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# Innovating & Starting Afresh



China Resources Cement Holdings Limited

## Social Responsibility Report 2018

China Resources Cement Holdings Limited

2018 Social Responsibility Report



Room 4606-08, China Resources Building, 26 Harbour Road, Wanchai, Hong Kong  
Website: [www.crcement.com](http://www.crcement.com)  
Website for Corporate Communications: [www.irasia.com/listco/hk/crcement/index.htm](http://www.irasia.com/listco/hk/crcement/index.htm)





# Table of Contents

<b>Foreword</b>	<b>02</b>	<b>About CR Cement</b>	<b>04</b>
		Corporate Profile	04
		CR Cement in 2018	05
		Organizational Structure	05
		Our Business	05
<b>Statement</b>	<b>03</b>	Corporate Governance	06
<hr/>			
<b>CSR Story</b>	<b>08</b>	<b>CSR Story</b>	<b>09</b>
Rebranding for the new journey of "Runfeng Cement"		Urban sludge co-processing project of Zhujiang Cement creates a new model for collaborative solutions to the urban sludge industry	
<hr/>			
<b>Craftsman's spirit wins trust</b>	<b>11</b>	<b>Mutual achievements in responsibility</b>	<b>31</b>
Building greatness in pursuit of excellence	13	People-oriented growth with companion	33
Standardized production with safety first	16	Customer-oriented services with craftsman's spirit	39
Keeping abreast of green development	20	Winning hand-in-hand through mutual construction and sharing	42
Innovative intelligent manufacturing to shape the future	27	Empathetic connections with the society for mutual creation of harmony	44
<hr/>			
<b>Social Responsibility Management</b>	<b>49</b>	<b>Future Prospects</b>	<b>53</b>
Strategy for Responsibility	49	<b>Appendices</b>	<b>55</b>
Governance of Responsibility	49	Key Performance Indicators	55
Culture of Responsibility	49	Rating Report	58
Engagement with Responsibility	50	Reference Table of Indicators	59
Issue Analysis	51	Feedback	60
Honours of Responsibility	52	Organizational Institutions	61

# Foreword

## Reporting Frequency

This report is published on an annual basis and is the sixth Social Responsibility Report which China Resources Cement Holdings Limited published to the public.

## Reporting Period

This report covers the period from 1 January 2018 to 31 December 2018.

## Description of References

For ease of reference, "CR Cement", "the Company" or "we" mentioned in this report all stand for "China Resources Cement Holdings Limited and its subsidiaries".

## Basis of Reference

"G4 Sustainability Reporting Guidelines" of Global Reporting Initiative

"United Nations Sustainable Development Goals"

"Guidance on Social Responsibility Reporting" of GB/T36001-2015

"Environmental, Social and Governance Reporting Guide" of The Stock Exchange of Hong Kong Limited

"Guidelines on China Corporate Social Responsibility Reporting Guidelines for Chinese Enterprises (CASS-CSR4.0)" of Chinese Academy of Social Sciences

"China Resources Group Management Methods for Social Responsibility"

## Data Description

The data in this report is sourced from the official documents and statistical reports of CR Cement, with the consolidated financial statements audited by Ernst & Young. The Company undertakes that there are no misrepresentations, misleading statements or material omissions in the contents of this report.

## Preparation Procedures

To ensure completeness, authenticity and balance of contents, this report was prepared with reference to the abovementioned standards by taking such steps as industry benchmarking, questionnaire surveys, information gathering, review on the information gathered, report drafting, and final review by the management.

## Access to this Report

The electronic versions in Chinese and English are available on the website of the Company.

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# Statement

Year 2018 is the 40<sup>th</sup> anniversary of China's economic reform and opening up, and is a crucial year for comprehensively deepening reforms. Starting from a small grinding plant in Dongguan in 1998, CR Cement has experienced ups and downs, twists and turns under the baptism of market tides and industry competition. From struggling for survival to sparking a blazing fire, the Company has broken through bottlenecks in funding, resources and development by relying on unique advantages of resources distribution and the business model for vertical integration of cement and commodity concrete. With a focus on the "Thirteenth Five-Year Plan", we develop the three core strengths of the "lowest total costs, leading market position in the region, innovation-driven development", accelerate corporate transformation and upgrade, and expand industrial intension and extension.

In the journey of achieving our mission to "provide customers with quality products and services, promote innovation and lead green development in the industry, thereby building an everlasting business", CR Cement fully understands the importance of fulfilling social responsibility. We actively respond to the national policies on energy saving and emission reduction, promote co-processing of solid wastes by use of cement kilns, and proactively participate in treatment and control of social solid waste, atmospheric and water pollution for transformation into an environmentally friendly enterprise. As of the end of 2018, the Company had 7 co-processing projects in total, which co-processed approximately 200,000 tons of municipal solid waste, urban sludge and hazardous waste in total. As of the end of 2018, 4 of our cement subsidiaries were included in the list of "Green Factories" approved by the Ministry of Industry and Information Technology of China, and the mines owned by 10 of our cement production plants were awarded the title of "Green Mine" at provincial level.

At the same time, the Company is committed to promoting the research, development and application of new products, new materials and new technologies, and exploring opportunities in intelligent manufacturing of cement and extension of the industry chain in order to promote corporate sustainable development.

In 2018, the Company actively participated in community charity as always and cared for our employees in need through the "Gratitude Fund". We donate cement products for helping the construction of communal infrastructure. We also make donations in cash or in kind to underprivileged regions to solve their practical difficulties. The Company continues to improve staff occupational health and safety management system, conduct safety training by combining online and offline methods, launch a wide variety of safety activities such as quizzes, emergency drills and safety open days to enhance the overall level of safety management.

In the future, to cope with the times and market requirements, CR Cement will proactively fulfil social responsibility, grasp development opportunities, accelerate the pace of transformation and innovation, and continuously promote the healthy and sustainable development of China's cement industry together with each stakeholders.

# About CR Cement

## ▲ Corporate Profile

### China Resources Cement Holdings Limited

- Incorporated in 2003
- Stock code at The Stock Exchange of Hong Kong Limited: 1313.HK
- A company listed in Hong Kong under the state-owned enterprise China Resources Group.

A large-scale and competitive cement, clinker and concrete producer in Southern China.

Ranked the fourth in terms of comprehensive strength in listed cement companies in China (published by the China Cement Association)

### Cultural Ideals

**Vision**  
To become a respectable world-class cement enterprise.

**Mission**  
To provide customers with quality products and services, promote innovation and lead green development in the industry, thereby building an everlasting business.

### National Unified Brand

Runfeng Cement

### Operating Regions

Guangdong, Guangxi, Fujian, Hainan, Yunnan, Guizhou, Shanxi, Inner Mongolia and Hong Kong

### Annual Production Capacity

Clinker 72.9 million tons, Cement 104.1 million tons, Concrete 40.7 million m<sup>3</sup>

(including the Company's subsidiaries, associates and joint ventures as at the end of 2018)

### Examples of Construction Projects

- Hong Kong: Hong Kong-Zhuhai-Macao Bridge, Hong Kong Tsing Ma Bridge, Hong Kong International Finance Center
- Guangdong: Shenzhen Airport, Shenzhen Yantian Port, Shenzhen Mixc, China Resources Tower, Guangzhou-Shenzhen Expressway, Guangshen-Yanjiang Expressway, Canton Tower
- Guangxi: Nanning Mixc, Guangxi Xijiang Shipping Hub, Nanning Airport, Qinbei Expressway, Bailongtan Hydropower Station, Nanguang High-Speed Railway
- Fujian: Xiamen Cross-Strait Financial Center, Zhangyong Expressway, Xiamen Luzhou University City
- Hainan: China Wenchang Spacecraft Launch Site, Hainan Island Ring Expressway, Changjiang Nuclear Power Plant
- Yunnan: Xiangli Railway, Guangda Railway, Linyi Airport
- Guizhou: Jiayan Dam, Zunyi Maotai Airport, Xigu Expressway

### Knowledge Extension

#### Cement

Commonly known as fine cotton soil or ash, it is a powdered cementitious material with a certain degree of strength that transforms into slurry of plasticity after adding water. It can harden in water or air, and can firmly glue sand and stone together.

#### Clinker

With the full name of Portland cement clinker, clinker is a product with calcium silicate as the main component obtained by burning appropriate components of raw materials till partially melted.

#### Concrete

Artificial stone of desired shape, strength and durability, which is formed by mixing, molding and hardening for a certain period of time with prescriptions of cementitious materials and aggregates in appropriate ratios. It is abbreviated in Chinese as tong (concrete).

## Key Indicators of Operating Data in 2016-2018

### Economic Responsibilities

Statistical Indicator	Unit	2016	2017	2018
Turnover	HK\$ million	25,648	29,958	38,791
Profit before taxation	HK\$ million	2,158	4,884	11,335
Profit for the year	HK\$ million	1,262	3,593	8,007
Total assets	HK\$ million	52,157	56,527	60,506

### Responsibilities to Employees

Statistical Indicator	Unit	2016	2017	2018
Number of employees	-	21,897	20,592	20,301
Social insurance coverage rate	%	100	100	100
Proportion of female managerial staff	%	10	11	11
Staff training coverage rate	%	100	100	100

### Responsibilities to Customers and Business Partners

Statistical Indicator	Unit	2016	2017	2018
Handling rate of customers' complaints	%	100	100	100
Passing rate of product quality	%	100	100	100
Number of R&D employees	-	38	41	45
Number of new patent licenses	-	24	33	29

### Responsibilities to Public

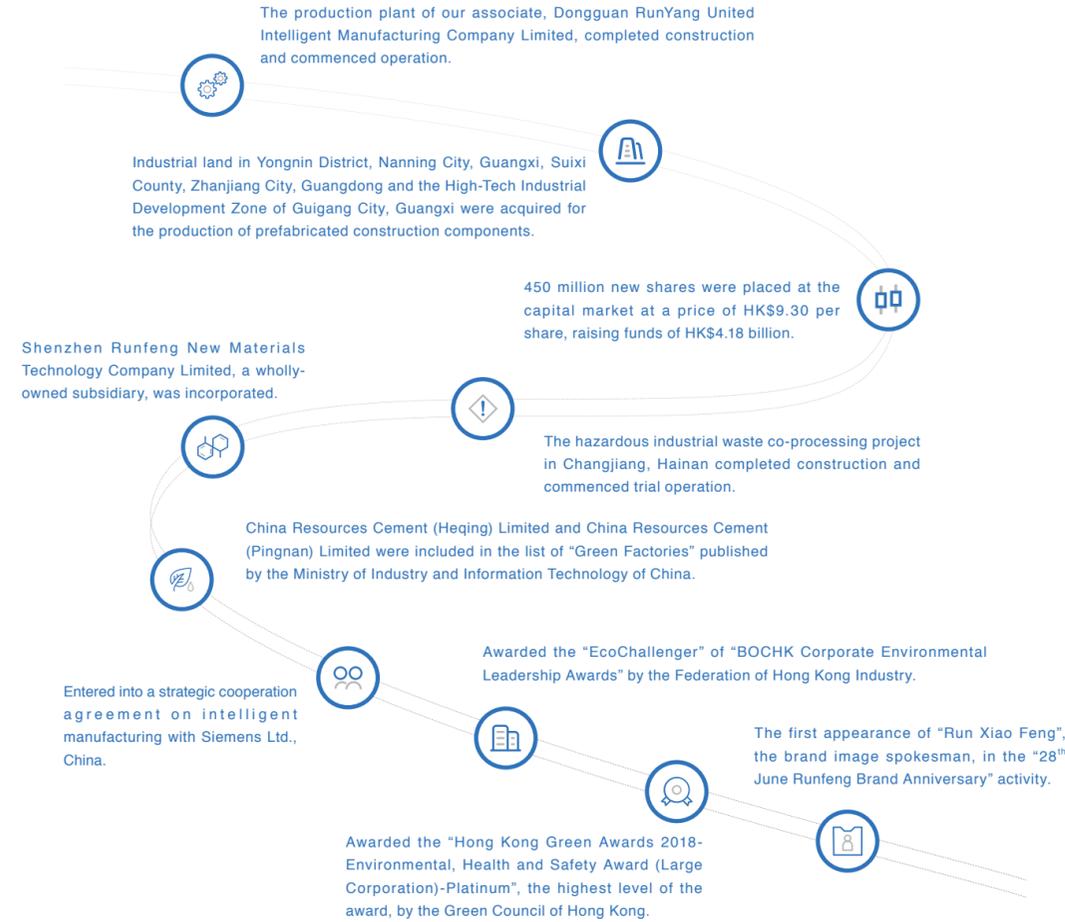
Statistical Indicator	Unit	2016	2017	2018
Taxation	HK\$ million	897	1,291	3,328
Safety training coverage rate	%	100	100	100
Number of safety emergency drills	-	474	625	991
Number of licensed safety management personnel	-	863	1,068	1,064

### Responsibilities to Environment

Statistical Indicator	Unit	2016	2017	2018
Consolidated energy consumption	'000 tons standard coal	7,958	7,732	8,035
Consolidated energy consumption per RMB10,000 output	ton standard coal per RMB10,000	3.24	3.03	2.73
Consolidated energy consumption per RMB10,000 value addition	ton standard coal per RMB10,000	10.68	8.61	6.14
Consumption of packaging materials (note)	tons	85,051	74,533	70,330

Note: Packaging materials refer to the packaging for cement sold in bags. In 2018, the scope of report was adjusted from procurement quantity to consumption of packaging materials.

## ▲ CR Cement in 2018



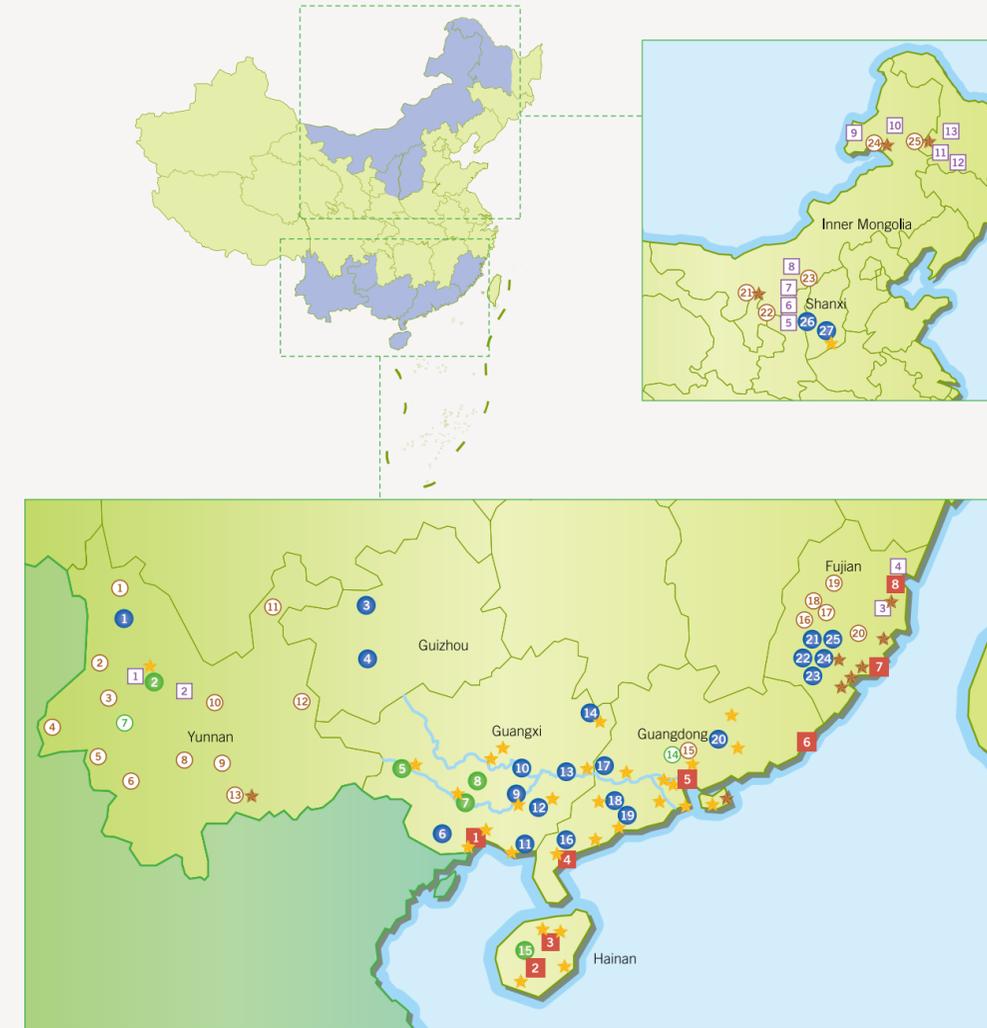
## ▲ Organizational Structure

CR Cement utilizes the three-tier management structure of "Headquarters-Regions-Production Plants" and brings their respective roles and functions into full play according to different levels of positions. As of the end of 2018, CR Cement headquarters had a total of 17 functional departments and 7 operating regions.

## ▲ Our Business

Products of CR Cement are mainly sold in Guangdong, Guangxi, Fujian, Hainan, Yunnan, Guizhou and Shanxi in reliance on our well-established waterway, railway and road logistics networks. As of the end of 2018, we had 95 cement grinding lines, 45 clinker production lines and 60 concrete batching plants with annual production capacity of 83.3 million tons of cement, 61.3 million tons of clinker and 36.5 million m<sup>3</sup> of concrete respectively.

In addition, through our equity interests in certain associates and joint ventures, we owned a total of 79 cement grinding lines, 30 clinker production lines and 20 concrete batching plants which are mainly located in Guangdong, Hong Kong, Fujian, Yunnan and Inner Mongolia. The respective annual production capacities attributable to the Company according to our equity interests in these associates and joint ventures were 20.8 million tons of cement, 11.6 million tons of clinker and 4.4 million m<sup>3</sup> of concrete.



### ● The cement and clinker production plants

- |           |              |                   |              |
|-----------|--------------|-------------------|--------------|
| 1 Heqing  | 11 Hepu      | 18 Luoding        | 24 Longyan   |
| 3 Jinsha  | 12 Luchuan   | 19 Yangchun       | 25 Zhangping |
| 4 Anshun* | 13 Pingnan   | 20 Huizhou        | 26 Fulong    |
| 6 Shangsi | 14 Fuchuan   | 21 Longyan Yanshi | 27 Changzhi  |
| 9 Guigang | 16 Lianjiang | 22 Longyan Caoxi  |              |
| 10 Wuxuan | 17 Fengkai   | 23 Yongding       |              |

\* Under construction

### ● The cement and clinker production plants with co-processing projects

- |            |              |               |
|------------|--------------|---------------|
| 2 Midu     | 7 Nanning    | 15 Changjiang |
| 5 Tianyang | 8 Hongshuihe |               |

### ■ The cement grinding lines

- |                  |             |            |             |
|------------------|-------------|------------|-------------|
| 1 Fangcheng gang | 3 Jinjiang  | 5 Dongguan | 7 Quanzhou  |
| 2 Wuzhishan      | 4 Zhanjiang | 6 Shantou  | 8 Lianjiang |

### ★ The concrete batching plants

#### ○ The cement and clinker production plants owned by associates and joint ventures

- |              |             |                  |               |
|--------------|-------------|------------------|---------------|
| 1 Shangri-la | 8 Puer      | 15 Yuebao        | 21 Wuhai      |
| 2 Nujiang    | 9 Eshan     | 16 Anshan Jianfu | 22 Qianjiang  |
| 3 Baoshan    | 10 Anning   | 17 Yongan Jianfu | 23 Qingshuihe |
| 4 Yingjiang  | 11 Zhaotong | 18 Jinyinhu      | 24 Hailar     |
| 5 Zhenkang   | 12 Qujing   | 19 Lianshi       | 25 Arongqi    |
| 6 Cangyuan   | 13 Jianshui | 20 Haixia        |               |

#### ○ The cement and clinker production plants with co-processing projects owned by associates and joint ventures

- |            |            |
|------------|------------|
| 7 Fengqing | 14 Zhushui |
|------------|------------|

#### □ The cement grinding lines owned by associates and joint ventures

- |                  |                    |             |           |
|------------------|--------------------|-------------|-----------|
| 1 Weishan        | 5 Yulin            | 9 Manzhouli | 13 Kedong |
| 2 Chuxiong       | 6 Dongsheng        | 10 Yakeshi  |           |
| 3 Fuzhou Lianshi | 7 Ejin Horo Banner | 11 Qiqihar  |           |
| 4 Ningde Jianfu  | 8 Baotou           | 12 Daqing   |           |

#### ★ The concrete batching plants owned by associates and joint ventures

## ▲ Corporate Governance

### ▲ Integrity Cultivation

CR Cement regards honesty and trustworthiness as the core values and building blocks of the Company. We persistently combine the cultural construction of honesty and trustworthiness and the construction of anti-corruption and probity to provide solid assurance for the sustainable and healthy development of the enterprise.

- Extensively organized "integrity education delivered to door" and the precautionary education activities. In 2018, over 200 events were organized, reaching 7,097 participants.
- Personnel were strictly selected and utilized. The scope of seeking opinions on integrity cultivation was extended from promotion of key positions to renewal of employment contracts of key positions and appointment of middle-level management positions (full-time) in regional headquarters etc. In 2018, the Company completed 600 responses to opinions on integrity cultivation.
- Regular monitor mechanism had been established. In 2018, the Company conducted group discussions on integrity with 357 senior and middle-level management staff, initiated 163 pre-appointment conversations and had 343 daily confiding conversations.
- All senior and middle-level management staff signed the "Commitment Letter on Integrity and Self-Discipline" in time.
- Personnel involved in sensitive roles such as procurement and sales were required to sign the "Sunshine Declaration", which was signed by a total of 1,612 employees in 2018.
- Anti-corruption and probity appraisal had been strengthened. Evaluation on honesty and trustworthiness was emphasized in the star-rating management appraisal to ensure effectiveness in integrity cultivation.

## ▲ Compliance Management

CR Cement continuously improves the management system on corporate legal affairs. Legal counsel system is in place with integrated leadership and hierarchy management. Legal review on major decisions, economic contracts, internal policies and regulations of the corporate was achieved through various formats. Upon integrating practical business needs, special legal trainings on contract management, policy compliance, labour and employment, bidding, tendering and Listing Rules are offered irregularly to ensure compliance on a long-term basis.

## ▲ Corporate Governance

CR Cement forms the Board of Directors in strict compliance with the Articles of Association and the “Corporate Governance Code” in the Listing Rules. The Board is responsible for guiding the Company’s strategic objectives and monitoring business management. The Board has established Executive Committee, Audit Committee, Remuneration Committee, Nomination Committee and Corporate Governance Committee to ensure the formation of various working mechanisms for carrying out each of their duties, responsibilities and mutual coordination. In 2018, the Board held a total of 9 meetings and the committees held a total of 19 meetings to promote the institutionalization, standardization and procedural development of corporate governance for full comprehensive enhancement on the scientific level of corporate management.

In the process of considering or voting on a transaction, a director who may be involved in any conflict of interest shall absent himself in the Board meeting in accordance with the Articles of Association and shall not participate in relevant consideration or vote to ensure that the transaction will not harm the interests of shareholders due to the advantages of the relevant directors’ voting rights.

As a core principle of corporate governance, the Board attaches great importance to maintaining efficient, transparent and constructive communication with shareholders and other investors, and the Company believes that its relationship with shareholders is crucial to its future success. The Board is accountable to shareholders for creating and bringing value through effective business management. The Board welcomes shareholders and investors to submit their opinions to the Company by raising enquiries and concerns to the Company’s investor relations department, in order to establish continuous, stable, clear and efficient communication channels for enhancing shareholders’ value.

## ▲ Information Disclosure

In order to ensure shareholders’ full exercise of their rights, CR Cement has set up a dedicated investor relations team as its primary contact with shareholders and investors. We welcome enquiries and inputs from shareholders and investors, who may contact the Company by letter, telephone or email. In addition, we publish important corporate information on the website of The Stock Exchange of Hong Kong Limited, the Company’s website and its official website for corporate communications on a timely basis for the equal and timely access by all shareholders. To ensure that shareholders and investors understand the Company’s business operations and future development strategies on a timely basis, the Company organizes presentation meetings for investors after the release of annual results and interim results as well as investors’ telephone conferences after the release of quarterly results.

In addition, the Company regularly participates in various activities including investor meetings, roadshows and investor conferences held by investment banks in order to enhance interactions with shareholders and investors. In 2018, the Company participated in a total of 253 conference calls, face-to-face meetings and roadshow meetings with investors, which have enabled direct communications with fund managers and analysts worldwide.

Besides, the Company keeps in touch with its shareholders and other investors through different channels in order to facilitate their understanding on the Company’s performance, strategies, prospects and the market environment in which the Company has operations. We believe shareholders’ value can be enhanced through continuous, stable, clear and efficient communications.



### Investors reverse roadshow activity

In 2018, the Company organized a two-day reverse roadshow with a total of 26 analysts and representatives from banks in participation. The visits to our associate Dongguan RunYang United Intelligent Manufacturing Company Limited and an urban sludge co-processing project at our joint venture in Guangzhou City, Guangdong have deepened the investors’ understanding of development trends of the cement industry and prefabricated construction business in China as well as the latest technology in co-processing dried sludge by use of cement kilns, and enhanced in-depth exchange of ideas and discussions on the Company’s operational management, measures for energy saving and emission reduction and strategic development.

## CSR Story

### Rebranding for the new journey of “Runfeng Cement”



In December 2018, Yi Zhen, Sales Director of Shenzhen Shouxin Building Materials Co., Ltd. (hereinafter referred to as “Shouxin Building Materials”) took a group photo with his friends at the Monument to Mount Qomolangma Elevation Measurement, holding the “Runfeng Cement” flag which he carried with him.

Established in 1998, Shouxin Building Materials is a “key customer” of CR Cement and a “close business partner” with whom we have cooperated for more than ten years. Starting with the initial ten employees, they have grown to a company having approximately 200 employees, with annual transfer capacity of 3 million tons, packaging capacity of 2 million tons, an independent sales force, self-operated shipping fleet and vehicle fleet for delivery. Shouxin Building Materials has developed into a large-scale and competitive cement supplier in Shenzhen.

“In the past ten years, we have only sold Runfeng Cement, due to the excellent quality of “Runfeng Cement”, strong supply capacity and the Company’s keen attention to clients. Now that “Runfeng Cement” enjoys very high reputation and popularity in the Shenzhen market, we Shouxin have also grown and advanced following the rapid development of CR Cement as well,” Yi Jiansheng, Chairman of Shouxin Building Materials said.

Just as the growth of Shouxin Building Materials is inseparable from its cooperation with CR Cement, so too is the growth of CR Cement inseparable from the branding strategy of “Runfeng Cement”.

Since the reform and opening up, benefited from the rapid economic growth, China’s cement production capacity as well as technology and equipment manufacturing levels have leapt to become first-class worldwide. At the same time, however, the Chinese cement industry is also generally in lack of brand power and brand awareness, and does not have complete branding strategy.

Amid rapid corporate development, CR Cement’s management team realized that under the situation of economic globalization, regional resources and market monopolies would gradually be broken and domestic cement companies could not sustain by relying on price war and the advantages of resources control. Implementation of effective corporate branding strategy and strengthening brand maintenance and management would become the important issues for companies to enhance their core competitiveness and to meet market opportunities and challenges.

At the beginning of 2014, in order to create a differentiated brand marketing model and make full use of characteristics in brand marketing such as symbolism and differentiation for achieving brand premium, CR Cement launched the initial preparation work for the “Runfeng Cement” branding strategy.

Relevant departments of the Company conducted in-depth research on brands in the core markets in 16 districts of our 7 major operating regions, collected 3,000 samples, and integrated into markets, terminals and clients. The “Analysis and Research Report on the Status Quo of the Brands in Cement Industry” was formulated, which has clearly defined the branding position of CR Cement and formed a roadmap for brand building, i.e., initial confirmation to unify the three major brands “Haidao”, “Hongshuihe” and “Runfeng” into “Runfeng Cement” with “quality” as the branding position.

Brand assets and sales networks are strategic assets of the Company of equal importance. Once formed, they can empower our products and enhance brand premiums.

From the replacement of brand image in 2016 to the start of comprehensive promotion in 2017, after over 2 years of brand building, “Runfeng Cement” has substantially raised its popularity and influence and has been unanimously recognized by customers and distributors.

At this point, “Runfeng Cement” has already started a new chapter as the national unified brand. CR Cement has also taken an important step to lead the branding in the industry for meeting market opportunities and challenges.

## ▲ CSR Story

### Urban sludge co-processing project of Zhujiang Cement creates a new model for collaborative solutions to the urban sludge industry

In July 2005, Zhang Ju graduated from Wuhan University of Technology with a major in Materials Science and Engineering. He joined Guangzhou Zhujiang Cement Co., Ltd. as an ordinary technician. Initially, his feeling on his job was that "at least I have found a professional job".

It has been 13 years since then. This young man from Ezhou, Hubei has settled down with a small home of his own in the international metropolis of Guangzhou. This is also his 13<sup>th</sup> year working at Zhujiang Cement.



The dried sludge co-processing project of Zhujiang Cement located in Guangzhou completed construction and commenced operations

This period was also one of the fastest stages of urbanization in Guangzhou. The increasingly prominent issues of water pollution co-exist with urban development.

Urban waste water is the main source of pollutants for water pollution. As a derivative of sewage treatment, sludge contains pathogenic microorganisms, parasite eggs and harmful heavy metals, and easily brings about "secondary pollution" to water, soil and atmosphere. It is difficult to effectively and completely dispose of sludge through traditional landfill, composting or brick manufacture. Guangzhou faced enormous challenges in prevention and control of its water pollution.

The Guangzhou municipal government saw this problem and strengthened the effort of ecological and environmental protection by proactive launch of sewage treatment.

The predecessor of Guangzhou Zhujiang Cement Co., Ltd. was Guangzhou Pearl River Cement Co., Ltd which commenced operation in 1989. Its cement brands, Yuexiu and Jinyang, had been well received by domestic users and exported to Hong Kong, Macao and South East Asia. From October 2014 to March 2016, Zhujiang Cement, which had been in production for more than 20 years, carried out trial incineration treatment of approximately 30 tons of dried sludge per day. Trial results showed that the use of cement kilns to co-process dried sludge did not produce slag at the bottom of the kiln nor fly ash, and all exhaust gas indicators met the relevant environmental requirements.

In 2015, CR Cement and external units in cooperation began to jointly explore the "in-plant drying of sewage water+cement kiln incineration" mode of dried sludge co-processing at Zhujiang Cement for creating a pilot project of urban sludge treatment in Guangzhou.

Zhujiang Cement's dried sludge co-processing project with daily processing capacity of 300 tons of dried sludge with 35%-40% water content commenced construction on 8 February 2017, and was completed in September 2017.

At this time, Zhang Ju had been promoted to the manager of the waste incineration section of the company's manufacturing department. "Even though I have already been working at Zhujiang Cement for 13 years, I feel more and more motivated. The company is now launching urban sludge co-processing project, which disposes of urban sludge while ensuring cement quality. This is very meaningful work in defending our clear water and blue sky. I am very proud of myself being able to make some contribution to environmental protection in my every-day job position as an ordinary technician in a cement factory!"

Zhujiang Cement's urban sludge co-processing project by use of cement kilns has creatively implemented the brand new technological route of "in-plant drying of sewage water+cement kiln co-processing" proposed by CR Cement, and created a complete set of solutions to the "sludge siege" problem in Guangzhou.

Compared to traditional landfill methods, this project reduces landfill area, has no odor, stabilizes heavy metals and cleanses waste water and exhaust gases without secondary pollution to water, soil and atmosphere. Compared to typical dried sludge incineration projects, this project can reduce carbon dioxide emissions by 14,000 tons per year and achieves 100% mass-reduction, resources utilization and clean disposal, which fully reflects the principle of "mass-reduction, re-use and recycling" in the circular economy and is an effective way of completely disposing of urban municipal sludge. This project can dispose of one-third of the urban sludge in the downtown area of Guangzhou. From completion of its construction in September 2017 to the end of December 2018, a cumulative total of approximately 55,200 tons of dried sludge has been processed.

The completion of this project has effectively promoted the coordinated development of economic development, social progress and environmental protection in Guangzhou City. It has also paved a new direction for development in environmental transformation of CR Cement and proposed a brand new mode in industry cooperative solutions to thoroughly clean disposal of sludge for medium to large cities across the nation.



# Craftsman's spirit wins trust



CR Cement promotes whole-process quality management to provide customers with quality products and services, pays attention to safety work in the production process to minimize safety risks in operations, focuses on full-lifecycle environmental protection with intensive promotion of energy saving and emission reduction, jointly builds and upgrades intelligent cement plants to drive the corporate for faster development and transformation through innovation.

## 13 Building greatness in pursuit of excellence

- 13 Quality Control System
- 14 Improving Quality Inspection Capability
- 14 Implementing Training on Quality
- 15 Extension of Industry Chain
- 16 **Standardized production with safety first**
- 16 Optimizing Safety Management
- 17 Attaching Great Importance to Safe Operation
- 18 Strengthening Safety Education

## 20 Keeping abreast of green development

- 20 Strengthening Environmental Management
- 20 Promotion of Energy Saving and Emission Reduction
- 23 Promoting Ecological Restoration of Mines
- 24 Promoting Technological Assistance and Technological Transformation
- 24 Developing Co-Processing Projects
- 26 Cultivating Green Culture
- 27 **Innovative intelligent manufacturing to shape the future**
- 27 Innovation Management System
- 27 Intellectual Property Management
- 27 Research and Development for Products and Technology
- 28 Implementing Intelligent Operation
- 29 Promoting All-Staff Innovation

## Key Performance in 2018

Passing rate of product quality



Investment in production safety



Total investment in environmental protection



Investment in technological upgrade for energy saving and emission reduction



Consolidated energy consumption per RMB10,000 output



Total R&D investment



## Building greatness in pursuit of excellence

Quality is considered as the life of CR Cement. It represents the pursuit of product quality by the Company. How to effectively implement the "quality control" is a core question which the staff of CR Cement have been continuously exploring.

### ▲ Quality Control System

CR Cement adheres to the principle of focusing on customer needs, formulated the "CR Cement Management Manual" based on the Company's development strategies, and established a system for quality control throughout the whole production process covering raw materials, process control, product delivery and after-sales service. This system passed the ISO 9001:2015 Quality Management System Certification, ISO 14001:2015 Environmental Management System Certification and OHSAS 18001:2007 Occupational Health & Safety Management System Certification. In addition, the Company relies on a comprehensive and effective quality control system to manage and evaluate the quality of our products. Key quality indicators of production process and products had been incorporated into the scope of performance appraisal of the operating regions and production plants as a continuous drive to further enhance quality improvement across the Group through performance management in order to provide consumers with products of excellent quality. The Company also continuously enhances its management standards in terms of quality and workmanship through the implementation of various lean improvement projects.

▲ In December 2018, the pilot project of CR Cement and China Resources Microelectronics Limited for management of equipment and quality at our cement production plant in Nanning had entered the phase of trial operation.



Fengkai Cement was awarded the title of "Quality-guaranteed and Creditworthy Enterprise" by Zhaoqing Association for Quality, Guangdong Province for two consecutive years (2017-2018).



The concrete batching plants at Daze, Tangxia and Muzhou got the AAA/AA grade assurance for credit rating of ready-mixed concrete enterprises in Guangdong Province.



China Resources Environmental Protection Engineering (Binyang) Limited was accredited with the "National High and New Technology Enterprise Certificate" jointly issued by the Science and Technology Department of Guangxi Zhuang Autonomous Region, the Guangxi Department of Finance and the Guangxi Zhuang Autonomous Region Taxation Bureau, and officially became one of the national high-tech enterprises.



Hongshuihe Cement obtained the "Excellent Award in the 16<sup>th</sup> National Benchmarking of Cement Quality Indicators of the Hongchao Tech Cup 2018" issued by the National Quality Supervision and Testing Center for Cement.



Tianyang Cement won the "Chairman Nomination Award for the Fourth Quality Award in Guangxi Zhuang Autonomous Region".

### ▲ Improving Quality Inspection Capability

For the omnidirectional improvement of product quality inspection capability, CR Cement continuously reformed and innovated inspection technology, accelerated the upgrades of laboratory inspection technology, applied online analysis technology in the production control process for improving timeliness and precision of inspections and providing modernized scientific means for monitoring and controlling the stability and continuity of quality of cement products. As of the end of 2018, the Company has commenced the use of 10 sets of online analyzers for raw materials and 2 sets of online analyzers for cement granularity. In addition, the Company also launched the pilot intelligent quality management system in Nanning Cement, in order to achieve systematization of quality management of each production plant, standardization of requirements for management and control among our production plants and intelligentization of decision-making in operational management. The system has passed review and commenced trial operations at the end of 2018.

▲ As of the end of 2018, the Company implemented **10** sets of online analyzers for raw materials



2 sets of online analyzers for cement granularity



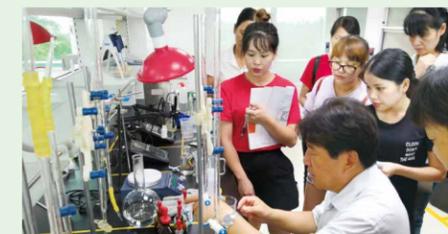
Clinker petrographic analysis conducted by R&D personnel

### ▲ Implementing Training on Quality

To ensure that our products meet the quality standards, CR Cement has implemented an internal quality management mechanism involving the participation of all employees from all departments of the Company. The attention, understanding and business skills of relevant employees on product quality are continuously enhanced by regular job training and skill training.

#### Training on technologies for cement chemical analysis

In August 2018, CR Cement organized training on technologies for cement chemical analysis at China Resources Cement College in Guangzhou. We invited Wang Ruihai, Vice President of the National Quality Supervision and Testing Center for Cement, to present on the national standards of the cement industry and conduct practical training on analysis by titration, inspection and testing. Relevant technical staff of China Resources Cement Technology Research and Development Centre shared experiences on the application of fluorescence analysis as well as inspection and test on moisture of grinding aid. 44 relevant personnel from various cement production plants, Research and Development Centre and our associate Fujian Cement participated in the training.



Practical training



Venue of training

## ▲ Extension of Industry Chain

Given the opportunities from the vigorous development on the prefabricated construction industry in China, CR Cement had further optimized resources distribution through its positioning in Southern China and in combination with the development strategy for extension of industry chain to actively develop its prefabricated construction business.



Dongguan RunYang Intelligent Manufacturing Company Limited commenced production

 In 2018, DongGuan RunYang United Intelligent Manufacturing Company Limited, an associate established by the Company and Shenzhen Capol International & Associates Co., Ltd., commenced production and operation. The associate is dedicated to providing customers with systematic solutions to prefabricated construction which integrate product design, production, manufacturing, construction and installation.

 During 2018, CR Cement also acquired industrial land in Nanning City and Guigang City, Guangxi, and Zhanjiang City, Guangdong respectively for production of prefabricated construction components.

 In September 2018, CR Cement incorporated a wholly-owned subsidiary, namely, Shenzhen Runfeng New Materials Technology Company Limited, which is responsible for the operation and promotion of new products and offers systematic services and solutions to customers. At the same time, the Company will actively explore development of aggregate business, fully utilize the synergetic advantages in its cement-concrete-aggregate-prefabricated construction businesses to achieve integrated business development and further consolidate the Group's core competitive advantage.

## Standardized production with safety first

CR Cement is in strict compliance with the Production Safety Law of the People's Republic of China and promulgated the "EHS Management Series" in the "CR Cement Management Manual" and relevant regulating policies for continuous improvement on safety management system, reinforcement of safety management on counterparties and proactive launch of supervisions and inspections. At the same time, the Company persistently explores and applies new technologies in order to enhance production safety.

### ▲ Optimizing Safety Management

#### ▲ Organizational System

CR Cement has established a three-tiered EHS management organizational structure covering "headquarters-major operating regions-production plants". The EHS management organization at each level includes EHS Committee, EHS Supervision and Management Department and EHS Supporting Department. At the headquarters level, the EHS Management Committee is chaired by the CEO of the Company. The headquarters set up EHS Department and appoint the Chief Safety and Environmental Officer. The EHS departments (or offices) at our major operating regions and production plants are under the direct management of persons in charge of corresponding major operating regions and production plants. As of the end of 2018, the Company had a total of 279 specialized EHS management personnel, among which, 212 were specialized safety management personnel (including 55 registered safety engineers).

▲ 279 specialized EHS management personnel as of the end of 2018



#### ▲ Management System

Based on the EHS Series of the "CR Cement Management Manual" and through the analysis on the weaknesses in the Company's safety management, CR Cement established a specific safety management system, revised and improved the safety procedures. In addition, the Company proactively initiated the safety accountability system, which required management personnel at each level to enter into the "Safety Responsibility Pledge", implement and assess safety indicators on a monthly basis.



### Ledong Concrete Safety Management

Ledong Concrete actively implemented the EHS management requirements of "high ideals and high standards" through putting into practice the EHS culture of self-management and proactive acts to strive for standardized management. Ledong Concrete placed strong emphasis on "eager, prompt, pre-emptive" handling of safety issues and continuously enhanced intrinsic safety efforts.

- Implementation of Responsibility**  
 All employees entered into the "Safety Responsibility Pledge". Safety management experiences were consolidated and annual safety targets were achieved by monthly safety assessment, quarterly safety management review and annual safety assessment.
- Process Supervision**  
 Qualified external institutions were entrusted to carry out inspections, evaluate the status quo of occupational health, publicize harmful factors and install online monitoring instruments in order to ensure the normal operation of environmental protection equipment.
- All-staff assessment of latent hazards**  
 A team headed by the general manager launched special large-scale EHS inspections before holidays. Safety officers supervised the remedial work of latent hazards in each department, and employees conducted self-assessment on safety.
- Implementation of closed-loop management**  
 Specific rectifications to prevent latent hazards on safety were formulated. The safety and environmental protection office is responsible for follow-up and supervision which forms closed-loop management. Each department continuously carries out self-assessment and self-rectification of latent EHS hazards on a weekly basis.
- Conducting training and counterparty management incentives**  
 Safety training is conducted on a monthly basis. An information platform for monitoring safety behaviours has been created to formulate counterparty management rules on safety behaviours and a policy for managing on-site transportation vehicles which had incorporated measures for rewards and punishment.



## ▲ Attaching Great Importance to Safe Operation

### ▲ Safety Technology

CR Cement constantly consolidates fundamental management and innovative management models and prevents safety risks by means of management and technology in order to promote the safe and sustainable development of the Company.

- Promoting mechanical silo clearing**  
 In response to the frequent occurrence of safety accidents concerning silo clearing operations in the cement industry, the Company has completely banned manual silo clearing operations since January 2018. We fully launched mechanical silo clearing and proactively explored new technologies for silo clearing. In 2018, the mechanical silo clearing was successfully completed in cement production plants including Longyan, Changjiang, Nanning and Pingnan, which eliminated the risks arising from staff's entering silo to manually clear silo walls and improved the intrinsic safety.
- Conducting mine blasting by use of mixed explosives**  
 We exchanged and cooperated with Gezhouba Explosive, with focus on implementing the use of mixed explosives in the mine blasting at production plants in Guangxi Region. As of the end of 2018, 11 cement production plants, including Fengkai, Luoding, Pingnan and Nanning, had conducted on-site blasting by use of mixed explosives.
- Commuter vehicle monitor system**  
 EHS department at headquarters centralized the deployment for installation of GPS real-time video monitor and blind-spot elimination systems for commuter vehicles, which improved traffic safety management standards. In 2018, 119 commuter vehicles had been equipped with these systems in all the production plants of our major operating regions.

### ▲ Safety Standardization

By virtue of creating production safety standardization which meets the requirements, CR Cement continuously initiated, consolidated and improved our work for building first-class enterprises in safety standardization in order to improve safety management performance. In 2018, our cement production plants in Fuchuan, Heqing, Midu, Changzhi and Longyan Caoxi successfully passed on-site assessments as the First-Class Enterprise in National Production Safety Standardization. As of the end of 2018, 28 cement production plants of the Company have passed assessments as the First-Class Enterprise in National Production Safety Standardization, mines of 17 production plants have passed assessments as the Second-Class Enterprise in National Production Safety Standardization. Among which, Fengkai Cement was named as the First-Class Model Enterprise in National Production Safety Standardization and Tianyang Cement was named as the Model Enterprise for National Safety Culture Cultivation. Furthermore, the Company engaged China Building Material Test & Certification Group Co., Ltd. to audit and provide guidance on the operation of safety standardization system for enterprises that had passed the First-Class Enterprise assessments for the constant consolidation of our achievements in safety standardization and continuous improvement.

### ▲ Inspections of Latent Hazards

Upholding the policy of health and safety, namely, "safety first, with a focus on prevention and composite treatment; compliance with laws and regulations, scientific management and continuous improvement", CR Cement established a long-term effective mechanism for inspection and management of latent hazards of safety incidents. Inspection and supervision of latent safety hazards were implemented across all levels, including headquarters, main operating regions and production plants. The Company also organized and carried out annual large-scale safety inspections, including maintenance safety, mine safety, controls on overloading and traffic safety to continuously strengthen supervision and rectification of latent hazards of potential accidents in order to prevent and minimize personal injury accidents and protect the lives and properties of our employees. In 2018, the Group conducted annual large-scale safety inspections on 36 cement production plants. Safety inspections on the mines of 8 production plants were rolled out. On-site supervision on repairs and maintenance as well as counterparties management was conducted at 13 cement production plants. 17 concrete plants were inspected and assisted.

## ▲ Strengthening Safety Education

### ▲ Safety Training

In order to actively implement safety training, CR Cement combined online and offline channels by uploading videos of emergency drills to the online learning platform of our OA system, which encouraged self-study initiated by our employees. At the same time, the Company also arranged employees to watch education videos of safety precautions and attend offline safety training. In 2018, the aggregate duration of safety training for the Group's staff amounted to approximately 348,800 hours, whereas that for counterparties amounted to approximately 62,500 hours.



The third phase of health and safety management training for team leaders

As of the end of 2018, **28** cement production plants of the Company have passed assessments as the First-Class Enterprise in National Production Safety Standardization; mines of **17** production plants have passed assessments as the Second-Class Enterprise in National Production Safety Standardization



In 2018, the annual large-scale safety inspections covered **36** cement production plants



In 2018, the aggregate duration of safety training for staff amounted to approximately **348,800** hours



### ▲ Safety Activities

CR Cement has firmly built up the concept that "production safety responsibility is a sublime mission". All-staff participation in safety management was encouraged by extensively organizing a wide variety of safety activities such as safety knowledge competitions and safety emergency drills, which fostered the concept of corporate safety culture and devotedly implanted safety management awareness in staff, their families and the society as a whole. In 2018, 323 teams took part in the EHS Knowledge Competition of the Company. 991 emergency drills were conducted with a total of 15,914 participants in attendance. 85 safety open day activities were held with a total of 2,685 participants in attendance.

In 2018, **15,914** participants attended emergency drills



CR Cement 2018 EHS Knowledge Competition



Guigang Cement Safety Open Day



Emergency drill activity at the mine of Pingnan Cement



Drill activity for on-site handling of safety accident in restricted working space in Guangdong Region

## Keeping abreast of green development

As a cement group of the new age, CR Cement deeply understands that corporate development and environmental protection co-exist. We have always pursued the new economic model of coordinated development of resources and ecological environment in order to seek the harmonious survival of both enterprises and cities and become a model enterprise for ecological civilization construction.

### ▲ Strengthening Environmental Management

CR Cement established a robust environmental management system with strict reference to the requirements of laws and regulations relating to environmental protection. In the "EHS Series" of the "CR Cement Management Manual", we clearly defined the key points and details regarding the work of environment, health and safety. We rolled out the star-rating management appraisal system, which conducted comprehensive appraisal on environment, health and safety aspects of every production plant to enhance management standards. In addition, in order to continuously improve the standards of clean production, the Company took the initiative to invite inspections from all members of the society. According to the "Notice Regarding the Disclosure of the Situation of Pollutant Emissions at Certain Pilot Production Plants" issued in April 2018, the Company organized 12 of its production plants to launch the pilot work of data disclosure on pollutant emissions. As of the end of August 2018, all 12 pilot production plants had completed the infrastructure work, and the effectiveness at these pilot production plants had been recognized by multiple local environmental protection authorities. The Company plans to fully promote this practice to all production plants by the end of 2019.

### ▲ Promotion of Energy Saving and Emission Reduction

#### ▲ Alarms of Pollutants

The Company has established a platform at headquarters to monitor the emissions of environmental pollutants, thereby achieving the headquarters' real-time monitor and alarm system on pollutant emissions of all production lines for further raising the risk management capability on pollutant emissions. Besides, the headquarters of the Company issues timely notifications of environmental alarms based on the circumstances of environmental protection in the industry and policy development. Each production plant is required to conduct prevention and control of air pollution and risk inspections on ecological environment. Effective management and technological measures have been adopted and contingency measures have been stipulated to prevent the occurrence of breach of environmental law.

#### ▲ Increasing Energy Efficiency

CR Cement strictly abides by the policy on "Supervision and Management of Energy Saving and Emission Reduction". All resources consumed during production process are measured for the assessment of operational performance of the production plant in order to enhance the utilization rates and economic benefits of energy and resources. In addition, the Company adheres to high standards when applying new technologies and new equipment. All the cement production lines are equipped with residual heat power generation system. The pure low-temperature residual heat power generation system would recycle and convert the residual heat generated during the process of cement production into electricity, which raises the efficiency of energy use. In 2018, the Company's residual heat recovery generators generated 2,099 million kwh of electricity in total, which achieved significant results in energy saving and emission reduction.

#### Knowledge Extension

Pure low-temperature residual heat power generation

Power generation using the residual heat of medium-and-low temperature waste gas discharged from the emission ends of the kilns of the cooling machine, with no fuel consumed or pollutants produced.

Indicator	Unit	2016	2017	2018
Electricity consumption (note)	million kwh	6,684	6,220	6,500
Electricity consumption per ton of cement	kwh	73.9	73.1	73.0
Coal consumption	'000 tons	9,677	9,834	10,254
Unit coal consumption per ton of clinker	kg	146.2	147.3	147.2
Standard coal consumption per ton of clinker	kg	107.6	106.9	106.5

Note: Scope of statistics includes the power purchased externally for production by the Company.

### ▲ Reducing Carbon Emissions

CR Cement had completed the calculation of quantity of carbon emissions for 2018 in accordance with the "Guidelines for Accounting and Reporting Greenhouse Gas Emissions for Cement Enterprises". We participated in pilot work of carbon emission quota management. 14 of our production plants in Guangdong province and Fujian province were enlisted enterprises with controlled emissions, and had settled the carbon credit quota for 2017. In addition, in November, the Company participated in the "Exchange Conference on Tackling Climate Change and Green Development" hosted by institutions including the Carbon Management Committee of China, and explored topics such as technologies for emission reduction and carbon sequestration as well as carbon emission trading with experts from the China National Institute of Standardization, domestic universities and carbon asset management companies. The Company was also engaged in exchange on prevention and control of air pollution and energy-saving technologies at a forum hosted by China Building Materials Federation with experts from relevant government departments, domestic and international building materials enterprises, R&D design institutions, equipment and engineering service companies so as to jointly promote the sustainable development of the industry.



Clinker and PO42.5R cement products of Luoding Cement passed certification of low-carbon product

**Knowledge Extension**

**Greenhouse gases**

The six types of greenhouse gases that are required to be controlled under the "Kyoto Protocol" are: Carbon Dioxide (CO<sub>2</sub>), Methane (CH<sub>4</sub>), Nitrous Oxide (N<sub>2</sub>O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs) and Sulphur Hexafluoride (SF<sub>6</sub>). In accordance with the "(Trial) Guidelines for Accounting and Reporting Greenhouse Gas Emissions for Cement Enterprises" and related guidelines, currently, only carbon dioxide emissions are relevant when considering the greenhouse gas emissions of cement enterprises.

Indicator	Unit	2016	2017	2018
Emission of greenhouse gases (note)	'000 tons of carbon dioxide equivalent	56,980	57,130	59,710
Emission intensity of greenhouse gases (note)	tons of carbon dioxide equivalent per ton of clinker produced	0.8615	0.8574	0.8569

Note: Scope of statistics includes the major discharge outlets of the Company's cement production plants.

### ▲ Compliant Discharge and Recycling Use of Sewage

CR Cement places strong emphasis on protection of water resources and promotes conservation and recycling of water. All production lines of the Company are equipped with intensive biochemical water treatment systems. Treated domestic wastewater is used for gardening in the factories or discharged in compliance with standards. No sewage is discharged as the water from residual heat power generation systems and cooling water production systems is fully recycled. In 2018, water consumption of the Company was 29,977,622 tons and intensity of water consumption was 349.7 kg per ton of cement produced.

▲ **29,977,622 tons of water resources** was consumed in 2018

### ▲ Intensifying Dust Management

CR Cement strictly implemented dust management in the production process, adopted fully enclosed delivery during the processes of materials treatment, delivery, loading and unloading. We actively develop and apply new-type filter materials, apply filter technology for ultra-low emissions at some production lines, promote the mobile dust collection technology of cement packaging trucks and implement technological upgrade of cement packaging machines. In 2018, the Company completed the technological upgrade for 106 cement bagging machines and the application of mobile dust collection technology for 100 cement packaging trucks. We implemented the project for "Replacement of Static Electricity Dust Collection Systems with Bag Filter Systems". All our production lines are equipped with efficient bag filters. The emission intensity of particulate matters at all our production lines is lower than the national standard limits of pollutant emissions, placing us at a leading position in the industry.

**Knowledge Extension**

**Bag filter**

Dry-type dust filter device for collecting fine, dry, non-fiber dust through the application of the main principles of bag-type fiber filter and gravitational settling.

**Knowledge Extension**

**Denitration system**

System which prevents excessive emission of nitrogen oxides from the combustion process within the cement kilns for the purpose of environmental protection by reducing the amount of nitrogen oxides generated and eliminating nitrogen oxides in the flue gas.

**Nitrogen oxide**

A type of air pollutant, a majority of which comes from the combustion process of fossil fuel. It is a key factor of formation of acid rain and smoggy weather, and is harmful to human respiratory system. It is mainly comprised of nitric oxide and nitrogen dioxide.

### ▲ Implementing Desulphurization and Denitration

CR Cement continuously improves the environmental protection level of production lines to achieve full coverage of denitration systems. Denitration systems at all our production lines are in normal operation, which implement control on both emission intensity and total emissions of nitrogen oxides. We constructed wet-process or composite desulphurization systems at production plants in need to ensure that emissions of sulphur dioxide meet the emission standards. As of the end of 2018, the Company had completed the construction of 3 sets of wet-process desulphurization systems and 11 sets of composite desulphurization systems. Our emission levels of nitrogen oxides, particulate matters and sulphur dioxide are lower than the national standard limits of pollutant emissions, placing us at a leading position in the industry.

Indicator	Unit	2016	2017	2018
Emission of nitrogen oxides (note)	tons	43,164	41,513	39,822
Emission intensity of nitrogen oxides (note)	kg per ton of clinker produced	0.6155	0.6230	0.5715
Emission of sulphur dioxide (note)	tons	3,984	2,726	2,352
Emission intensity of sulphur dioxide (note)	kg per ton of clinker produced	0.0568	0.0409	0.0338
Emission of particulate matters (note)	tons	2,812	2,472	2,361
Emission intensity of particulate matters (note)	kg per ton of clinker produced	0.0401	0.0371	0.0339

Note: Scope of statistics includes the major discharge outlets of the Company's cement production plants.

### ▲ Composite Utilization of Resources

CR Cement achieved reduction of energy consumption and composite utilization of resources through optimization of the production prescription and effective use of resources such as industrial waste and limestone stone residue. Composite utilization of resources is conducive to the mass reducing, hazard-free and recyclable disposal of social aggregate solid wastes. Through optimizing the prescriptions of raw materials, the projects for composite utilization of stone residue resources can achieve 100% utilization of limestone stone residue for the production of special types of cement, which demonstrates significant achievements. In 2018, the Company utilized 218,400,000 tons of industrial waste.



Note: Scope of statistics of industrial waste includes coal gangue, stone residue, de-sulphur gypsum, fly ash and blast furnace slag.

## ▲ Launch of Green Packaging

CR Cement reduced the demand for packaging products through increased sales of bulk cement. We also fully utilized recyclable packaging bags to reduce waste of resources and energy. In 2018, the Company's bulk cement sales volume increased by 8,766,000 tons compared to 2017, bagged cement decreased by 2,059,000 tons compared to 2017, consumption of packaging materials decreased by 4,203 tons compared to 2017 and cement bagging rate decreased from 45.0% in 2017 to 38.9% in 2018.



## ▲ Implement Green Transportation

Logistics management is one of CR Cement's key measures in maintaining its market competitiveness. In 2018, the total social logistics costs were on a rising trend due to environmental protection inspections and increasing energy costs. CR Cement actively optimized the layout of silo terminals, introduced resources of self-unloading ships and promoted the pilot operation of the "Smart Card" unmanned intelligent delivery system in order to enhance the requirements of environmental protection and minimize the impact of rising social logistics costs.



Pingnan Cement planted 100 acres of banana plantations in the mine



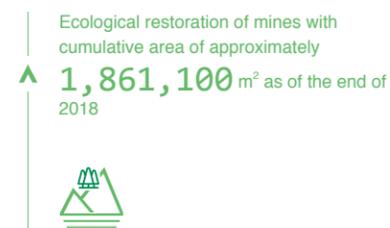
The appearance of the mines of Heqing Cement after ecological restoration

### The Long Belt Corridor at Fengkai Cement

The mines of Fengkai Cement is approximately 50 km away from the port terminal. In order to solve the issue of limestone transportation, CR Cement invested in the construction of a 52 km long belt corridor, the central transportation artery which connected the limestone quarry, production plant and port terminal. The project commenced the first phase of construction in September 2008, and a double-belt corridor of 40 km in length had already completed construction and commenced operation. The second phase for a belt corridor of 12 km in length had been under construction since December 2018. The conveying capacity of each belt is 2,500 tons per hour, covering 5 towns and 16 villages. Assuming an annual conveying capacity of 15 million tons of limestone, the belt corridor project saves the consumption of 13,000 tons of standard coal, reduces the emissions of 33,400 tons of carbon dioxide equivalent, and saves costs in the amount of RMB172 million every year.

## ▲ Promoting Ecological Restoration of Mines

CR Cement places strong emphasis on ecological restoration to the mines. We persist on ecology, environmental protection, safety and intensive utilization of resources as the primary focus of our work. We confirm a work approach of scientific planning, reasonable mining, resources conservation, promotion of harmonious development between human beings and the nature as well as green, ecologically and environmentally friendly mining enterprise. Restoration of mines is included in the production, operation and long-term development plans of the Company. As of the end of 2018, the Company had completed ecological restoration of its mines with cumulative area of approximately 1,861,100 m<sup>2</sup>, and the mines of 10 cement production plants had been awarded the designation of "Green Mines".



### Prior to the development of new project

It is required that environmental assessment must be conducted for all new projects, and ecological damage must be avoided to the greatest possible extent during the development and construction process.

### After completion of mining

The soil would be recovered by planting rattan plants to ensure surface vegetation coverage rate reaches or is close to that prior to mining for the gradual restoration of ecological balance.

### During the project development process

Through recycling water resources in the mines, there is zero discharge of sewage and waste oil is recycled in a timely manner. Measures such as application of shock reduction and weak shock blasting technology are taken, which reduce the impact of production and operation activities on the wildlife habitat environment and effectively ensure the survival and continuity of species in the region.

### Unexplored areas

Delimit protected and prohibited areas in order to protect indigenous vegetation and animal species as well as reduce species migration caused by human factors.

## ▲ Promoting Technological Assistance and Technological Transformation

In 2018, CR Cement further strengthened internal benchmark management by optimizing performance review indicators of cement production plants. In order to improve production and operation indicators of our production plants, raise technological management standards and promote the balanced and sound development of production plants, the Company continuously organized assistance teams to offer in-depth technological assistance to production plants, with a focus on production and operation challenges through the coordination of expert resources such as technical committee and the Technology Research and Development Centre. On 7 September 2018, the "Management Measures for Technological Assistance of China Resources Cement Holdings Limited" was issued to clearly outline the detailed guidelines for technological assistance. In 2018, the Company had cumulatively provided over 150 technological assistances and implemented 166 technological upgrades, thereby reducing energy consumption, improving performance indicators and quality of production and operation.

### Technological assistance facilitated Hefu Cement to overcome challenges

Hefu Cement is located in Hefu County, Beihai City, Guangxi Zhuang Autonomous Region, adjacent to the Shankou Mangrove Ecological National Nature Reserve. In response to the environmental protection requirements of the local government, CR Cement actively consolidated expert resources and technological strengths to initiate and successfully implement the "R&D and Application of Equipment Technology for Ultra-Clean Emission" based on the "Research and Application of Polyimide Fiber" project. This solved the technological problems faced by Hefu Cement and achieved dust emission intensity at cement kilns of less than 5 mg/Nm<sup>3</sup>. CR Cement became the first cement enterprise in the cement industry achieving ultra-clean dust emission from cement kilns.



## ▲ Developing Co-Processing Projects

In reliance on independent innovation, the Group promotes co-processing projects in the three scopes of municipal solid waste, urban sludge and hazardous industrial waste. With regards to disposal methods, compared to traditional landfilling, co-processing of solid waste by use of cement kilns enables the Company to substantially save land resources and eliminate poisonous pollutants such as dioxin by effective use of heat inside cement kilns, thereby achieving waste treatment in a "hazard-free, mass-reducing and recyclable" manner and creating a healthier living environment for local residents. In 2018, the Company launched 4 new co-processing projects. As of the end of 2018, the Company had a total of 7 co-processing projects.

### Knowledge Extension

#### Co-processing by use of cement kilns

Processing of solid wastes which meet the requirements for entering kilns, whether with or without pre-treatment, in a "hazard-free, recyclable and mass-reducing" manner by inputting the solid wastes into cement kilns for combustion, taking advantage of the features of cement kilns including high temperature, alkalinity and large capacity during production of cement and clinker.

### CR Cement Co-Processing Projects

Project Location	Type	Processing Capacity	Status
Binyang, Guangxi	Municipal solid waste	300 tons per day	In operation
Tianyang, Guangxi	Municipal solid waste	500 tons per day	In operation
Nanning, Guangxi	Urban sludge	300 tons per day	In operation
Guangzhou, Guangdong (note)	Urban sludge	300 tons per day	In operation
Changjiang, Hainan	Hazardous industrial waste	30,000 tons per year	In trial operation
Midu, Yunnan	Municipal solid waste	300 tons per day	In trial operation
Fengqing, Yunnan (note)	Municipal solid waste	300 tons per day	In trial operation

Note: Located in the cement production plants of our associates and joint ventures.

Indicator	Unit	2016	2017	2018
Municipal solid waste co-processed	tons	93,300	82,400	166,000
Urban sludge co-processed (note 1)	tons	29,500	49,700	49,300
Hazardous industrial waste co-processed (note 2)	tons	-	6,700	8,700

Note 1: 80% moisture content for wet sludge.

Note 2: No hazardous industrial waste co-processing project in operation in 2016.

## ▲ Cultivating Green Culture

### ▲ Green Workplace

CR Cement continuously advocated for the concept of green development in daily operations and calls for all-staff joint construction of a resources-intensive and environmentally-friendly enterprise. The Company promoted OA and ERP office systems, advocated for paperless offices, strengthened management on office equipment, reduced energy waste, promoted use of water-saving appliances to reduce water consumption, and recycled plastic and paper to reduce waste generation. Commuter buses are offered to employees at some production plants and some operating regions for work commutes. We also advocate for public transportation, bicycles and walking as alternatives to driving private cars for work commutes.

#### “Environmental Protection Ideas” stimulated employees to put green lifestyles into practice

Redland Concrete actively launched green environmental protection activities, encouraged employees to put green lifestyles into practice and recycled plastic bottles, aluminum cans, old newspapers, old light tubes, glass bottles, plastic toys and stationery on a monthly basis. At the same time, the “Environmental Protection Ideas” Competition was held and winning projects were actively implemented. For example, the promotion of the award-winning project “Supply/Self-Supply of Recyclable Tableware in Offices and Factories” will collect and organize hundreds of unused disposable plastic tableware for employees' use as well as add new recyclable tableware through the Green Reward Fund (funded by revenue generated from daily environmental recycling) in order to encourage employees to reduce the use of disposable tableware.



Calls for “Environmental Protection Ideas”



Classification and recycling of waste

### ▲ Green Education

In order to raise employee awareness on environmental protection, the Company put up promotional posters, distributed leaflets as well as utilized LED display screens, QQ and Wechat platforms to encourage all-staff promotion and publicity of knowledge on green environmental protection and comprehensively arouse employees' awareness on energy conservation and environmental protection. At the same time, we advocate and organize employees to actively participate in environmental protection themed activities such as “World Environment Day”, “National Energy Conservation Publicity Week” and “National Low Carbon Day”.

#### Launch of the “World Environment Day” Event

In cooperation with CNBM Group and LafargeHolcim Group, CR Cement issued a proposal to all members of the Cement Sustainability Initiative (CSI) in the China Region, which called for members to encourage employees to take low-carbon themed actions around the theme of “World Environment Day”.

5 June 2018 is the 47<sup>th</sup> “World Environment Day”. With a focus on the theme of “Beautiful China, I am the Actor”, the Company's headquarters, all operating regions and all production plants actively organized activities such as hiking events, knowledge competitions, environmental cleanups and issuance of promotional brochures as well as extensively launched publicity and education activities of environmental protection to raise the awareness among employees and the general public to care and support environmental protection. In 2018, the Company organized 231 relevant events with 14,843 employee participants in attendance.



Corporate Culture Poster for “World Environment Day”

#### Hosted the CSI special event on co-processing by use of cement kilns

In September 2018, as one of the co-chair units of the Cement Sustainability Initiative (CSI) in the China Region, CR Cement successfully hosted the CSI Special Event on Co-Processing by Use of Cement Kilns, during which, the United Nations Industrial Development Organization and domestic and international cement enterprises including the LafargeHolcim Group, HeidelbergCement and Huaxin Cement conducted discussions, mutual sharing and studies on technologies and experiences regarding co-processing by use of cement kilns in order to jointly encourage transformation, upgrade and green development of the industry, which raised the significance and influence of the Chinese cement industry in the global cement industry.



CSI Special Event on Co-Processing by Use of Cement Kilns

## Innovative intelligent manufacturing to shape the future

CR Cement staff are fully aware that innovation is not a temporary passion, nor is it merely for completing several innovative projects. The true spirit of innovation can only beautifully blossom through persistence secured by a robust system.

### ▲ Innovation Management System

To create an innovative corporate atmosphere, CR Cement effectively secures corporate transformation and innovation through its organization and systems. In terms of systems, the "Construction Plans for Innovation Management System" has been issued to further standardize the management of innovation process. Through the construction of innovation management system, we hope to promote all-staff innovation and rationally allocate resources needed for innovation to foster the conversion of innovation opportunities into innovation achievements. We also drive and lead CR Cement for transformation regarding technological advancement, management models and business models through the application and commercialization of our innovation achievements.

In terms of organization, our Technology Research and Development Centre was established. Together with China Resources Environmental Protection Engineering Investments Limited, laboratory of our Research and Development Centre, the Technology Committee and Runfeng New Materials, these innovative organizations had laid the foundation for innovative development.

### ▲ Intellectual Property Management

In order to provide a better system for safeguarding patent management, CR Cement has revised and promulgated the "Patent Management Policy of China Resources Cement Holdings Limited" pursuant to the "Patent Law of the People's Republic of China", the "Trademark Law of the People's Republic of China", the "Copyright Law of the People's Republic of China" and other laws and regulations. Also, we support and encourage our staff to actively engage in innovations, and continuously implement the registration of new "Runfeng" and "Wang Pai Gong Jiang" trademarks. In 2018, the Company was newly granted 29 patent licenses, which mainly included new products, equipment and systems for energy saving, emission reduction and enhancement of production and operation efficiency. As of the end of 2018, the Company had 356 trademarks, among which, 275 were domestic trademarks (including one Well-Known Trademark and one Famous Trademark in Guangdong Province respectively) and 81 trademarks in Hong Kong and Macao.

### ▲ Research and Development for Products and Technology

In view of market demand and industry prospects, CR Cement continued to carry out R&D of new products and new technologies, including the design of high-performance Portland cement to cater for the specific requirements for the construction of Hong Kong-Zhuhai-Macao Bridge, the launch of masonry cement M22.5 in Shanxi, the R&D of thermal Portland cement, the promotion of optimized ready-mixed cement for decoration, the R&D and production of high-calcium clinker, the development of coal combustion technology, and the R&D of greener stones. As of the end of 2018, the greener stone products developed by the Company included engineered marble, terrazzo, engineered pervious stone and engineered translucent stone.

▲ As of the end of 2018, our Technology Research and Development Centre had 45 specialized employees, including 4 doctors and 16 masters. In 2018, the laboratory of our Research and Development Centre completed the acquisition of the second batch of equipment of a total value of approximately RMB3 million; 3,046 inspections and tests were provided for our production plants, effectively supporting lean operations.



▲ Newly granted 29 patent licenses in 2018



#### R&D and Sales of Pervious Concrete

Pervious concrete pavement has a higher porosity which enables rainwater to quickly penetrate into the ground and replenish underground water resources in a timely manner. In order to provide quality pervious concrete products for the construction of "sponge cities", the Technology Research and Development Centre initiated preliminary research project for pervious concrete in June 2016 and has already developed expertise in production of pervious concrete, completed the preparation of systematic prescription mixture ratios and successively completed numerous key projects.



Colored Pervious Concrete Fountain

#### 1.3 Million Tons of "Runfeng Cement" Supported the Hong Kong-Zhuhai-Macao Bridge

Hong Kong-Zhuhai-Macao Bridge is the world's longest cross-sea bridge, the sole deeply immersed tube tunnel and the largest immersed tube in the world. In order to fully secure the "120-year" target lifespan of the bridge, the design team had extremely high requirements on the durability of the foundational reinforced concrete structure.

CR Cement designed high-performance Portland cement which met the specific requirements of the project by overcoming the technological difficulties of the project requirements through numerous tests and adjustments, adoption of prescription formula for low-hydration thermal and high-strength Portland cement clinker, control on alkaline contents and innovative use of techniques such as technologies to control MgO (magnesium oxide) in limestone and oxygen-rich combustion. This product has reached new highs in the industry in terms of high resistance to permeation, frost, steel bar rusting and corrosion. Currently, we have filed a patent application for the prescription formula of that Portland cement clinker.

Since 2011, CR Cement had supplied cement products for the Mainland section of the Hong Kong-Zhuhai-Macao Bridge project, including the main structure and the prefabricated immersed tube island tunnel. We supplied a total of approximately 1.3 million tons of cement, accounting for 86.7% of the total cement usage of the Mainland section of the Hong Kong-Zhuhai-Macao Bridge.



The Hong Kong-Zhuhai-Macao Bridge

In 2018, China Resources Cement Technology R&D Co., Ltd. continued to push forward the implementation of industry-academia-research cooperative projects, promoted innovative research and development, and attained the designation of National-Level High and New Technology Enterprise.



In cooperation with Guangxi University, the "Project for Experimental Research and Industrialization of Calcination of Low-Grade Limestone for Low-Calcium Cement" has been put into industrial use in Kiln No.1 of Changjiang Cement, which has effectively improved the utilization efficiency of the industrial resources of low-grade limestone and prolonged the lifespan of our mines.



We participated in the "Project for Concrete Admixture Project" of Hongshuihe Cement and have now achieved the production of admixture with stable quality and reliable performance, which significantly ensured the quality of concrete and buildings.



In cooperation with Fuchuan Cement, the "Model Research and Application of Technologies for Co-Processing Various Types of Industrial Solid Wastes by Cement Enterprises" project was successfully named as a major scientific and technological project in the Guangxi Zhuang Autonomous Region Government so as to assist the government in solving technological difficulties which the society concerns.

### ▲ Implementing Intelligent Operation

CR Cement regards technological innovations as an important issue. We promote the integration of technology with business as our focus on reform for innovations and rely on valuable technological innovations to motivate corporate development. The Company and Siemens Ltd., China entered into a strategic cooperation agreement in June 2018, whereby both parties shall jointly build a pilot intelligent cement production line. The goals of "safety, environmental protection, excellent quality, high efficiency, low consumption" would be achieved through an intelligent management system integrating manufacturing resources, data resources and technological resources.

○ Intelligent Delivery System

In 2017, CR Cement launched the "Smart Card" unmanned intelligent delivery system in Guangdong and completed its launch at 10 production plants in 2018. The system improved delivery efficiency, reduced management costs and improved customer delivery experience through the achievement of automated and intelligent product delivery. The efficiency of incoming and outgoing shipments of the production plants has been enhanced significantly and the labour costs for logistics management at the plants have been substantially reduced.

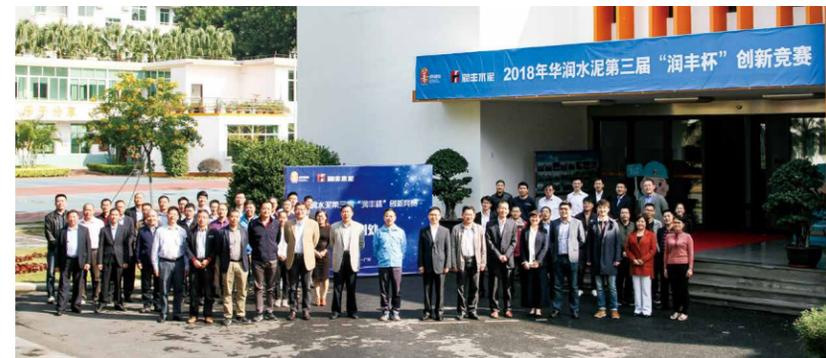
○ Mobile Sales Application

CR Cement pioneered the official operation of a mobile sales application system in Guangdong Region, which provides customers with efficient and convenient online services such as quick order placement, balance inquiry, sales volume inquiry and logistics inquiry. In 2018, the system has been extended to 7 regions nationwide, which has substantially enhanced customers' efficiency and satisfaction level of placing orders. As at the end of 2018, customers had placed 1.895 million orders through the mobile sales application. Volume of online order reached 45.817 million tons, representing 52.9% of the total volume.

○ Intelligent Inventory

CR Cement actively promoted inventory analysis and shared efforts in planning. As of the end of 2018, the Company had completed the research, site visit and proposal formulation for the construction of an inventory sharing centre for spare parts of auxiliary materials, which laid the foundation for achieving the goals of flexible deployment of spare parts, reduction of budgets for inventory, inventory age structure improvement and increased turnover rate.

The application of the Advanced Process Control system (APC) at pilot production plants in Fengkai Cement and Nanning Cement promotes the automation of kiln operating system and is currently in trial operation. The successful application of automatic bag insertion technology in Jiangmen Cement has improved the working environment of cement packaging, improved the automation level of equipment and effectively reduced emission of particulate matters.



The 3<sup>rd</sup> "Runfeng Cup" Innovation Competition of CR Cement 2018



"Digitization and intelligentization is undoubtedly the future path of CR Cement. In achieving intelligent plants, intelligent logistics and intelligent marketing, we are not only the industry leader, but also an advocator of innovation in the industry."

-Zhou Longshan,  
Chairman of CR Cement.

▲ Promoting All-Staff Innovation

In order to continuously optimize the innovation system and enrich innovation activities, we have formulated plans for promoting innovation projects, organized and launched innovation project seminars and training sessions in order to stimulate all-staff innovation through scientific methods. We made full use of our innovation platform, successfully held three innovation competitions and annual Innovation Conferences to share our innovation achievements with our staff and unleash their enthusiasm for innovation. In 2018, CR Cement identified 15 propagable innovative projects. At the same time, the Company newly developed 13 innovative talent development courses such as prefabricated construction and intelligent manufacturing in order to cope with our new business development.

Jinjiang Grinding Plant Launched Innovation and Creativity Competition

In August 2018, Jinjiang Grinding Plant launched the Innovation and Creativity Competition and 14 excellent innovation projects were nominated on department basis to participate in the competition. The projects were assessed from the three aspects of value creation, feasibility and innovation by on-site assessment of the Company's management team and members of the appraisal group. Finally, the projects "Improvement of Online Monitoring System on Dust Emissions of Dust Collectors", "Adoption of Wireless Control System for Dust Collection of Packaging and Loading Vehicles" and "Treatment and Management of Secondary Dust Pollution" won the awards.

Science and Technology Innovation Training

In January 2018, China Resources Cement Technology Research and Development Centre invited Professor Wei Jiangxiong of South China University of Technology to provide special training on science and technology innovation including professional knowledge and experimental testing methods for cement and concrete, with a focus on topics in cement chemistry, methods for cement experimental tests and analysis, and concrete durability.



# Mutual achievements in responsibility



CR Cement believes that achieving mutual development between the enterprise and employees, customers and business partners will be conducive to the construction of a harmonious society. The Company proactively protected employees' rights and interests for building a warm and harmonious working environment. We provided customers with a comprehensive range of services for delivering a great consumer experience. We strengthened the relationship with business partners and fulfil social responsibilities hand in hand with business partners. We proactively organized brand-related charity activities to give back to the community through our practical actions.

- 33 **People-oriented growth with companion**
- 33 Protecting the Rights and Interests of Employees
- 34 Facilitating the Development of Employees
- 36 Care for Employees
- 38 Care for Occupational Health
- 39 **Customer-oriented services with craftsman's spirit**
- 39 Customer Service System
- 39 Respecting the Rights and Interests of Customers
- 40 Providing Satisfactory Services

- 42 **Winning hand-in-hand through mutual construction and sharing**
- 42 Deepening Strategic Cooperation
- 43 Creating a Responsible Supply Chain
- 44 **Empathetic connections with the society for mutual creation of harmony**
- 44 Active Participation in the Community
- 44 Helping Those in Need
- 46 Supporting Cultural and Sports Activities
- 47 Participating in Volunteer Activities

## Key Performance in 2018

Number of employees attending health body check



Staff training coverage rate



Total number of suppliers



Handling rate of customers' complaints



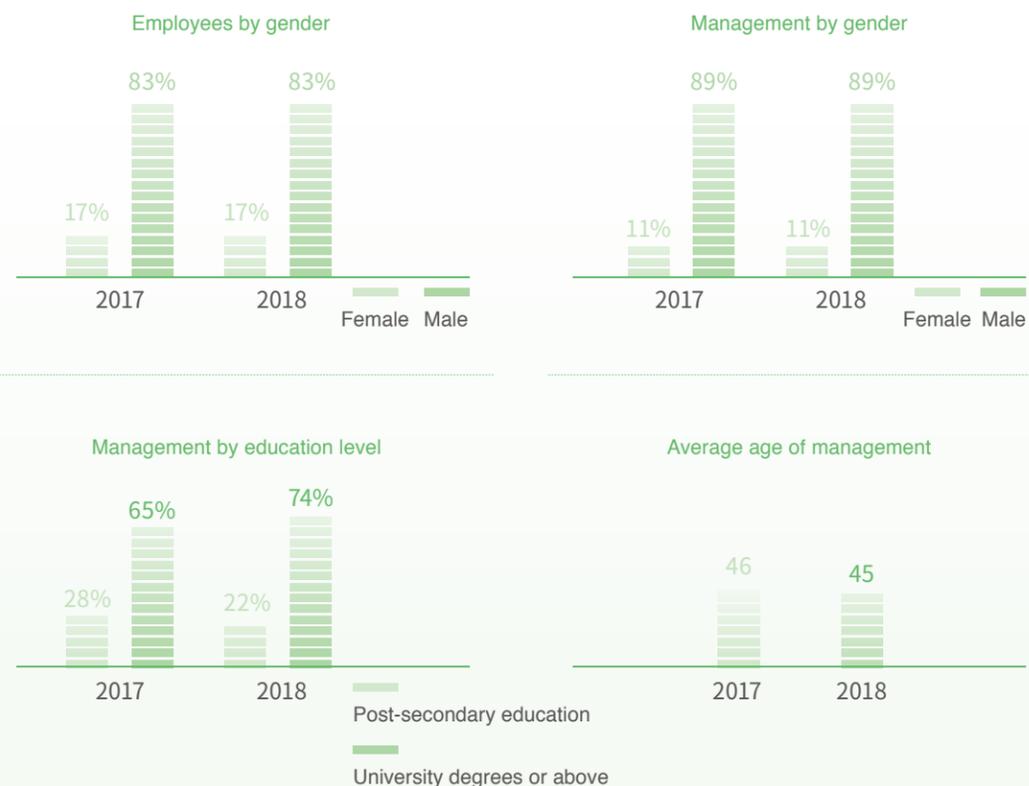
## People-oriented growth with companion

CR Cement view our employees as the most valuable resources for corporate survival and development and regards the peace and bliss of our employees and their families as the standpoint which the Company has been striving for. Adhering to the objectives of “respecting human value, developing human potential, and enhancing human spirit” for talent work, CR Cement is built as an all-inclusive organization where an ordinary person can become good and a good person can become great, which enables a stable stream of talented people to fulfil their life dreams.

### ▲ Protecting the Rights and Interests of Employees

#### ▲ Equal Employment

CR Cement adheres to the principle of equal employment and prohibits all discrimination due to differences in gender, age, territory, education, religion and nationality. We also oppose to forced labour, harassment and abuse. We effectively protect the rights and interests of employees and ensure that they enjoy fair entitlements in terms of recruitment, labour, salary, training, promotion, compensation and holiday leave. As of the end of 2018, CR Cement had a total of 20,301 full-time employees, among which, 20,142 were based in the Chinese Mainland. 17% of employees and 11% of our managerial staff were female. 20.7% of employees were of ethnic minorities and 52 employees had disabilities.



#### ▲ Basic Benefits

CR Cement continued to optimize and offer various benefits and entitlements to its employees. The Company makes timely and full contributions to the “Five Social Insurances and One Housing Fund” for Mainland employees and the Mandatory Provident Fund for Hong Kong employees. Targeted body check programs and diversified body check packages were continuously provided to employees. Commercial insurances were taken out for employees and their two close family members, which effectively raised the employees' sense of belonging. At the same time, the Company established and implemented a supplementary annual corporate pension insurance system to enrich the employee welfare system, promote the care for employees and improve protection to employees.

#### ▲ Remuneration System

CR Cement continued to improve the employee remuneration management system to reasonably determine the remuneration and welfare structure of employees at different levels. Through systematic review and problem diagnosis of the remuneration system, in combination with benchmarking results of internal and external data, CR Cement optimized and established a performance-based total wage allocation mechanism to continuously improve the efficiency of employees. At the same time, the Company designed an annual salary adjustment mechanism linked to corporate performance, market remuneration levels and remuneration differences in regions which strengthened the bonus allocation mechanism based on performance and contribution to profit in order to constantly mobilize the enthusiasm of employees. We explored the diversified incentive mechanism with a holistic approach in order to attract and retain excellent talents and employees in core positions.

#### ▲ Democratic Management

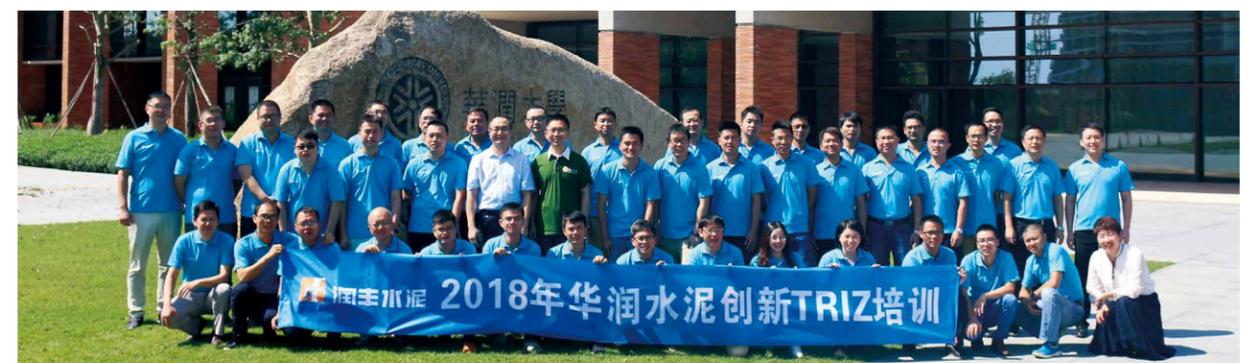
CR Cement established a timely and effective mechanism for negotiation and communication to actively promote democratic management. The Company abides by principles of fairness, equality and negotiation for unanimous consensus. We entered into employment contracts with employees which specified the rights and obligations of both employers and employees. The Company opened smooth feedback channels for employees to provide real-time opinions and aspirations through diversified channels such as employees' congress, whistle blowing emails, whistle blowing hotlines, and OA forum. The Company continuously sought opinions and suggestions from employees level by level when formulating systems and policies involving substantive interests of employees.



### ▲ Facilitating the Development of Employees

#### ▲ Staff Training

CR Cement puts strong emphasis on building teams of talents and continuously improves the mechanism for talent development in order to gradually optimize various talent training systems. The Company combined online and offline training platforms and perfected the curriculum system, lecturer system and management system in order to provide a secure supply of talents for our business development. The "Excellent Key Position Training Project" of the Company won the "Value Case Award" in the "China Learning & Development Value Awards 2018" organized by the HR Excellence Center.



China Resources Cement Innovation TRIZ Training 2018



Outward bound activities for middle-level and senior managers of Guigang Cement



Training for qualified basic managerial staff of Hongshuihe Cement



On-site management skills certification for TWI basic supervisors in the team building training of Guangxi regional team (2<sup>nd</sup> batch)



China Resources Cement College

In order to fully achieve corporate strategic goals and build a talent training system that is consistent with the corporate characteristics of leadership, professional capability and technical capability, CR Cement has established an internal training institute, China Resources Cement College. In 2018, China Resources Cement College reshaped its training system based on strategic needs, management requirements and employees' desire for development with focal points based on branding of training projects, curriculum standardization and lecturer professionalism. Through systematic review of curriculum and lecturer resources as well as focus on team building and training for basic employees, the Company strengthened online and offline training platform management in order to perfect the curriculum system, lecturer system and management system of the college. In 2018, China Resources Cement College organized a total of 46 training courses with 2,600 participants in attendance.



Internet+ Platform

In order to meet the needs for digital mobile learning, CR Cement has fully utilized the Internet+ platform to build an effective mechanism for self-study. The Company continued to optimize its online learning platform to achieve the unification of functions and contents across the three platforms of mobile phones, computers and tablets. The development of micro-lectures was conducive to employees' self-study during fractionized periods of time. The two micro-lectures developed by the Company won the "Best Production Award" in the "2018 (4<sup>th</sup>) China Enterprise Microlecture Competition" held by Training Magazine. The micro-lecture named "There are Smart Ways to 'Chat' with Subordinates-Performance Review Interview" won the third prize in the 1<sup>st</sup> micro-lecture competition of China Resources Group. In 2018, approximately 20,200 employees utilized online training for a total duration of approximately 69,600 hours.

▲ Career Development

CR Cement focuses on maximizing employee value and providing employees with fair and equal development opportunities. Through promoting open internal competition and strengthening managerial team building, we provide a platform for young employees who have the desire and capability to make contributions to the Company. We also established a debriefing mechanism to comprehensively evaluate business management capabilities and shape organizational abilities of managerial staff.

At the same time, the Company developed a job appraisal system to evaluate the performance of professional personnel on a regular basis. We proactively organized a series of "Excellent Craftsmen" programs such as vocational practical skill training, technology competitions and talent shows. We combined business strategy, job requirements and personal development needs to gradually improve various talent training systems and actively cultivate "knowledgeable, skillful and innovative" talents in order to ensure the secured supply of talents for the Company's business development.

▲ Care for Employees

▲ Hardship Assistance

The Company regularly visits employees in need and their families while caring for and following up with the improvement of their living conditions. With the establishment of the "China Resources Cement Gratitude Fund", the Company encourages the employees to make voluntary donations and sets up a payment mechanism to match the employees' donations in the same amount. The donations shall be used for subsidizing employees in need and in illness. In 2018, the "China Resources Cement Gratitude Fund" granted subsidies in the total amount of RMB326,000 to 16 employees.

"Gratitude Fund" granted subsidies of RMB326,000 in 2018



▲ Care and Love for Female

In strict compliance with the "Law on Protection of Rights and Interests of Women" and other laws and regulations, CR Cement focuses on the protection of rights and interests of female employees. The Company implemented requirements for maternity leave and lactation leave for female employees, and provided "employee nursing room" and "ladies' changing room" for female employees. The Company also offers equal career development opportunities to ensure that female employees are entitled to remuneration and benefits of no difference. The Company provided personalized benefits such as organizing group birthday parties, movie watching, team development training, barbecues, hikes, flower arrangement and other activities to raise the sense of belonging and blissfulness of our employees.



A dancing room jointly established by Luoding Cement and Luoding Concrete



Mothers' home at Luoding Cement

▲ Staff Activities

CR Cement implemented the objectives of "Happy Work and Healthy Life" and organized cultural and sports activities such as spring outings, sports games, basketball games and photography contests on an irregular basis. We also visited and solaced retired employees with care and love during important festivals such as Chinese New Year. We innovated on the themes and settings of monthly birthday parties, including picnic birthday parties and riddle quizzes at Mid-Autumn Festival, to let our employees feel more warmth of "home". In 2018, the Company integrated brand promotion, parent-child events and fitness activities to promote corporate culture while raising team cohesion.



Employees of Fujian Region participated in the Fuzhou International Marathon



The Second "Runfeng Cup" Basketball Tournament



Table tennis competition of the "Model Factory" of Pingnan Cement



The First "More Exercise, More Health" gas volleyball competition of Jinsha Cement



Singing contest at Guizhou Region



The Mid-Autumn and National Day dual-festival cultural activity of Heqing Cement



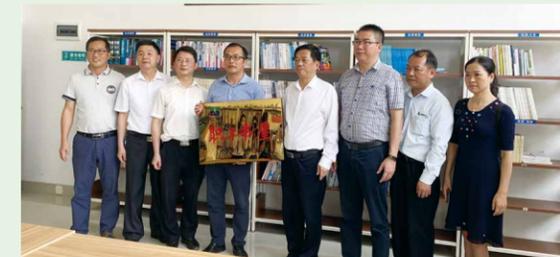
"Love Factory • Love Home" cookery contest of Gaoyao Concrete



The Second banquet and garden event of Tianyang Cement

Staff library of Yongding Cement

In order to enrich the spiritual and cultural lives of employees and promote the corporate culture of continuous learning, Yongding Cement established the "staff library" in 2015. The staff library is located at the staff activity centre of China Resources Home, covering an area of 84.7 m<sup>2</sup>, and comprised of both reading area and chess playing area. There are 1,346 books on 13 bookshelves, with contents that cover current affairs, politics, humanities, history, mental health, life science, formal writing and cement workmanship etc. The library is managed by designated personnel of the property manager, who are responsible for classification, numbering, registering borrowing and return of books. In 2018, the staff library of Yongding Cement was conferred the title of "National-Level Model Staff Library" by the All-China Federation of Trade Unions.



The staff library of Yongding Cement was conferred the title of "National-Level Model Staff Library" by the All-China Federation of Trade Unions



Employees of Yongding Cement borrowed books from the staff library

▲ Care for Occupational Health

CR Cement strictly implemented the "Law of the People's Republic of China on the Prevention and Control of Occupational Diseases" and the "Regulation of the People's Republic of China on Prevention and Control of Pneumoconiosis", and formulated plans and implementation proposals for occupational disease prevention in accordance with the requirements of laws and regulations. Designated health management personnel had been deployed at our headquarters, who launched extensive remedial work to minimize dust and noise hazards at each production plant and were dedicated to building a healthier working environment by organizing occupational health trainings and creating employees' health records. In 2018, the Company created occupational health records for all employees and organized over 300 occupational health activities with a total of over 11,900 participants in attendance.

Over 11,900 participants in attendance of occupational health activities in 2018



CR Cement Staff Health Day cum Long-Term Service Award Ceremony



Occupational health body check at Ledong Concrete

Healthy China, Occupational Health First

In the morning of 27 April 2018, Nanning Cement held the opening ceremony of the "Law on the Prevention and Treatment of Occupational Diseases" publicity week with the theme of "Healthy China, Occupational Health First". Over 250 people attended the event including the Company's employees, counterparties, the Health Planning Commission and the Work Safety Bureau of Autonomous Region. Training on the "Law on the Prevention and Treatment of Occupational Diseases", knowledge seminar on prevention of occupational health, on-site diagnosis and consultation of occupational health, on-site lectures, sharing talks and distribution of publicity brochures were organized during the event, which had aroused the awareness of employees and counterparties of the Company on occupational health prevention and self-protection.



"Law on the Prevention and Treatment of Occupational Diseases" publicity week at Nanning Cement

## Customer-oriented services with craftsman's spirit

With the mission "to provide customers with quality products and services", CR Cement optimizes our services based on customers' needs. We firmly believe that genuine corporate value can only be created through client satisfaction.

### ▲ Customer Service System

Adhering to a "customer-oriented" business philosophy, CR Cement established a robust customer service system. Professional customer service personnel were deployed at each operating region and production plant to provide customers with pre-sale, sale and after-sales services. Customer service personnel regularly called customers for feedback, exchanged product technology with customers and guided customers to use products correctly. In addition, customer service hotlines were set up at each operating region to answer customers' enquiries in a timely manner for enhancing customer satisfaction levels.

### ▲ Respecting the Rights and Interests of Customers

#### ▲ Customer Data Protection

CR Cement treats customer data as core trade secrets and strictly keeps customer data confidential. The Company established an information security organization to provide protection on effective launch of information security work. The "Information Security Management Measures of China Resources Cement Holdings Limited", the "CR Cement Specifications for Information Security Technology", and the "CR Cement IT Equipment Information Security Baseline Standards" were promulgated to set forth the management and technological guidelines for information security. CR Cement strengthened the protection in core areas and provided technological means for effective launch of information security work. All customer data is required to be independently filed and designated personnel are responsible for collection, filing, and update of information. The Company strictly managed the grant of authorization for inquiry, export and application of customer transaction data in the information system to ensure the security of customer data.

#### ▲ Combatting Counterfeit

CR Cement strictly abided by competition laws and regulations and basic business ethics, and participated in market competition in a fair and orderly manner. The Company established a traceable supervision system for product quality, integrated the weighbridge and packaging systems into the ERP system and ensured that each bag of cement on board was printed with a unique identification code, which provided technical support for follow-up on quality supervision of the Company's products and combatting counterfeit. We continuously collected information on the use of "China Resources" trademarks in the cement industry and sales regions, and provided support for follow-up on protection of trademark rights. In October 2018, the Company reported and investigated a total of 4,800 counterfeit "Runfeng Cement" woven bags in Longhua District and Baoan District of Shenzhen.



Identification code printed on cement bags



### ▲ Disposal of Defective Products

CR Cement established standards for management of quality incidents, conducted diagnosis and made decisions on the incidents, provided solutions proposals for handling unqualified products, compensation standards, recall mechanisms and handling processes. When it is found and confirmed that unqualified product had left our factories or has serious quality problems in the process of using the products, we shall notify relevant customers immediately to stop using or isolate the product of that batch, recall unused products of that batch and simultaneously assess and compensate customers for their loss. The Company shall organize investigation to analyze on the causes of quality incidents, formulate rectification measures, identify the responsibilities and confirm the effectiveness of rectification.

### ▲ Popularization of Product Knowledge

With strict reference to the requirements of national laws and regulations, CR Cement offered detailed introduction on product performance and potential problems in the product manual to ensure that consumers had a full understanding on product knowledge. Relevant instructions and tips were printed on the external packaging bags of products to minimize potential problems caused by improper product use. We also organized customer training meetings, conducted events for promotion and illustration of products to convey facts regarding product performance and instructions for use in practice, inform customers of common problems of cement application and provide guidance on specific usage problems such as storage of raw materials, concrete mix prescription ratio and construction habits.

### ▲ Providing Satisfactory Services

#### ▲ Preemptive Customer Services

CR Cement popularized product knowledge to consumers through means such as short videos to help consumers understand the production process and maintenance of cement and provided guidance for selecting suitable products. In 2018, CR Cement selected civil customers in certain areas of Guangdong and Guangxi as research subjects. Through creating short videos on self-mix concrete preparation, pouring, plastering and maintenance as well as posting video stickers in various stores leading users to scan the QR codes for watching, we helped users understand correct methods for construction and maintenance.

#### ▲ Mechanism for Handling Complaints

The customer service department of the Company collected and compiled information from each operating region on a monthly basis through customer visits, handling of customers' complaints and product sampling. We further classified customers' complaints with a focus on tracking fluctuations of product indicators, quality problems of packaging bags, and customers' aspirations and suggestions on the production and delivery of products in order to promote continuous improvement in product quality and service. In 2018, CR Cement received 149 complaints or objections from customers (decreased by 114 cases year-on-year). The Company responded promptly within 24 hours and the complaint handling rate reached 100%.

▲ 100% complaint handling rate in 2018



#### Handling of customers' complaint incidents

Customers in Wuzhen District, Nanning City, used 5.5 tons of P.O42.5 bagged cement from Nanning Cement to pour and build approximately 83 m<sup>2</sup> of floor slabs. During post-maintenance, cracks were found on the floor slabs.

After on-site inspection, it was determined that the sand used by the customer was medium-fine sand, which was too fine, and there was too much water in the concrete. In addition, as the floor slab surface was not treated and coupled with the dry weather in winter, water content quickly dissipated. Due to the customer's delay in spraying water for maintenance, the concrete shrank and cracked.

We explained the causes of cracks on the concrete floor to the customer and recommended that the cracked floor should be filled and repaired with cement powder, and adequate moisturizing and maintenance should be done. At the same time, precautions for construction and maintenance were disseminated to the customer to instruct them the standard usage of concrete during construction. Following communications, the customer positively acknowledged the handling of the incident.

## ▲ Customer Satisfaction Surveys

Each operating region and production plant of CR Cement extensively collected customers' opinions and suggestions through customer satisfaction surveys and questionnaires upon integrating actual working circumstances in order to gain a better insight on customers' satisfaction level regarding products and services of the Company and respond to customers' feedback in a timely, objective and effective manner. In 2018, customer satisfaction surveys were organized in Guangxi, Fujian and Guizhou Regions.

Guangxi Region	Fujian Region	Guizhou Region
The survey was designed to research on the six dimensions of "product quality, application/use performance, quality of packaging bags, loading service, sales service, other services". The surveys targeted bulk and bagged customers separately in order to understand the aspirations of different types of customers. The final satisfaction score was 88.2%.	The survey was designed with 25 questions regarding the entire process of the whole transaction. The survey was launched to find out the levels of satisfaction on using the Company's products as compared with those of the major competitors in order to understand customers' expectations for the products of CR Cement and our major competitors. The final satisfaction score was 88.7%.	The survey was designed to research on the four dimensions of "product quality, salespersons, after-sales service and support, and drivers' delivery". The satisfaction survey was conducted on approximately 50 customers through in-depth interviews, telephone interviews and face-to-face visits. The final satisfaction score was 92.8%.

## ▲ Diversified Value-Added Services

The Company continued to organize the "Runfeng Cement" Brand Anniversary Celebration event, launched the brand image spokesperson "Run Xiaofeng", promoted the cooperation between brand image franchise stores and key users, and reinforced the "Runfeng Cement" brand image. In addition, based on seasonality and local features of the markets of each operating region, brand promotion activities such as "gifting coolness" in summer, "gifting warmth" in winter, "poverty alleviation at the grassroots level", "gas volleyball competitions" and "healthy hikes" were organized on an irregular basis to provide customers with more diversified value-added services.



"Run Xiaofeng", the brand image spokesperson

### "Runfeng Cement" Brand Anniversary Celebration

On 28 June 2018, in order to celebrate the second anniversary of the official launch of "Runfeng Cement" brand, CR Cement organized the "Runfeng Cement" Brand Anniversary Celebration event in Nanning, where 105 customer representatives from 7 operating regions participated in the event. During the event, a prize presentation ceremony for outstanding customers was also held to recognize and encourage contributions of our massive customers to the Company.

During the brand anniversary celebration, each operating region also launched various forms of activities such as subsidizing students with love and hikes. A total of 1,150 customers were invited, which further expanded brand influence and enhanced the confidence of customers in cooperating with the Company.



"Runfeng Cement" Brand Anniversary Celebration event in 2018



Prize presentation ceremony for outstanding customers during the Brand Anniversary Celebration in 2018

## Winning hand-in-hand through mutual construction and sharing

CR Cement insists on mutual respect and mutual trust, and maintains transparency as we develop cooperation with our business partners. We uphold common values and principles and are committed to building good relationships with business partners and growing together.

### ▲ Deepening Strategic Cooperation

CR Cement adheres to the concept of "win-win development" and has proactively developed a communication platform between the Company and the operating regions as well as an internal platform for resources sharing between operating regions to promote the coordinated development of our operating regions. We developed strategic cooperation with local governments to support the upgrade of local industries, expand local taxation income and increase local employment. By deepening the cooperation with outstanding enterprises, academic institutions and trade associations, we will jointly build a favorable business environment.

#### Deepening cooperation with local governments to help construct green cities

CR Cement fully unleashed its expertise, consolidated internal resources and cooperated with local governments of all levels in dedication to providing cities with sustainable development solutions.

Fengkai Cement cooperated with the local government for the launch of government-enterprise coordination to help local paper factories dispose of 100 tons of waste paper pulp, which was a beneficial attempt to solve the issue of waste paper pulp.

CR Cement, China Resources Power and the Water Resources Bureau of Shenzhen Municipality jointly entered into the "Strategic Cooperation Framework Agreement for Processing Urban Sludge in Shenzhen". The three parties jointly promoted the sludge coupling power generation project of China Resources Haifeng Power Plant and the sludge co-processing project of CR Cement, which contributed to the construction of ecological civilization.

We explored cooperation in prefabricated construction business with the local governments of Guangdong and Guangxi in order to promote green and low-carbon development of the construction industry.



Signing ceremony of the Strategic Cooperation Framework Agreement for Processing Urban Sludge in Shenzhen

#### The launch of cooperative pilot project for intelligent manufacturing

CR Cement actively responded to call of "Made in China 2025" and launched strategic cooperation with Siemens China in the fields of electrification, automation and digitization. The Company's cement production plants, in cooperation with companies including Thermo Fisher Scientific (China) Co., Ltd. and ABB Engineering (Shanghai) Co., Ltd., had actively prepared and implemented the construction of intelligent factories to explore paths for the intelligentized development of the cement industry.

In 2018, CR Cement and Siemens China cooperated in conducting an intelligent manufacturing pilot project in Tianyang, Guangxi to jointly research and implement the application of intelligent manufacturing in the cement industry and explore solutions to energy saving, quality improvement and labour productivity enhancement. As of the end of 2018, business research and analysis of the project had been completed, and the overall blueprint design and drafting of detailed solutions proposals have commenced.



Signing ceremony of the Strategic Agreement on Intelligent Manufacturing between Siemens and CR Cement



Signing ceremony of the Agreement for Intelligent Manufacturing Pilot Project in Tianyang between Siemens and CR Cement



### Promoting industry development through enhancing knowledge exchange

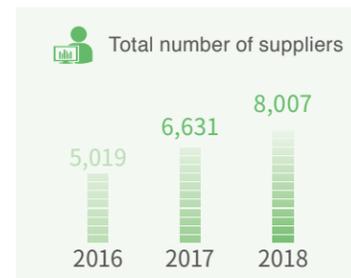
CR Cement actively participated in technological seminars and formulation of standards, and fully utilized advantages in industry coordination and resources of business partners to promote technological innovation and development of the industry.

- **Participation in industry seminars:** The Company participated in the expert panel of the "Application of Selective Catalytic Reduction (SCR) Technology for Denitration in the Cement Industry" organized by the China Cement Association. The Company also actively strived for the development of environmental protection technology in the cement industry to meet the targets for emissions reduction. In 2018, the Company participated in 16 industry seminars and technological exchanges, and won the "Award for Innovative Contribution to Technology Standards in China Cement Industry".
- **Participation in the formulation of industry standards:** As the vice-chairing unit of the China Cement Association and the chairing unit of the Guangdong and the Guangxi Cement Industry Associations, CR Cement has jointly explored on "Methods for Semi-Quantitative Analysis on the Minerals Contents in Portland Cement (XRD Method)" with multiple parties and participated in the group for reviewing standards such as the "Standards for Verifying Cement Production Capacity".
- **Enhancing knowledge exchange within the industry:** CR Cement actively participated in the "2018 Roundtable Meeting for Leaders of Large-Scale Cement Enterprises in China (C12+3 Summit)", the "2018 Meeting for Leaders of Large-Scale Ready-Mixed Concrete Enterprises in China (C10+ Summit)" and other industry meetings. At the same time, the Company strengthened exchanges and communications with enterprises such as Conch, CNBM, Taiwan Cement, BBMG and Huasheng by conducting exchanges and studies on issues such as industry development, operational management, energy saving, environmental protection and digitalization in order to jointly promote the sustainable development of the industry.

## ▲ Creating a Responsible Supply Chain

### ▲ Supplier Management

CR Cement continued to improve the procurement management system and supplier management methods through the implementation of stricter supplier full-lifecycle management on inspection, admission, selection, evaluation, rectification and exit. Our independently developed Supplier Relationship Management (SRM) system had been embedded with the functions of process consolidation, operational standardization, open application, self-registration and self-inquiry. This had formed favorable information exchanges between suppliers and created a competitive environment featuring "openness, equality, fairness, honesty and credibility".



### ▲ Standardizing Procurement Behaviours

We have established comprehensive bidding management measures to regulate the procurement behaviours of the Company. The Company requires all procurement staff to attend educational training on integrity at least twice a year and sign the "Sunshine Declaration" every year. In addition, we regulated the tendering management by requiring the tendering team and the panelists to sign the "Integrity Practice Guideline". All procurement contracts have incorporated the "Integrity Terms of Suppliers", which has to be signed and abided by all suppliers. Moreover, the Company has set up special public channels for procurement complaints and whistle-blowing. The "one-vote veto" system on integrity issues had been implemented concerning the management of internal procurement staff and external suppliers. The Company required the suppliers to fulfil their obligations under the contracts, including compliance with laws and regulations, protecting the environment, operating in good faith and quality assurance in order to ensure that suppliers fulfil their social responsibilities.

### ▲ Growth of Suppliers

CR Cement continuously paid attention to the growth of suppliers and implemented rating and differentiated management of suppliers to help them improve and narrow down the gaps. Training activities were held for suppliers on an irregular basis to deliver the concepts of social responsibilities such as environmental protection, safety and health to suppliers and stimulate the development of suppliers. In 2018, the Company managed, guided and reviewed 8,007 suppliers in aspects including suppliers' admission, cooperation, evaluation and performance feedback.



Meeting held by suppliers for sharing experience on the use of heat-sealed bottom-pasting bags



"In 2006, we came into contact with Runfeng Cement. We started from delivering bagged cement of Guigang Cement, and achieved bulk to bag processing at our self-built transfer port terminal later on. Initially, our annual sales volume of bagged cement was only over 100,000 tons. Now our annual sales volume exceeded 1 million tons. Our company now has a strong foothold in the Shenzhen cement industry, thanks to the cooperation with CR Cement for over 10 years."

-Yi Jianshen, Chairman of Shouxin Building Materials

## Empathetic connections with the society for mutual creation of harmony

CR Cement persistently insists on the integration of corporate development and social responsibility. In combination with corporate inherent characteristics and advantages in our active participation of various projects for poverty alleviation and community service, we are building a more harmonious and better society with practical actions.

### ▲ Active Participation in the Community

CR Cement fully utilized our inherent advantages in resources to create a healthy, stable and harmonious community environment by repair and construction of rural roads and renovation of dilapidated houses. We strengthened our ties with the community and organized our employees to launch hygiene management activities for the community for making contribution to the construction of modernized new villages with "thriving businesses, pleasant living environments, civilized rural culture, effective governance, and prosperous lives".



Fujian Region participated in the event for cleaning up communal trash

### ▲ Helping Those in Need

#### ▲ Care for Special Groups

We attach great importance to care for special groups including the poor, the disabled, the left-behind children and the elderly without family. We promoted activities which offered succour, solace and assistance. We persistently visited and expressed solicitude to elderly care institutions, the elderly without family and the general public in need in the neighbouring villages over all these years.



Fujian Region launched assistance activities in special schools



Redland Concrete visited groups with cognitive impairment



Luoding Cement participated in distribution of reunion dinners and free medical consultations for the elderly without family



Jinsha Cement organized visits for left-behind children

▲ Focus on Poverty Alleviation

The Report to the 19<sup>th</sup> CPC National Congress reiterated the resolute commitment to "Winning the Battle Against Poverty" and required poverty alleviation work to reach "who truly need it and deliver genuine outcomes". CR Cement actively responded to the national call for poverty alleviation by dedicating efforts in securing and improving people's livelihood while facilitating corporate development. By unleashing the advantages of our production subsidiaries, we have assisted our neighboring towns and villages in the construction of roads and repair of bridges, and made donations in cash or in kind to underprivileged regions and families in need to solve their practical difficulties. At the same time, CR Cement participated in the construction of the China Resources Group Hope Towns and provided support in terms of materials and human resources to the Group's efforts in rural revitalization.



Heqing Cement actively responded to the call for targeted poverty alleviation

As one of the key industrial enterprises in Heqing County, Heqing Cement actively responded to the "Thirteenth Five-Year" call for poverty alleviation by bravely shouldering social responsibility in assisting the government to carry out works in relation to targeted poverty alleviation. In October 2018, with the approach of the national "Poverty Alleviation Day", Heqing Cement donated 400 tons of cement (products with a total market value of RMB200,000) for poverty alleviation through construction projects in Heqing County. In addition, Heqing Cement also participated in the job recruitment fair for underprivileged families in the county together with third-party labour contractor units to help solve the employment problem of excessive labour in the vicinity.



Fengkai Cement assisted in "Guangdong Poverty Alleviation Day"

Fengkai Cement had continuously participated in the "Guangdong Poverty Alleviation Day" for many years. In July 2018, Fengkai Cement responded to "Guangdong Poverty Alleviation Day 2018" campaign initiative of Fengkai County by proactively making donations to help the underprivileged group alleviate poverty and achieve prosperity in order to earnestly fulfill corporate responsibilities. As of the end of 2018, we had made cumulative donations of RMB1.86 million.



The Marketing Department of Guangdong Region launched the "Warming Hearts by Assisting in Farming and Rice Harvest" activity

▲ Supporting Cultural and Sports Activities

▲ Promoting Educational Development

CR Cement attaches great importance to the future education and development of talents. Through donations of clothes, stationery, books, teaching equipment, set-up of study grants and encouraging donations from all members of the society, CR Cement organized various types of community activities for subsidized schooling, which assisted in the creation of a good learning environment and atmosphere to enable access to quality educational resources by more children.

In 2018, CR Cement responded to the Group's call to provide "one-on-one" support to impoverished university students in Haiyuan County and subsidized 31 impoverished university students from Haiyuan. CR Cement wishes to groom excellent talents for Haiyuan County and contribute to local poverty alleviation through the long-term support mechanism of poverty alleviation through education.



The Marketing Department of Fujian Region contributed capital for the establishment of the "Runfeng Scholarship Fund" of Nanan Wuxing Secondary School



Guizhou Region carried out "Red Scarf Care Activities" by donating schoolbags, stationery and books with total value of approximately RMB38,000 to the First Primary School of Panshui Town in Bozhou District, the Shaojiwan Tiejiangping Primary School in Jiucang Town, Renhuai City and the Minxie Primary School in Shatu Town, Jinsha County.

### ▲ Contributions to Public Health

In response to the strategic call for the "Healthy China Initiative", CR Cement actively held or participated in internal and external sports related activities such as sport events, basketball games and outdoor hiking to energize the promotion of public health and to lay a solid foundation to achieve the "Two Centenary Goals" and the Chinese dream of the great rejuvenation of the Chinese nation.



Fengkai Cement exclusively sponsored the "Runfeng Cup" basketball game held in Fengkai County

### Fengkai Cement sponsored the 15<sup>th</sup> Guangdong Provincial Game (Fengkai District)

The Guangdong Provincial Game is the comprehensive sports game of the highest standard and the largest scale in Guangdong. The 15<sup>th</sup> Guangdong Provincial Game was held in Zhaoqing City between June and August 2018. Based on the principle of supporting local communities through our practical actions, Fengkai Cement vigorously supported the 15<sup>th</sup> Guangdong Provincial Game (Fengkai District) and took the chance to exclusively sponsor the weight-lifting competition, which had secured the successful hosting of the Provincial Game by the Fengkai County



### ▲ Participating in Volunteer Activities

The Report to the 19<sup>th</sup> CPC National Congress proposed to promote integrity building, institutionalize volunteer services and strengthen the awareness of social responsibility, understanding on regulations and sense of dedication. CR Cement advocates the spirit of serving people wholeheartedly and the ideals of "dedication, fraternity, mutual assistance and progress" in volunteerism, mobilizes and organizes our employees to participate in volunteer activities to convey care through every small action.



Volunteers from Pingnan Cement helped community residents repair their bicycles

In 2018, Pingnan Cement formed 3 volunteer service teams comprising of 100 volunteers, which assisted and supported 211 people.



### Dongguan Cement formed volunteer service team

In order to better build a "friendly enterprise" in Dongguan City, Dongguan Cement formed a volunteer service team in August 2018. In 2018, the volunteer service team of Dongguan Cement initiated a series of volunteer activities in an orderly manner, including "volunteer activities to facilitate resumption of production following typhoon 'Mangkhut'" and "volunteer service activities for environmental protection of Duixi hill park", in order to promote the core values of socialism and enhance the brand and social images of the Company while contributing to the green development of environmental protection.



Dongguan Cement attended the flag-raising ceremony for the volunteer service team organized by the Shatian Youth League Committee and the Volunteer Association



Volunteer service team of Dongguan Cement initiated volunteer activities to facilitate post-typhoon resumption of production



Zhuhai Concrete participated in community tree planting activity



Redland Concrete participated in the "Corporate/Organization Flag Day" event

# Social Responsibility Management

## ▲ Strategy for Responsibility

By upholding the corporate mission “to provide customers with quality products and services, promote innovation and lead green development in the industry, thereby building an everlasting business”, CR Cement have assimilated social responsibility into corporate operations. We prioritized the perspectives of stakeholders on issues such as safety, environmental protection, employees, customers, business partners and community, and continued to promote the implementation of social responsibility work, including consolidating safety management at production plants, improving management standards of environmental protection, reforming transformational measures for energy saving and emission reduction, implementing health management work and promoting co-processing projects. With an innovative spirit and a pragmatic attitude, we constantly promote transformation and upgrade of the cement industry in China and strive to achieve the grand vision “to become a respectable world-class cement enterprise”. In 2018, with the 80<sup>th</sup> anniversary of China Resources Group as an opportunity, CR Cement set forth the responsibility slogan of “Innovating & Starting Afresh” and prepared the annual Social Responsibility Report based on this theme.

## ▲ Governance of Responsibility

### ▲ Organization

In order to effectively promote social responsibility work and enhance the quality of report, CR Cement established the “Corporate Culture and Social Responsibility Steering Committee”. The Chairman and the Chief Executive Officer serve as the President and the Vice President of the committee respectively, and are responsible for the leadership, promotion and decision-making of the Company's strategic directions with respect to social responsibility. The Company also established the “Social Responsibility Report Preparation Committee”, which is responsible for preparing the annual Social Responsibility Report in order to lay a solid foundation for the Company to launch its social responsibility work.

### ▲ Policies and Systems

To promote a more systematic and standardized approach towards its social responsibility work, the Company reviewed and revised the “Social Responsibility Management Approach of CR Cement” with reference to the “G4 Sustainability Reporting Guidelines” of Global Reporting Initiative, the “Environmental, Social and Governance Reporting Guide” of The Stock Exchange of Hong Kong Limited, the “Guidelines on China Corporate Social Responsibility Reporting Guidelines for Chinese Enterprises (CASS-CSR4.0)” of Chinese Academy of Social Sciences and the “China Resources Group Management Methods for Social Responsibility”.

## ▲ Culture of Responsibility

CR Cement persistently adhered to a serious attitude and a responsible spirit in constantly consolidating its capability to fulfil its own responsibilities. The Company has built a good brand image and corporate image in the industry through its influential, sustainable and responsible brands such as “Solid Waste Co-Processing Projects”, “Gratitude Fund” and “Dandelion Care Study Grants”.

-  We actively organized and participated in internal and external social responsibility training, seminars and other activities to understand the latest domestic and international developments in social responsibility work and enhance the report drafters' understanding and grasp on the relevant theories of social responsibility as well as the standards and methods for the preparation of social responsibility reports.
-  From the Foreword, Responsibility Management, Economic Responsibilities, Social Responsibilities, Responsibilities to Environment, Key Performance Indicators, Appendices and other aspects, CR Cement has built a robust system of social responsibility indicators, which had systematically sorted and standardized social responsibility work of the Company. There were approximately 250 indicators covering a total of 26 categories.
-  As the main drafting unit of the “Guideline for Preparation of Social Responsibility Report in Cement Industry” and the “System for Appraisal Indicators of Cement Corporate Social Responsibility”, CR Cement jointly carried out research on social responsibility subjects with the China Cement Association and other enterprises for compilation of group standards to provide advice and suggestions on the establishment of industry standards of social responsibility practices.
-  In active response to the initiatives of China Resources Group, CR Cement proactively participated in social responsibility appraisal activities. In 2018, the “Project of Urban Sludge Co-Processing by Cement Kilns” won the China Resources Group's “Excellent Achievement Award-Bronze Award in Social Responsibility”.

### Training session for the preparation of the 2018 Social Responsibility Report of CR Cement

In March 2019, CR Cement held a training session for the preparation of the “2018 Social Responsibility Report” in order to promote knowledge of report preparation and further improve the Company's internal management of social responsibility. During the training, experts in the social responsibility field from the Corporate Social Responsibility Research Centre of the Chinese Academy of Social Sciences introduced the basic theory of social responsibility and the requirements for report preparation. Approximately 30 report drafters from all departments and all operating regions of CR Cement participated in the training.

## ▲ Engagement with Responsibility

As a company listed in Hong Kong, CR Cement is proactively concerned with the aspirations and expectations of our stakeholders and continuously explored ways of effective communications with stakeholders through information reporting, special reports, shareholders' meetings, site visits, community activities, staff activities and the Company's website for the disclosure of its performance, important activities and other information in a rigorous, timely and accurate manner as well as timely propagation of CR Cement's corporate philosophy and dynamic fulfilment of responsibility. While enhancing stakeholders' understanding on and support to the Company, CR Cement absorbed the reasonable opinions and suggestions of internal and external stakeholders, for the continuous improvement of corporate operations and management methods and increase of the Company's comprehensive competitiveness.

### Aspirations of CR Cement's Stakeholders and Responses from the Company

Categories of Stakeholders	Aspirations and Expectations	Communications and Responses
Government and Regulatory Bodies	<ul style="list-style-type: none"> <li>·Putting national policies into practice</li> <li>·Protecting the environment and responding to climate change</li> <li>·Occupational safety and health</li> <li>·Supporting economic development</li> <li>·Focusing on people's livelihoods</li> <li>·Legal and compliant operations</li> </ul>	<ul style="list-style-type: none"> <li>·Strict implementation of national policies</li> <li>·Strengthening communications with government and regulatory agencies</li> <li>·Promoting green development (production safety, energy saving, emission reduction and low-carbon environmental protection)</li> <li>·Compliance with laws and regulations, timely payment of taxes</li> </ul>
Shareholders and Investors	<ul style="list-style-type: none"> <li>·Continuously creating economic value</li> <li>·Good corporate governance</li> <li>·Corporate sustainable development</li> </ul>	<ul style="list-style-type: none"> <li>·Enhancing standards of corporate operation, performance and asset value</li> <li>·Perfecting information disclosure, decision-making processes of material matters and risk management</li> <li>·Providing diversified communications channels and strengthening investors relationship management</li> <li>·Protecting the legal rights and interests of all shareholders</li> <li>·Corporate transformation with innovation for enhancing long-term competitiveness</li> </ul>
Customers	<ul style="list-style-type: none"> <li>·Quality of products and services</li> <li>·Protecting the rights and interests of customers</li> </ul>	<ul style="list-style-type: none"> <li>·Comprehensive guarantee of product quality and improvement of customer service standards</li> <li>·Establishing sound customer service system and improving mechanism for customer feedback and complaint handling</li> <li>·Improving the standard of digitalization and efficiencies in production and sales</li> <li>·Encouraging innovation in products and technology</li> <li>·Upholding and protecting security of customer data</li> </ul>



## Future Prospects

Looking ahead, under the supply-side structural reform and strict policies on environmental protection in China, with the 80th anniversary of China Resources Group as a new starting point, CR Cement will grasp opportunities in the changing times, identify the right development direction, and proactively assimilate into the large responsibilities and large commitments entrusted to us by the country and the society. We will firmly seize the development opportunities in the Greater Bay Area, continuously explore the opportunities in extension of industry chain and further enhance quality and efficiency of operation. We will actively seek opportunities for strategic cooperation with domestic and international leading enterprises to promote the integrated development of cement, concrete and aggregates. The Company will also encourage co-processing projects, increase promotion of product technology innovation, environmental transformation and digitalization for industrial transformation and upgrade for the creation of competitive advantage by differentiation. We strive to achieve the corporate vision “to become a respectable world-class cement enterprise” and work together with each stakeholder for the joint promotion of a deeper and broader progress in the cement industry in China.

# Appendices

## Key Performance Indicators

Economic Responsibilities				
Statistical Indicator	Unit	2016	2017	2018
Turnover	HK\$ million	25,648	29,958	38,791
Profit before taxation	HK\$ million	2,158	4,884	11,335
Profit for the year	HK\$ million	1,262	3,593	8,007
Profit attributable to owners of the Company	HK\$ million	1,326	3,617	7,975
Equity attributable to owners of the Company	HK\$ million	26,007	30,309	37,691
Total assets	HK\$ million	52,157	56,527	60,506
Net assets (note 1)	HK\$ million	26,252	30,482	37,895
Return on net assets (note 2)	%	4.7	12.7	23.4
Return on total assets (note 3)	%	5.4	10.2	20.5
Ratio of value maintenance and appreciation of state-owned capital (note 4)	%	105.4	113.5	130.9
EBIT (note 5)	HK\$ million	2,851	5,522	11,979
Ratio of profit to cost (note 6)	%	9.3	18.9	39.7
Cost of sales	HK\$ million	18,622	20,728	23,371
Selling and distribution expenses	HK\$ million	1,676	1,784	1,985
General and administrative expenses	HK\$ million	2,302	2,676	2,545
Finance costs	HK\$ million	692	638	644
Industry ranking (note 7)	-	5	3	4
Number of commenced or concluded corruption lawsuits	-	0	0	0

Notes:

1. Net assets equal to total assets less total liabilities.
2. Return on net assets is calculated by dividing profit for the year by average net assets.
3. Return on total assets is calculated by dividing EBIT by average total assets.
4. Ratio of value maintenance and appreciation of state-owned capital is calculated by dividing the sum of equity attributable to owners of the Company and dividend paid for the year by equity attributable to owners of the Company for the previous year after taking the effect of exchange rate into consideration.
5. EBIT equal to total profit before tax and finance costs.
6. Ratio of profit to cost is calculated by dividing profit before tax by the sum of cost of sales, selling and distribution expenses, general and administrative expenses and finance costs.
7. Industry ranking is sourced from China Cement Association. Assessment indicators included sales volume of cement, profit, market capitalization, assets and net profit in 2018.

Responsibilities to Customers and Business Partners				
Statistical Indicator	Unit	2016	2017	2018
Total number of suppliers	-	5,019	6,631	8,007
Contract compliance rate	%	96	93	95
Handling rate of customers' complaints	%	100	100	100
Passing rate of product quality	%	100	100	100
Total R&D investment (note 8)	RMB million	16.81	14.44*	11.34
Number of R&D employees	-	38	41	45
Number of international, national or industrial standards contributed (note 8)	-	4*	3	1
Number of new patent licenses	-	24	33	29
Number of strategic co-operation agreements executed	-	4	9	10
Expenditure on production-academia-research co-operation (note 8)	RMB million	0.56	0.30*	0.38

Note:

8. The historical data marked with \* has been revised.

Responsibilities to Employees				
Statistical Indicator	Unit	2016	2017	2018
Number of employees	-	21,897	20,592	20,301
Number of employees in Mainland China	-	21,738	20,433	20,142
Number of employees in Hong Kong	-	159	159	159
Employment contract execution rate	%	100	100	100
Social insurance coverage rate	%	100	100	100
Body check coverage rate	%	100	100	100
Number of employees attending health body check	-	21,897	20,592	20,301
Number of occupational disease occurrences	-	0	0	0
Proportion of female managerial staff	%	10	11	11
Number of employees with disabilities	-	52	57	52
Average number of days of paid annual leave per employee (note 9)	days	8.0	13.0	13.4
Staff training coverage rate	%	100	100	100
Average investment in training per employee	RMB	324	381	346
Total investment in staff training	RMB 10,000	709	784	702
Employee attrition rate	%	7.5	7.8	6.4

Note:

9. The average number of days of paid annual leave per employee is calculated based on the number of days of paid annual leave for employees in Mainland China.

Responsibilities to Public				
Statistical Indicator	Unit	2016	2017	2018
Number of new recruitments	-	1,353	1,404	1,571
Charitable donations	HK\$ million	6.1	2.2	2.5
Taxation	HK\$ million	897	1,291	3,328
Proportion of local procurement (note 10)	%	41	49	51
Number of industrial accidents involving staff injuries	-	10	10	9
Number of incidents of general and above levels	-	1	1	3
Fatalities	-	1	1	1
Fatality rate (‰)	‰	0.044	0.047	0.049
Number of participants in safety training (note 11)	-	199,785	182,207*	218,716
Investment in production safety	RMB million	104	130	146
Safety training coverage rate	%	100	100	100
Number of safety emergency drills	-	474	625	991
Number of specialized safety management personnel	-	233	205	212
Number of licensed safety management personnel	-	863	1,068	1,064

Notes:

10. The statistical scope of localized procurement includes purchased materials other than seaborne coal, seaborne gypsum and some spare parts of auxiliary materials the purchases of which were centralized.
11. The historical data marked with \* has been revised.

Responsibilities to Environment				
Statistical Indicator	Unit	2016	2017	2018
Total investment in environmental protection	RMB million	401	675	393
Consolidated energy consumption	'000 tons of standard coal	7,958	7,732	8,035
Consolidated energy consumption per RMB10,000 output	ton standard coal per RMB10,000	3.24	3.03	2.73
Consolidated energy consumption per RMB10,000 value addition	ton standard coal per RMB10,000	10.68	8.61	6.14
Investment in energy-saving and emission reduction technological reforms	RMB million	223	432	94
Proportion of cement products sold in bag	%	49.9	45.0	38.9
Emission of nitrogen oxides (note 12)	tons	43,164	41,513	39,822
Emission intensity of nitrogen oxides (note 12)	kg per ton of clinker produced	0.6155	0.6230	0.5715
Emission of sulphur dioxide (note 12)	tons	3,984	2,726	2,352
Emission intensity of sulphur dioxide (note 12)	kg per ton of clinker produced	0.0568	0.0409	0.0338
Emission of particulate matters (note 12)	tons	2,812	2,472	2,361
Emission intensity of particulate matters (note 12)	kg per ton of clinker produced	0.0401	0.0371	0.0339
Emission of greenhouse gases (note 12)	'000 tons of carbon dioxide equivalent	56,980	57,130	59,710
Emission intensity of greenhouse gases (note 12)	tons of carbon dioxide equivalent per ton of clinker produced	0.8615	0.8574	0.8569
Electricity consumption (note 13)	million kwh	6,684	6,220	6,500
Electricity consumption per ton of cement	kwh	73.9	73.1	73.0
Coal consumption	'000 tons	9,677	9,834	10,254
Unit coal consumption per ton of clinker	kg	146.2	147.3	147.2
Standard coal consumption per ton of clinker	kg	107.6	106.9	106.5
Consumption of packaging materials (note 14)	tons	85,051	74,533	70,330
Consumption intensity of packaging materials (note 14)	kg per ton of cement packed in bag	2.13	2.18	2.19
Industrial waste utilized (note 15)	'000 tons	18,670	21,470	21,840
Municipal solid waste co-processed	tons	93,300	82,400	166,000
Urban sludge co-processed (note 16)	tons	29,500	49,700	49,300
Hazardous industrial waste co-processed (note 17)	tons	--	6,700	8,700

Notes:

- 12. Scope of statistics includes the major discharge outlets of the Company's cement production plants.
- 13. Scope of statistics includes the power purchased externally for production by the Company.
- 14. Packaging materials refer to the packaging for cement sold in bags. In 2018, the scope of report was adjusted from procurement quantity to consumption of packaging materials.
- 15. Scope of statistics of industrial waste includes coal gangue, stone residue, de-sulphur gypsum, fly ash and blast furnace slag.
- 16. 80% moisture content for wet sludge.
- 17. No hazardous industrial waste co-processing project in 2016.

## Rating Report

### Rating Report of Social Responsibility Report 2018 of China Resources Cement Holdings Limited

Commissioned by China Resources Cement Holdings Limited, the Chinese Expert Committee on CSR Report Rating selected experts to form a rating team to rate the 2018 Social Responsibility Report of China Resources Cement Holdings Limited (hereinafter referred to as the "Report").

#### I. Rating Criteria

The "Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises (CASS-CSR 4.0)" issued by Chinese Academy of Social Sciences and "Rating Standards for Corporate Social Responsibility Report of Chinese Enterprises (2019)" of Chinese Expert Committee on CSR Report Rating.

#### II. Rating Process

1. The Rating Team reviewed and confirmed the "Confirmation Letter of Process Materials of Corporate Social Responsibility Report" and relevant supporting materials submitted by the preparation team of the Report;
2. The Rating Team conducted review on the preparation process and the contents disclosed by the Report, then drafted the rating report;
3. The vice president of the rating expert committee, the leader of the Rating Team and experts of the Rating Team jointly reviewed and signed off the rating report.

#### III. Rating Results

##### Process (★★★★☆)

The Company established a Corporate Culture and Social Responsibility Steering Committee with the Chairman of the Board of Directors and the Chief Executive Officer assuming roles as the President and the Vice President of the Committee respectively, supervising the overall direction and being responsible for the final review of the Report. The Company's CEO Office took the lead in setting up the Report Preparation Committee to coordinate the preparation of the Report with the general manager of the CEO Office as the Editor-in-Chief coordinating the detailed preparation of the Report. The Report is positioned as the important tool for disclosing information regarding responsibility fulfilment, achieving "Strengthening Supervision Through Reporting", responding to demands of the stakeholders, shaping the brand image of the Company, and building a multi-form reporting system by identifying the substantive issues through stakeholders surveys. The Report will be released on the official website and will be available in electronic and printed formats, in Chinese and English versions, in simplified version and other forms of presentations with excellent performance on the process.

##### Substantiveness (★★★★★)

The Report systematically discloses key issues facing the industry such as product quality management, innovation on products and services, occupational health management, safety production, responsible procurement, R&D and sales of environmental protection products, R&D and application of environmental protection technologies and equipment, saving of energy resources and reduction of "three wastes" emissions, which are in full and detailed description with excellent performance on substantiveness.

##### Completeness (★★★★★)

The main contents of the Report systematically discloses 93.00% of the core indicators of the industry in which the Company operates from the perspectives of "craftsman's spirit wins trust", "mutual achievements in responsibility" and "social responsibility management" with excellent performance on completeness.

##### Balance (★★★★★)

The Report reveals negative data such as "number of commenced or concluded corruption lawsuits", "employee attrition rate", "number of occupational disease occurrences", "number of incidents of general and above levels", "fatality rate per thousand employees", and concisely describes the causes, handling measures and results of "customer complaints" with a leading performance on balance.

##### Comparability (★★★★★)

The Report discloses the comparative data of 82 key indicators for 3 consecutive years, such as "profit before taxation", "total number of suppliers", "charitable donations", "safety training coverage rate", "consolidated energy

consumption per RMB10,000 value addition" and "electricity consumption per ton of cement". The horizontal comparisons of "a large-scale and competitive cement, clinker and concrete producer in Southern China" and "ranked the fourth in terms of comprehensive strength of listed cement companies in China in 2018" were carried out, with excellent performance on comparability.

##### Readability (★★★★★)

Themed with "Innovating & Starting Afresh", the Report presents the practice and achievements of responsibility fulfilment by the Company in the dimensions of economy, safety, employees, customers society and environmental protection. The Report features a clear framework structure, which not only responds to the expectations of stakeholders, but also shows a deep understanding of the corporate on social responsibility. The cover design inserts the theme of the Report in real pictures of the main businesses of the Company, which not only highlights the characteristics of the industry, but also reinforces the distinction of the Report. The featured "CSR Stories" were set up to vividly describe the highlighted practices of the corporate and enhances the interest of the Report. The chapters are embedded with narrative introduction across pages and presents the performance of the Company on responsibility fulfilment of key issues. It is convenient for readers to grasp the contents of the chapters efficiently with clear outline, which improves the readability of the Report and has outstanding readability.

##### Innovation (★★★★★)

The Report actively responds to the general policies of the country, focuses on hot issues such as poverty alleviation, and highlights the Company's responsibility commitment on thorough implementation of macro policies. The innovative design of "knowledge extension" section interprets professional terminology of the industry, which enhances the readability of the Report. Third-party testimonials were set out in support of the effectiveness of corporate responsibility fulfilment and strengthens the dissemination and credibility of the Report. The Company takes initiatives to participate in the compilation and revision of various industrial standards such as the "Guidelines for Preparation of Social Responsibility Reports in Cement Industry" and the "System for Evaluation Indices of Cement Corporate Social Responsibility", which are conducive to further enhancing the level of corporate social responsibility management and promoting the sustainable development of the industry, with outstanding performance on innovation.

##### Overall Rating (★★★★★)

According to assessment of the Rating Team, the "Social Responsibility Report 2018 of China Resources Cement Holdings Limited" is awarded a five-star rating as an outstanding corporate social responsibility report.

#### IV. Improvement Suggestions

It is suggested to further strengthen the construction of social responsibility system and management system, and reinforce the management of reporting process.



魏紫川

Vice President of Chinese Expert Committee on CSR Report Rating

刘建英

Leader of the Rating Team

徐华

Expert of the Rating Team

Process Evaluator Ren Jiaojiao

Issuance date: July 3, 2019



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## Reference Table of Indicators

Topic	Subtopic	Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises (CASS-CSR4.0) of Chinese Academy of Social Sciences	Page Number
Foreword		P1.1-1.3	P02
Statement		P2.1-2.2	P03
About CR Cement	Corporate Profile	P4.2-4.4	P04
	CR Cement in 2018	P3.1-3.2	P05
	Organizational Structure	P4.1	P05
	Our Business	P4.2-4.3	P05
	Corporate Governance	M1.1-1.5, M3.1, S1.1-1.2	P06
CSR Story: Rebranding for the new journey of “Runfeng Cement”		P3.1-3.2	P08
CSR Story: Urban sludge co-processing project of Zhujiang Cement creates a new model for collaborative solutions to the urban sludge industry		P3.1-3.2	P09
Craftsman's spirit wins trust	Building greatness in pursuit of excellence	M2.2, M2.4, M2.7, M2.12	P13
	Standardized production with safety first	S3.1-3.4	P16
	Keeping abreast of green development	S4.9, E1.1-1.7, E1.9-1.10, E2.3-2.4, E2.9-2.14, E2.16-2.20, E2.22-2.25, E3.1, E3.3-3.4, E3.6	P20
	Innovative intelligent manufacturing to shape the future	M2.4, M2.7, M3.4-3.6, E1.3, E1.7, E1.9, E2.18, E3.3	P27
Mutual achievements in responsibility	People-oriented growth with companion	S1.5, S2.1-2.5, S2.7-2.8, S2.10-2.18, S4.7	P33
	Customer-oriented services with craftsman's spirit	M2.1-2.2, M2.8-2.18, M3.1, M3.5, M3.7	P39
	Winning hand-in-hand through mutual construction and sharing	G6.3, M3.1, M3.3-3.4, M3.6-3.8, M3.10-3.12, M3.14-3.16, E1.6	P42
	Empathetic connections with the society for mutual creation of harmony	S1.5, S4.1, S4.5-4.6, S4.10-4.12	P44
Social Responsibility Management	Strategy for Responsibility	G1.1-1.2, G2.3	P49
	Governance of Responsibility	G3.1-3.3, G4.1	P49
	Culture of Responsibility	G4.2-4.3, G5.1-5.3	P49
	Engagement with Responsibility	G6.1-6.2	P50
	Issue Analysis	G2.1-2.3	P51
	Honours of Responsibility	G6.3, A3	P52
Future Prospects		A1	P53
Appendices	Key Performance Indicators	A2	P55
	Rating Report	A4	P58
	Reference Table of Indicators	A5	P59
	Feedback	A6	P60
	Organizational Institutions	G3.1-3.2	P61

## Feedback

Dear Readers:

Thank you for sparing your precious time to read the 2018 Social Responsibility Report of China Resources Cement Holdings Limited! This is the sixth Social Responsibility Report which CR Cement has published to the public. In order to continuously improve the management work of the social responsibility report and constantly raise the capability and level of fulfilling social responsibilities, we hope to listen to your opinions and suggestions. Please help to complete the relevant questions in the feedback form and return the feedback to us by selecting any of the methods as follows:

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### Your Information

Name: \_\_\_\_\_

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Company: \_\_\_\_\_

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Position: \_\_\_\_\_

Email Address: \_\_\_\_\_

### Multiple-Choice Questions

1. Please rate the extent to which this report has reflected CR Cement's major impacts on economy, society and environment:

Excellent  Good  Average  Poor  Very Poor

2. Please rate the responses to and disclosure of issues which concern stakeholders in this report:

Excellent  Good  Average  Poor  Very Poor

3. Please rate the clarity, accuracy and completeness of the disclosed information, indicators and data in this report:

Excellent  Good  Average  Poor  Very Poor

4. Please rate the readability of this report:

Excellent  Good  Average  Poor  Very Poor

5. Please provide your overall rating of the 2018 Social Responsibility Report of China Resources Cement Holdings Limited:

Excellent  Good  Average  Poor  Very Poor

### Open-Ended Questions

1. Which social responsibility information do you find valuable in this report?

2. In your opinion, what additional social responsibility information needs to be disclosed in this report?

3. In your opinion, what are the deficiencies in this report?

4. What are your suggestions on the social responsibility work of CR Cement?

## Organizational Institutions

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#### Vice President

Ji Youhong

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