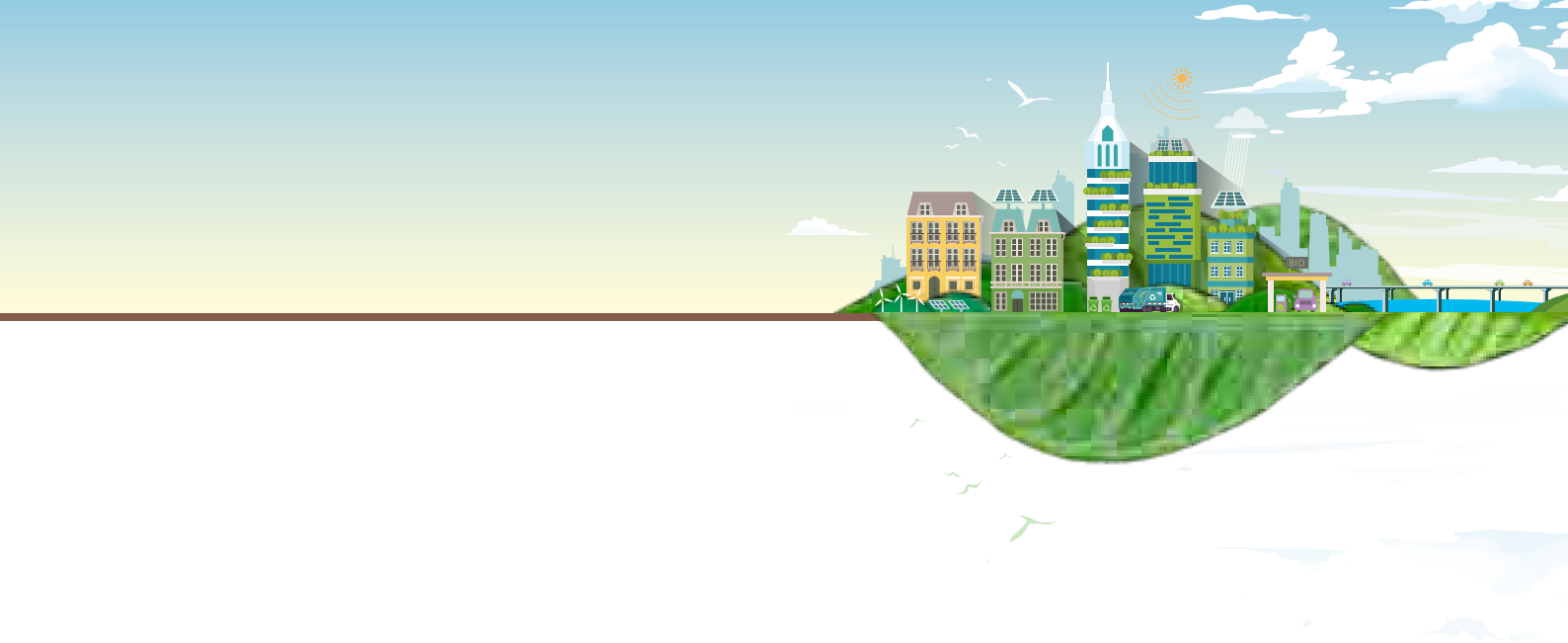
Design feature

Centralise heating and air conditioning system, optimise design of winter's heating load and summer's cooling load in rooms, adopt centralised control and decentralised adjustment to reduce equipment load; adopt energy-saving equipment to reduce energy consumption

Electrical power and equipment

Design feature

Adopt energy-saving lamps and equipment; innovatively use the unmanned park system to reduce manpower and improve work efficiency



During the construction, in order to reduce the negative impact and pollution on the surrounding environment, and to achieve the purpose of green construction, the Group stipulates guidelines on environmental protection and resource use with regard to construction, and requires the construction workers to comply.

Environmental protection

- Sort construction waste and reasonable utilisation rate should reach 30%
- Set up noise monitoring points to monitor and control noise in real time
- Reduce dust in construction sites with measures such as temporary greening, dust-proof cloth and mist blower

Use of materials

- Adhere to the limit of material allocation and waste recycling to reduce resource wastage
- Procure environmentally friendly materials
- Waste packaging recycling rate should reach 100%
- Optimise reinforcement steel bar solutions to reduce scrap yield and reduce loss

Use of water resources

- Set water consumption quotas
- Adopt water-saving appliances

Energy use

- The proportion of energy-saving lighting fixtures should be greater than 80%
- Adopt variable frequency power supply system in large-scale mechanical equipment to reduce energy consumption
- Install power limiters in the workers' dormitory area to prohibit the use of high-power appliances, reduce power consumption and ensure safe use of electricity
- Adhere to the principle of giving priority to nearby material sources. Building materials produced within 50 km from the construction site should account for 70% or more of the total weight of construction materials used

Use of land resources

- Fully understand the geological conditions of the construction site and the distribution of infrastructure pipelines before construction, and formulate corresponding land protection measures
- Optimise the general layout plan and make reasonable use of the land

Case: Paperless Office

To create a paperless work environment, the Group adopts the 'Gong Zuo Bao' system for internal communication. The application of electronic platforms and tools facilitates information flow, document transfer and long-distance meetings, and improves the communication efficiency of all departments.

Features of 'Gong Zuo Bao'

Information portal

Store personnel data with a clear organisation relationship. The platform is convenient for accessing various business systems to realise mobile office.

Full media conference

Combine the intelligent conference flat-panel TV and the conference system software developed by the Group to realise the integration of text, data and video, and improve the communication efficiency of multi-party conferences.

Instantaneous communication

Meet the needs of single-chat and group chat, facilitate the transmission of text, pictures, expressions and other forms of content, and synchronise multi-terminal content to avoid missing information.

Data collaboration

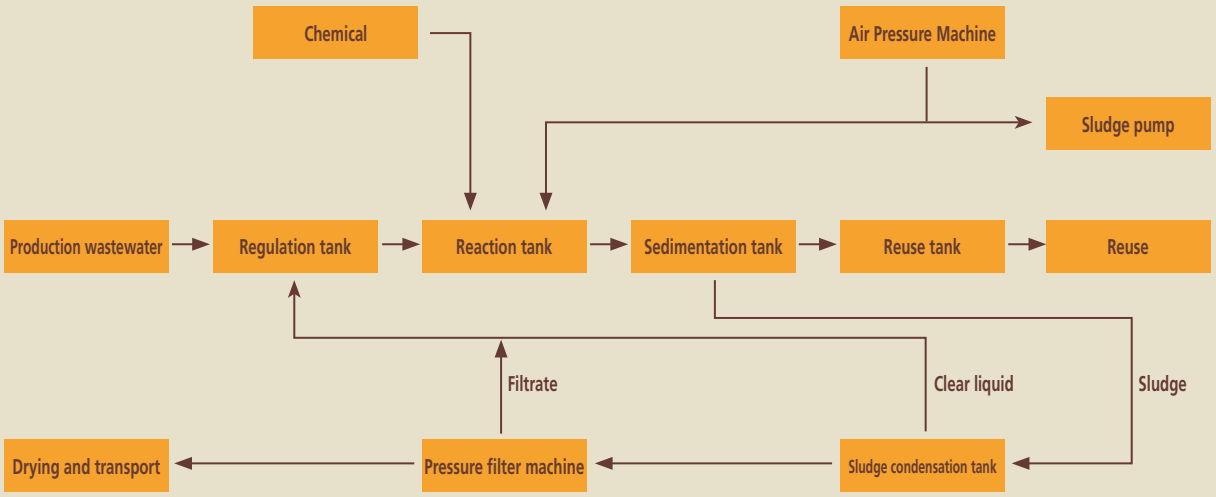
Collaboration functions such as file sharing, group voting, electronic whiteboard and desktop sharing to facilitate work discussion.

In addition, to effectively control and manage inventory costs and improve the efficiency of document issuance, the Group fully adopts the Check Easy and the Sign Easy systems to conduct fixed assets check and document transfer electronically. Through these systems, each asset and document is accompanied by a RFID code or a two-dimensional code for remote tracking and automatic recording, avoiding the mistake of traditional manual counting or delivery. In addition, the electronic process saves the cost of paper purchase and improves work efficiency, while contributing to environmental protection and global carbon reduction at the same time.

Case:
Treatment and Reuse of Production Wastewater

The Group is well aware of the importance of water resources. Apart from the water-saving measures implemented in construction sites, factories and offices, it focuses on the reduction and treatment of wastewater, and promotes the recycling of production wastewater in the production of prefabricated parts. In the process of wastewater treatment, Shenzhen Hailong promotes the use of the new integrated wastewater treatment facility. Compared with conventional large-scale equipment, the new equipment is easy to operate and manage, small in size and with small scale of sewage pipe network, making it convenient for installation and operation and alleviating the burden on pipeline construction.

Production wastewater from the plant is discharged into the wastewater treatment facility. After stirring in the retention tank and undergoing treatment in the reaction tank, it enters the sedimentation tank where the liquid and the sludge are separated. After dehydration by the filter press, the sludge is bagged and stored in a designated position, and collected by third party organisation regularly. The treated wastewater enters the reuse tank for reuse in production. The total amount of wastewater reused by Shenzhen Hailong this year was 4,018 cubic metres, which could achieve zero wastewater discharge in general to realise the aim of reducing use of water resources.



Case: Application of Energy Saving Technology in Thermal Power Plant

Faced with the growing greenhouse effect and climate change, energy conservation and carbon reduction have become an important issue for all industries. Huanggu Thermal Power understands that, as a global citizen, greenhouse gas emissions reduction is one of its important responsibilities. Huanggu Thermal Power has long studied energy-saving technologies and completed the transformation of production equipment in stages. For example, in 1997, the generator was transformed for recycled water heating, so that it can be used to provide heating with the remaining heat of the recycled water during the heating season. The generator is still in use today, and provided 33.89 GJ of heating this year. Huanggu Thermal Power installed a fixed and combined heat condensation unit in 2004, and a lithium bromide absorption heat pump in 2014. The retrofitting measures increased the system's waste heat recovery, which resulted in the recovery of heat of 17.52 GJ in Huanggu Thermal Power.

Entering 2018, Huanggu Thermal Plant continued to assess the energy consumption of the facilities and designed the transformations below to effectively save energy and reduce the carbon emissions in the production.

Desulphurisation sealed fan inlet pipeline transformation

The original pipeline outlet is located outdoors so that heater is needed when the outdoor temperature is too low. After the redesign, the entrance will be moved inside the plant to eliminate the need for heater, saving about 254,000 kWh of electricity.

Energy-saving transformer replacement

Through the verification of the transformer's electrical parameters, load and loss due to empty-load, the plant replaced eight high-energy consumption transformers with new energy-saving transformers, which can save about 47,000 kWh of electricity each year.

Air compressor outlet pipe redesign

The process design of the old air compressor tends to cause frequent unloading of the new air compressor unit. The production department calculated the gas production, gas supply and gas consumption, expanded the connecting pipe diameter, and reduced the use of air compressor. This can save about 437,000 kWh of electricity each year.

Key Performance Indicators Summary[18]

Environmental Performance

Air emissions

Type	Emissions (tonne)		
	Sites of operation within the reporting boundary	CSCD	Total
Nitrogen oxides	2,471	9,488	11,959
Sulphur oxides	501	47	548
Respirable suspended particulates	234	0.17	234
Volatile organic compounds	2	0	2

18 To facilitate readers' comprehensive understanding of the quantified environmental and social performance of the Group, the performance indicators of CSCD are also listed in this chapter. CSCD's environmental performance are quoted from the "Environmental, Social and Governance Report" in its 2018 Annual Report. Apart from total workforce and employee turnover, which are sourced from the report mentioned, other key performance indicators are calculated and reported in the statistical methods of this report.

Key Performance Indicators Summary

Greenhouse gas emissions

Scope	Sources	Emissions (tonne of CO2-e)					
		Sites of operation within the reporting boundary		CSCD		Total	
Scope 1 – Direct emissions	Combustion of fossil fuels	895,102	898,038	2,190	2,245	897,292	900,283
	Industrial production processes – welding	2,936		0		2,936	
	Hydrofluorocarbon and perfluorocarbon emissions	0		55		55	
Scope 2 – Energy indirect emissions	Purchased electricity	130,096	132,252	2,699	2,716	132,795	134,968
	Purchased heat	2,156		0		2,156	
	Purchased gas	0		17		17	
Scope 3 – Other indirect emissions	Industrial production processes – welding (contractor)	70	49,411	0	318	70	49,729
	Stationary combustion (contractor)	46,969		0		49,969	
	Disposal of waste paper	1,243[19]		84		1,327	
	Water consumption	552[19]		14		566	
	Sewage treatment	300[19]		7		307	
	Air business travel	277		213		490	
Total greenhouse gas emissions		1,079,701		5,279		1,084,980	
Greenhouse gas intensity (tonne of CO2-e/ million HK$)		19.50					

[19] Only include emissions of CSCHK.

Waste generation

Type	Waste (tonne)		
	Sites of operation within the reporting boundary	CSCD	Total
Hazardous waste			
Total hazardous waste	51.9	0.003	51.903
Hazardous waste intensity (tonne/million HK$)	0.001		
Non-hazardous waste			
Inert construction and demolition waste (sent to public fill reception facilities)	631,100	801	1,539,374
Non-inert construction and demolition waste (sent to landfills)	63,958		
Construction and demolition waste (sent to construction waste sorting facilities)	17,170		
Inert construction and demolition waste (sent to other authorized facilities for reuse)	567,772		
Other non-hazardous waste	258,573		
Non-hazardous waste	1,538,573	801	1,537,374
Non-hazardous waste intensity (tonne/million HK$)	27.67		

Key Performance Indicators Summary

Energy consumption

Type	Energy consumption (MWh-e)[20]		
	Sites of operation within the reporting boundary	CSCD	Total
Gasoline	14,783	5,506	20,289
Diesel	264,529	664	265,193
Liquefied petroleum gas	6,497	132	6,629
Acetylene	1,358	N/A	1,358
Natural gas	20,033	N/A	20,033
Lignite	2,250,632	N/A	2,250,632
Methanol	119	N/A	119
Charcoal	39	N/A	39
Renewable energy	1,314	N/A	1,314
Purchased electricity	213,343	4,564	217,907
Gas	N/A	350	350
Steam	5,444	N/A	5,444
Sold electricity	-102,300	N/A	-102,300
Total energy consumption	2,675,791	11,216	2,687,007
Energy intensity (MWh-e/million HK$)	48.30		

[20] The unit of energy consumption was changed from GJ in 2017 to MWh-e. Besides, the consumption of natural gas in 2017 is amended to 110,540 cubic metre (equivalent to about 1,931MWh-e).

Water consumption and sewage discharge

Type	Consumption/discharge (cubic metre)		
	Sites of operation within the reporting boundary	CSCD	Total
Water consumption			
Total consumption[21]	5,747,673	32,037	5,779,710
Water intensity (cubic metre/million HK$)	103.90		
Sewage discharge			
Municipal/sewage discharge	1,363,549	Information unavailable	1,363,549
(after treatment) Discharge into the sea, rivers or lakes	304,570		304,570
Total discharge	1,668,119	Information unavailable	1,668,119
Discharge intensity (cubic metre/million HK$)	31.76		
Total water reuse[22]	156,579	Information not obtained	156,579

Total packaging material used for finished products

Type	Consumption (tonne)		
	Sites of operation within the reporting boundary	CSCD	Total
Timber for packaging	10,425	N/A	10,425
Packing belt	N/A	4.40	4.40
Stretch film	N/A	3.80	3.80
Paper corner protector	N/A	1.60	1.60
Bubble film	N/A	0.02	0.02
Cellulose tape	N/A	0.07	0.07
PVC film	N/A	1.05	1.05
Paper	N/A	522.30	522.30
Plastic	N/A	389.10	389.10
Total consumption of packaging materials	10,425	922.34	11,347.34
Packaging material intensity (tonne/million HK$)	0.20		

21 Including water consumption of contractors provided by CSCI in construction sites.

22 Reused in construction sites of the Group, not used by other organisations.

Key Performance Indicators Summary

Consumption of raw materials[23]

Type	Consumption			
	Hong Kong	Macau	Mainland China	Total
Internal consumption of the Group				
Concrete (cubic metre)	1,029,783	276,608	5,320,436	6,626,827
Cement mortor (cubic metre)	18,817	4,046	319,357	342,220
Reinforced steel bar (tonne)	245,798	55,931	463,888	765,617
Steel beams (tonne)	9,813	1,937	24,313	36,063
Sheet pile (tonne)	2,635	1,916	42	4,593
Cement (tonne)	33,292	12	1,281,688	1,314,992
River sand (tonne)	121,240	16	1,589,812	1,711,068
Stones (tonne)	452,092	0	2,973,280	3,425,372
Bricks (tonne)	80	31,811	1,162,778	1,194,669
Concrete floor materials (tonne)	0	12,883	0	12,883
Aluminium products (tonne)	0	0	6,632	6,632
Steel products (tonne)	5	26	8,169	8,200
Silica gel (tonne)	0	0	3	3
Glass (tonne)	50	0	25,743	25,793
Consumption of contractors				
Concrete (cubic metre)	73,488	130,973	3,413,923	3,618,384
Cement mortor (cubic metre)	95,851	3,164	124,464	223,479
Reinforced steel bar (tonne)	83,828	21,813	442,658	548,299
Steel beams (tonne)	1,910	0	17,545	19,455
Sheet pile (tonne)	2,206	0	40	2,246
Cement (tonne)	5,324	12	630,166	635,502
River sand (tonne)	9,334	16	1,255,489	1,264,839
Stones (tonne)	76,928	0	2,470,274	2,547,202
Bricks (tonne)	9,020	14,685	1,143,950	1,167,655
Concrete floor materials (tonne)	950	12,883	161	13,994
Aluminium products (tonne)	1,200	0	7,447	8,647
Steel products (tonne)	1,121	26	8,519	9,666
Silica gel (tonne)	5	0	1	6
Glass (tonne)	250	0	8,433	8,683
Timber for packaging (tonne)	1,900	2	9,436	11,338

[23] The relevant data of CSCD during the year was not calculated.

Social Performance

Total workforce (by region, age group, gender, employment contract and employment category)

Type	Total workforce		
	Sites of operation within the reporting boundary	CSCD	Total
By region			
Hong Kong	4,671	345	5,016
Macau	707	N/A	707
Mainland China	5,143	1,911	7,054
USA	N/A	247	247
Canada	N/A	232	232
By age group			
Below 30	3,370	781	4,151
31-40	3,025	866	3,891
41-50	2,362	706	3,068
Over 51	1,764	382	2,146
By gender			
Male	8,351	2,373	10,724
Female	2,170	362	2,532
Total	10,521	2,735	13,256

Key Performance Indicators Summary

Region	Gender	By employment contract					
		Permanent			Temporary		
		Sites of operation within the reporting boundary	CSCD	Total	Sites of operation within the reporting boundary	CSCD	Total
Hong Kong	Male	3,692	276	3,968	0	0	0
	Female	979	69	1,048	0	0	0
Macau	Male	531	N/A	531	0	N/A	0
	Female	176	N/A	176	0	N/A	0
Mainland China	Male	4,128	1,699	5,827	0	0	0
	Female	1,015	212	1,227	0	0	0
USA	Male	N/A	42	42	N/A	164	164
	Female	N/A	20	20	N/A	21	21
Canada	Male	N/A	54	54	N/A	138	138
	Female	N/A	17	17	N/A	23	23

Gender	By employment type					
	Full-time			Part-time		
	Sites of operation within the reporting boundary	CSCD	Total	Sites of operation within the reporting boundary	CSCD	Total
Male	8,349	2,373	10,722	2	0	2
Female	2,169	362	2,531	1	0	1

Number and rate of new hires (by region, age group and gender)

Type	Number of new hires			Rate of new hires		
	Sites of operation within the reporting boundary	CSCD	Total	Sites of operation within the reporting boundary	CSCD	Total
By region						
Hong Kong	2,336	93	2,429	50%	27%	48%
Macau	146	N/A	146	21%	N/A	21%
Mainland China	949	775	1,724	18%	41%	24%
USA	N/A	89	89	N/A	36%	36%
Canada	N/A	74	74	N/A	32%	32%
By age group						
Below 30	1,371	436	1,807	41%	56%	44%
31-40	799	406	1,205	26%	47%	31%
41-50	654	165	819	28%	23%	27%
Over 51	607	24	631	34%	6%	29%
By gender						
Male	2,784	921	3,705	33%	39%	35%
Female	647	110	757	30%	30%	30%
Total	3,431	1,031	4,462	33%	38%	34%

Key Performance Indicators Summary

Number and rate of employee turnover (by region, age group and gender)

Type	Employee turnover			Turnover rate		
	Sites of operation within the reporting boundary	CSCD	Total	Sites of operation within the reporting boundary	CSCD[24]	Total
By region						
Hong Kong	1,939	54	1,993	43%	17%	42%
Macau	94	N/A	94	14%	N/A	14%
Mainland China	1,705	670	2,375	31%	36%	32%
USA	N/A	9	9	N/A	4%	4%
Canada	N/A	28	28	N/A	13%	13%
By age group						
Below 30	1,376	350	1,726	41%	47%	42%
31-40	914	251	1,165	30%	32%	30%
41-50	582	124	760	25%	18%	23%
Over 51	866	36	902	46%	9%	40%
By gender						
Male	3,042	655	3,697	36%	29%	34%
Female	696	106	802	32%	29%	31%
Total	3,738	761	4,499	35%	29%	34%

[24] Since the calculation method of employee turnover rate in the Environmental, Social and Governance Report of CSCD is different from that of the Group, to maintain consistency, this column of data is recalculated according to the Group's method.

Ratio of salary of male employees to female employees (by region and employee category)

Region	Employee category	Ratio of salary of male employees to female employees		
		Sites of operation within the reporting boundary	CSCD	Total
Hong Kong	Senior	2.80:1	N/A	2.51:1
	Middle	1.74:1	1.00:1	1.59:1
	Executive	1.43:1	1.19:1	1.34:1
	General	1.53:1	1.10:1	1.54:1
Macau	Senior	N/A	N/A	N/A
	Middle	1.11:1	N/A	1.11:1
	Executive	1.36:1	N/A	1.36:1
	General	1.85:1	N/A	1.85:1
Mainland China	Senior	N/A	N/A	N/A
	Middle	0.97:1	N/A	0.88:1
	Executive	1.12:1	4.23:1	1.18:1
	General	1.39:1	1.79:1	1.18:1
USA	Senior	N/A	N/A	N/A
	Middle	N/A	N/A	N/A
	Executive	N/A	1.24:1	1.24:1
	General	N/A	0.88:1	0.88:1
Canada	Senior	N/A	N/A	N/A
	Middle	N/A	N/A	N/A
	Executive	N/A	N/A	N/A
	General	N/A	1.07:1	1.07:1

Key Performance Indicators Summary

Data of occupational health and safety (by region and gender) [25, 26]

Region	Gender	Number of work-related injuries			Work-related injury rate per 1,000 persons		
		Sites of operation within the reporting boundary	CSCD	Total	Sites of operation within the reporting boundary	CSCD	Total
Hong Kong	Male	11	1	12	3.0	3.6	3.0
	Female	3	0	3	3.1	0	2.9
Macau	Male	0	N/A	0	0	N/A	0
	Female	0	N/A	0	0	N/A	0
Mainland China	Male	3	7	10	0.7	4.1	1.7
	Female	0	2	2	0	9.4	1.6
USA	Male	N/A	2	2	N/A	9.7	9.7
	Female	N/A	0	0	N/A	0	0
Canada	Male	N/A	0	0	N/A	0	0
	Female	N/A	0	0	N/A	0	0
Total		17	12	29	1.6	4.4	2.2

25 Excluding employees of contractors. The Group is improving the calculation mechanism and plans to disclose the relevant data in the next reporting period.

26 There were no cases of occupational diseases and work-related fatalities during the year.

Region	Gender	Lost days due to work-related injury			Lost day rate		
		Sites of operation within the reporting boundary	CSCD	Total	Sites of operation within the reporting boundary	CSCD	Total
Hong Kong	Male	2,922	77	2,999	0.31%	0.03%	0.25%
	Female	2,001	0	2,001	0.76%	0	0.73%
Macau	Male	0	N/A	0	0	N/A	0
	Female	0	N/A	0	0	N/A	0
Mainland China	Male	80	524	604	0.01%	0.23%	0.05%
	Female	0	140	140	0	0.28%	0.05%
USA	Male	N/A	31	31	N/A	0.17%	0.17%
	Female	N/A	0	0	N/A	0	0
Canada	Male	N/A	0	0	N/A	0	0
	Female	N/A	0	0	N/A	0	0
Total		5,003	772	5,775	0.19%	0.13%	0.18%

Region	Gender	Absent days			Absentee rate		
		Sites of operation within the reporting boundary	CSCD	Total	Sites of operation within the reporting boundary	CSCD	Total
Hong Kong	Male	16,204.5	668	16,872.5	1.71%	0.26%	1.40%
	Female	5,765.5	49	5,814.5	2.19%	0.47%	2.12%
Macau	Male	0	N/A	0	0	N/A	0
	Female	0	N/A	0	0	N/A	0
Mainland China	Male	140	659	799	0.01%	0.29%	0.06%
	Female	0	236	236	0	0.47%	0.08%
USA	Male	N/A	180	180	N/A	1.00%	1.00%
	Female	N/A	45	45	N/A	0.47%	0.47%
Canada	Male	N/A	25	25	N/A	0.28%	0.28%
	Female	N/A	26	26	N/A	0.46%	0.46%
Total		22,110	1,888	23,998	0.82%	0.32%	0.73%

Key Performance Indicators Summary

Training data (by region, gender and employee category) [27]

Region	Employee category	Average training hours of male employees			Percentage of male employees trained			Average training hours of female employees			Percentage of female employees trained		
		Sites of operation within the reporting boundary	CSCD	Total	Sites of operation within the reporting boundary	CSCD	Total	Sites of operation within the reporting boundary	CSCD	Total	Sites of operation within the reporting boundary	CSCD	Total
Hong Kong	Senior	1.9	11.2	3.4	100%	100%	100%	0.8	N/A	0.8	100%	N/A	100%
	Middle	4.6	12.0	6.0	100%	100%	100%	1.7	9.0	2.3	100%	100%	100%
	Executive	9.8	6.0	8.9	100%	100%	100%	5.1	24.0	8.3	100%	100%	100%
	General	2.3	11.1	2.7	100%	100%	100%	0.7	8.0	1.2	100%	100%	100%
Macau	Senior	8.0	N/A	8.0	100%	N/A	100%	N/A	N/A	N/A	N/A	N/A	N/A
	Middle	20.0	N/A	20.0	100%	N/A	100%	20.0	N/A	20.0	100%	N/A	100%
	Executive	5.5	N/A	5.5	100%	N/A	100%	2.0	N/A	2.0	100%	N/A	100%
	General	3.4	N/A	3.4	100%	N/A	100%	1.7	N/A	1.7	100%	N/A	100%
Mainland China	Senior	29.0	8.7	26.8	100%	100%	100%	N/A	N/A	N/A	N/A	N/A	N/A
	Middle	31.0	18.0	29.7	100%	100%	100%	35.0	N/A	35.0	100%	N/A	100%
	Executive	33.0	4.4	28.9	100%	73%	96%	34.0	19.8	31.2	100%	82%	97%
	General	26.0	2.2	18.4	100%	74%	92%	26.0	1.8	21.8	100%	58%	93%
USA	Senior	N/A	12.0	12.0	N/A	100%	100%	N/A	N/A	N/A	N/A	N/A	N/A
	Middle	N/A	10.0	10.0	N/A	100%	100%	N/A	N/A	N/A	N/A	N/A	N/A
	Executive	N/A	6.3	6.3	N/A	100%	100%	N/A	10.0	10.0	N/A	100%	100%
	General	N/A	8.0	8.0	N/A	99%	99%	N/A	37.0	37.0	N/A	97%	97%
Canada	Senior	N/A	10.0	10.0	N/A	100%	100%	N/A	N/A	N/A	N/A	N/A	N/A
	Middle	N/A	10.3	10.3	N/A	100%	100%	N/A	N/A	N/A	N/A	N/A	N/A
	Executive	N/A	8.0	8.0	N/A	100%	100%	N/A	N/A	N/A	N/A	N/A	N/A
	General	N/A	6.0	6.0	N/A	100%	100%	N/A	6.5	6.5	N/A	98%	98%

27 Since the employee categories in the Environmental, Social and Governance Report of CSCD was different from that of the Group, to maintain reporting consistency, its training data is recalculated.

Number of employees received regular performance and career development review (by gender and employee category)

Employee category	Number of male employees who received a review			Percentage of male employees who received a review			Number of female employees who received a review			Percentage of female employees who received a review		
	Sites of operation within the reporting boundary	CSCD	Total	Sites of operation within the reporting boundary	CSCD	Total	Sites of operation within the reporting boundary	CSCD	Total	Sites of operation within the reporting boundary	CSCD	Total
Senior	58	10	68	100%	100%	100%	3	N/A	3	100%	N/A	100%
Middle	178	31	209	100%	100%	100%	21	1	22	100%	100%	100%
Executive	930	184	1,114	100%	87%	98%	96	23	119	100%	88%	98%
General	7,185	1,703	8,888	100%	80%	96%	2,050	252	2,302	100%	75%	97%

Supplier management (by region)

Region	Number of suppliers			Number of suppliers where the practices are being implemented		
	Sites of operation within the reporting boundary	CSCD	Total	Sites of operation within the reporting boundary	CSCD	Total
Hong Kong	19	N/A	19	100%	N/A	100%
Macau	318	N/A	318	100%	N/A	100%
Mainland China	270	93	363	100%	100%	100%
USA	N/A	1	1	N/A	100%	100%

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Material Aspect	Content	Relevant Chapter (Page Number)	Remarks
A. Environmental			
A1 Emissions			
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to air and greenhouse gas emissions, discharges into water and land, and generation of hazardous and non-hazardous waste.	Sustainability Management (11); Environmental Responsibility - We and the Environment (81, 84, 91)	
A1.1	The types of emissions and respective emissions data.	Key Performance Indicators Summary (99)	
A1.2	Greenhouse gas emissions in total (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	Key Performance Indicators Summary (100)	
A1.3	Total hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	Key Performance Indicators Summary (101)	
A1.4	Total non-hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	Key Performance Indicators Summary (101)	
A1.5	Description of measures to mitigate emissions and results achieved.	Environmental Responsibility - We and the Environment (82-83, 85-89)	
A1.6	Description of how hazardous and non-hazardous wastes are handled, reduction initiatives and results achieved.	Environmental Responsibility - We and the Environment (90-93)	

Material Aspect	Content	Relevant Chapter (Page Number)	Remarks
A2 Use of Resources			
General Disclosure	Policies on the efficient use of resources, including energy, water and other raw materials.	Sustainability Management (11); Environmental Responsibility - We and the Environment (81, 84)	
A2.1	Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total (kWh in '000s) and intensity (e.g. per unit of production volume, per facility).	Key Performance Indicators Summary (102)	
A2.2	Water consumption in total and intensity (e.g. per unit of production volume, per facility).	Key Performance Indicators Summary (103)	
A2.3	Description of energy use efficiency initiatives and results achieved.	Environmental Responsibility - We and the Environment (82-83, 87-88, 98)	
A2.4	Description of whether there is any issue in sourcing water that is fit for purpose, water efficiency initiatives and results achieved.	Environmental Responsibility - We and the Environment (89, 91)	There were no issues in sourcing water fit for purpose.
A2.5	Total packaging material used for finished products (in tonnes) and, if applicable, with reference to per unit produced.	Key Performance Indicators Summary (103)	
A3 The Environment and Natural Resources			
General Disclosure	Policies on minimising the issuer's significant impact on the environment and natural resources.	Sustainability Management (11); Social Responsibility - We and Partners (55); Environmental Responsibility - We and the Environment (81, 84)	
A3.1	Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them.	Social Responsibility - We and Partners (55); Environmental Responsibility - We and the Environment (84, 94-95)	

HKEX "ESG Guide" Content Index

Material Aspect	Content	Relevant Chapter (Page Number)	Remarks
B. Social			
B1 Employment			
General Disclosure	Information on: (a) the policies; and (b) 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.	Sustainability Management (11); Social Responsibility - We and Employees (48-49)	There were no relevant cases of significant non-compliance within the Group during the year.
B1.1	Total workforce by gender, employment type, age group and geographical region.	Key Performance Indicators Summary (105-106)	
B1.2	Employee turnover rate by gender, age group and geographical region.	Key Performance Indicators Summary (108)	
B2 Health and Safety			
General Disclosure	Information on: (a) the policies; and (b) 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.	Sustainability Management (11); Social Responsibility - We and Employees (38-47)	There were no relevant cases of significant non-compliance within the Group during the year.
B2.1	Number and rate of work-related fatalities.	Key Performance Indicators Summary (110)	
B2.2	Lost days due to work injury.	Key Performance Indicators Summary (111)	
B2.3	Description of occupational health and safety measures adopted, how they are implemented and monitored.	Social Responsibility - We and Employees (35-47)	

Material Aspect	Content	Relevant Chapter (Page Number)	Remarks
B3 Development and Training			
General Disclosure	Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities.	Sustainability Management (11); Social Responsibility - We and Employees (50-52)	
B3.1	The percentage of employees trained by gender and employee category (e.g. senior management, middle management).	Key Performance Indicators Summary (112)	
B3.2	The average training hours completed per employee by gender and employee category.	Key Performance Indicators Summary (112)	
B4 Labour Standards			
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to preventing child and forced labour.	Social Responsibility - We and Employees (49)	There were no relevant cases of significant non-compliance within the Group during the year.
B4.1	Description of measures to review employment practices to avoid child and forced labour.	Social Responsibility - We and Employees (49)	
B4.2	Description of steps taken to eliminate such practices when discovered.	N/A	There were no relevant issues during the year within the Group.
B5 Supply Chain Management			
General Disclosure	Policies on managing environmental and social risks of the supply chain.	Sustainability Management (11); Social Responsibility - We and Partners (53)	
B5.1	Number of suppliers by geographical region.	Key Performance Indicators Summary (113)	
B5.2	Description of practices relating to engaging suppliers, number of suppliers where the practices are being implemented, how they are implemented and monitored.	Social Responsibility - We and Partners (53-54); Key Performance Indicators Summary (113)	

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Material Aspect	Content	Relevant Chapter (Page Number)	Remarks
B6 Product Responsibility			
General Disclosure	Information on: (a) the policies; and (b) 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.	Sustainability Management (11); Social Responsibility - We and Customers (60-61, 66-67, 69)	There were no relevant cases of significant non-compliance within the Group during the year.
B6.1	Percentage of total products sold or shipped subject to recalls for safety and health reasons.	N/A	There were no cases of product recall due to safety and health issues during the year within the Group.
B6.2	Number of products and service related complaints received and how they are dealt with.	Social Responsibility - We and Customers (62, 66)	
B6.3	Description of practices relating to observing and protecting intellectual property rights.	Operational Responsibility - Corporate Governance (33)	
B6.4	Description of quality assurance process and recall procedures.	Social Responsibility - We and Customers (60-64)	
B6.5	Description of consumer data protection and privacy policies, how they are implemented and monitored.	Social Responsibility - We and Customers (69)	

Material Aspect	Content	Relevant Chapter (Page Number)	Remarks
B7 Anticorruption			
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to bribery, extortion, fraud and money laundering.	Sustainability Management (11); Operational Responsibility - Corporate Governance (32)	There were no significant cases of non-compliance within the Group during the year.
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.	N/A	There were no relevant cases of prosecution in relation to corruption against the Group or its employees.
B7.2	Description of preventive measures and whistle-blowing procedures, how they are implemented and monitored.	Operational Responsibility - Corporate Governance (32-33)	
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.	Sustainability Management (11); Social Responsibility - We and Community (72)	
B8.1	Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport).	Social Responsibility - We and Community (72)	
B8.2	Resources contributed (e.g. money or time) to the focus area.	Social Responsibility - We and Community (70-77)	

GRI Standards Content Index

GRI Standards	Content	Relevant chapter (page number)	Remarks
General Disclosures			
GRI 102: General Disclosures 2016			
Organisational profile			
102-1	Name of the organisation	About this Report (2)	
102-2	Activities, brands, products, and services	Operational Responsibility - About the Company (26-29)	No product or service of the Group was banned in the market during the year.
102-3	Location of headquarters	Operational Responsibility - About the Company (26)	
102-4	Location of operations	About this Report (3); Operational Responsibility - About the Company (27)	
102-5	Ownership and legal form	Operational Responsibility - About the Company (26)	
102-6	Markets served	Operational Responsibility - About the Company (26-29)	
102-7	Scale of the organisation	Operational Responsibility - About the Company (27-29); Social Responsibility - We and Employees (48)	Detailed itemised financial data is available on p. 17-20 of the Group's Annual Report 2018.
102-8	Information on employees and other workers	Key Performance Indicators Summary (106)	There were no significant changes to the employee number reported.
102-9	Description of the organisation's supply chain	Social Responsibility - We and Partners (53); Key Performance Indicators Summary (113)	

GRI Standards	Content	Relevant chapter (page number)	Remarks
General Disclosures			
GRI 102: General Disclosures 2016			
Organisational profile			
102-10	Significant changes to the organisation and its supply chain	N/A	There were no relevant significant changes during the year.
102-11	Precautionary Principle or approach	Operational Responsibility - Management of Sustainability Risks (23-25); Operational Responsibility -Corporate Governance (32)	
102-12	External initiatives	Operational Responsibility - About the Company (30)	
102-13	Memberships of associations	Operational Responsibility - About the Company (30)	
Strategy			
102-14	Statement from senior decision – maker	Message from the Chairman (6-7)	
Ethics and integrity			
102-16	Values, principles, standards and norms of behaviour	Operational Responsibility - About the Company (28-29); Operational Responsibility -Corporate Governance (32-33)	

GRI Standards Content Index

GRI Standards	Content	Relevant chapter (page number)	Remarks
Governance			
102-18	Governance structure	Operational Responsibility -Corporate Governance (31); Sustainability Management - Sustainability Committee (12-14)	Please refer to p.66-73 the Group's Annual Report 2018.
Stakeholder engagement			
102-40	List of stakeholder groups	Sustainability Management - Stakeholder Engagement (15)	
102-41	Collective bargaining agreements	N/A	There were no formal collective bargaining agreements within the Group.
102-42	Identifying and selecting stakeholders	Sustainability Management - Stakeholder Engagement (21)	
102-43	Approach to stakeholder engagement	Sustainability Management - Stakeholder Engagement (15-16)	
102-44	Key topics and concerns raised	Sustainability Management - Stakeholder Engagement (16-20)	
Reporting practice			
102-45	Entities included in the consolidated financial statements	About this Report (3)	Please refer to p. 191-197 of the Group's Annual Report 2018.

GRI Standards	Content	Relevant chapter (page number)	Remarks
102-46	Defining report content and topic Boundaries	About this Report (3); Sustainability Management - Stakeholder Engagement (16-20)	Please refer to the Group website for how the organisation defines the report content with the reporting principles.
102-47	List of material topics	Sustainability Management - Stakeholder Engagement (19)	
102-48	Restatements of information	Key Performance Indicators Summary (102, 108, 112)	
102-49	Changes in reporting	About this Report (3); Sustainability Management - Stakeholder Engagement (20)	
102-50	Reporting period	About this Report (2)	
102-51	Date of most recent report	N/A	The most recent report of the Group was Sustainability Report 2017 published on 8 June 2017.
102-52	Reporting cycle	N/A	Every year
102-53	Contact point for questions regarding the report	About this Report (4)	
102-54	Claims of reporting in accordance with GRI Standards	About this Report (3)	

GRI Standards Content Index

GRI Standards	Content	Relevant chapter (page number)	Remarks
102-55	GRI Content Index	GRI Standards Content Index (120-131)	
102-56	External assurance	N/A	The Group has not carried out external assurance of the report.
Material Issues			
GRI 201: Economic Performance 2016			
103-1	Explanation of the material topic and its Boundary	Sustainability Management - Stakeholder Engagement (16-19)	
103-2	The management approach and its components	Operational Responsibility - About the Company (28-29);	For details please refer to p. 16-25 of the Group's Annual Report 2018.
103-3	Evaluation of the management approach		
201-1	Direct economic value generated and distributed	Responsibility - About the Company (28-29);	For details please refer to p.6-7 of the Group's Annual Report 2018.
GRI 205: Anti-corruption 2016			
103-1	Explanation of the material topic and its Boundary	Sustainability Management - Stakeholder Engagement (16-19)	
103-2	The management approach and its components	Sustainability Management (11); Operational Responsibility - Corporate Governance (32-33)	
103-3	Evaluation of the management approach		

GRI Standards	Content	Relevant chapter (page number)	Remarks
205-3	Confirmed incidents of corruption and actions taken	N/A	During the year, the Group and its employees were not involved in cases of corruption. There was no prosecution due to corruption.
GRI 206: Anti-competitive Behaviour 2016			
103-1	Explanation of the material topic and its Boundary	Sustainability Management - Stakeholder Engagement (16-19)	
103-2	The management approach and its components	Sustainability Management (11); Operational Responsibility - Corporate Governance (33)	
103-3	Evaluation of the management approach		
206-1	Legal actions for anti-competitive behaviour, anti-trust, and monopoly practices	N/A	During the year, the Group was not involved in any cases of anti-competitive behaviour, anti-trust, and monopoly practices.
GRI 306: Effluents and Waste 2016			
103-1	Explanation of the material topic and its Boundary	Sustainability Management - Stakeholder Engagement (16-19)	

21 The relevant data of CSCD during the year was not calculated.

GRI Standards Content Index

GRI Standards	Content	Relevant chapter (page number)	Remarks
103-2	The management approach and its components	Sustainability Management (11); Environmental Responsibility - We and the Environment (81-84, 89-93, 97)	
103-3	Evaluation of the management approach		
306-2	Waste by type and disposal method	Key Performance Indicators Summary (101)	
GRI 401: Employment 2016			
103-1	Explanation of the material topic and its Boundary	Sustainability Management - Stakeholder Engagement (16-19)	
103-2	The management approach and its components	Sustainability Management (11); Social Responsibility - We and Employees (48-49)	
103-3	Evaluation of the management approach		
401-1	New employee hires and employee turnover	Key Performance Indicators Summary (107-108)	
GRI 402: Labour/Management Relations 2016			
103-1	Explanation of the material topic and its Boundary	Sustainability Management - Stakeholder Engagement (16-19)	
103-2	The management approach and its components	Sustainability Management (11); Social Responsibility - We and Employees (48)	
103-3	Evaluation of the management approach		
402-1	Minimum notice periods regarding operational changes	N/A	The relevant matters are included in the employment/ labour contract.

GRI Standards	Content	Relevant chapter (page number)	Remarks
GRI 403: Occupational Health and Safety 2016			
103-1	Explanation of the material topic and its Boundary	Sustainability Management - Stakeholder Engagement (16-19)	
103-2	The management approach and its components	Sustainability Management (11); Social Responsibility - We and Employees (35-47)	
103-3	Evaluation of the management approach		
403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	Key Performance Indicators Summary (110-111)	
GRI 404: Training and Education 2016			
103-1	Explanation of the material topic and its Boundary	Sustainability Management - Stakeholder Engagement (16-19)	
103-2	The management approach and its components	Sustainability Management (11); Social Responsibility - We and Employees (50-52)	
103-3	Evaluation of the management approach		
404-1	Average hours of training per year per employee	Key Performance Indicators Summary (112)	

GRI Standards Content Index

GRI Standards	Content	Relevant chapter (page number)	Remarks
GRI 405: Diversity and Equal Opportunity 2016			
103-1	Explanation of the material topic and its Boundary	Sustainability Management - Stakeholder Engagement (16-19)	
103-2	The management approach and its components	Social Responsibility - We and Employees (48-49)	
103-3	Evaluation of the management approach		
405-2	Ratio of basic salary and remuneration of women to men	Key Performance Indicators Summary (109)	
GRI 406: Non-discrimination 2016			
103-1	Explanation of the material topic and its Boundary	Sustainability Management - Stakeholder Engagement (16-19)	
103-2	The management approach and its components	Social Responsibility - We and Employees (48-49)	
103-3	Evaluation of the management approach		
406-1	Incidents of discrimination and corrective actions taken	N/A	There were no incidents of discrimination during the year within the Group.
GRI 407: Freedom of Association and Collective Bargaining 2016			
103-1	Explanation of the material topic and its Boundary	Sustainability Management - Stakeholder Engagement (16-19)	
103-2	The management approach and its components	Social Responsibility - We and Employees (48)	Please refer to p. 51 of the Group's Annual Report 2018.
103-3	Evaluation of the management approach		
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	N/A	There were no relevant issues during the year within the Group.

GRI Standards	Content	Relevant chapter (page number)	Remarks
GRI 408: Child Labour 2016			
103-1	Explanation of the material topic and its Boundary	Sustainability Management - Stakeholder Engagement (16-19)	
103-2	The management approach and its components	Social Responsibility - We and Employees (49)	
103-3	Evaluation of the management approach		
408-1	Operations and suppliers at significant risk for incidents of child labour	N/A	During the year, the Group did not identify any operations and suppliers that are at significant risk for incidents of child labour.
GRI 409: Forced or Compulsory Labour 2016			
103-1	Explanation of the material topic and its Boundary	Sustainability Management - Stakeholder Engagement (16-19)	
103-2	The management approach and its components	Social Responsibility - We and Employees (49)	
103-3	Evaluation of the management approach		
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labour	N/A	During the year, the Group did not identify any operations and suppliers that are at significant risk for incidents of forced or compulsory labour.

GRI Standards Content Index

GRI Standards	Content	Relevant chapter (page number)	Remarks
GRI 416: Customer Health and Safety 2016			
103-1	Explanation of the material topic and its Boundary	Sustainability Management - Stakeholder Engagement (16-19)	
103-2	The management approach and its components	Sustainability Management (11); Social Responsibility - We and Customers (60-69)	
103-3	Evaluation of the management approach		
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	N/A	There were no relevant cases of non-compliance during the year.
GRI 417: Marketing and Labeling 2016			
103-1	Explanation of the material topic and its Boundary	Sustainability Management - Stakeholder Engagement (16-19)	
103-2	The management approach and its components	Social Responsibility - We and Customers (69)	
	Evaluation of the management approach		
417-2	Incidents of non-compliance concerning product and service information and labeling	N/A	There were no relevant cases of non-compliance during the year.

GRI Standards	Content	Relevant chapter (page number)	Remarks
GRI 418: Customer Privacy 2016			
103-1	Explanation of the material topic and its Boundary	Sustainability Management - Stakeholder Engagement (16-19)	
103-2	The management approach and its components	Social Responsibility - We and Customers (69)	
103-3	Evaluation of the management approach		
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	N/A	The Group did not receive any complaints concerning breaches of customer privacy and losses of customer data during the year.
Material issues not covered by the GRI Standards			
Quality management and after-sale service			
103-1	Explanation of the material topic and its Boundary	Sustainability Management - Stakeholder Engagement (16-19)	
103-2	The management approach and its components	Sustainability Management (11); Social Responsibility - We and Customers (60-69)	
103-3	Evaluation of the management approach		
Protection of intellectual property rights			
103-1	Explanation of the material topic and its Boundary	Sustainability Management - Stakeholder Engagement (16-19)	
103-2	The management approach and its components	Operational Responsibility - Corporate Governance (33)	
103-3	Evaluation of the management approach		