



CHINA TIANRUI GROUP CEMENT COMPANY LIMITED
中國天瑞集團水泥有限公司

(Incorporated in the Cayman Island with limited liability)
Stock Code:1252



ENVIRONMENTAL, SOCIAL AND
GOVERNANCE REPORT

2017



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1 ABOUT THE COMPANY

1.1.1 China Tianrui Group Cement Company Limited (stock code: 01252) (the “Company”, together with its subsidiaries, the “Group”) is mainly engaged in the extraction of raw materials from mines, as well as manufacturing, sale and export of cement, clinker, flyash powder, slag powder, concrete and other cement products. As of 31 December 2017, the Group had 20 clinker production lines and 56 cement grinder production lines, with a total annual production capacity of about 30.7 million tonnes of clinker and 55.3 million tonnes of cement, respectively.

1.1.2 The Group has established comprehensive policies and management frameworks that aligned with internationally-recognized standards in order to govern environmentally-responsible and quality-driven operations. Through these well-established frameworks and the regular review of key performance indicators, the Group strives to build a sustainable business that balances environmental, social, and governance (“ESG”) material issues.

2 ABOUT THIS REPORT

2.1 REPORTING STANDARD, PERIOD AND SCOPE

2.1.1 This report is prepared in accordance with Environmental, Social, and Governance Reporting Guide set out in Appendix 27 of the Main Board Listing Rules. The Group adheres to the principles of materiality, quantitative, balance and consistency in reporting key material issues in the reporting year. Information regarding Corporate Governance is addressed in the annual report according to Appendix 14 of the Main Board Listing Rules.

2.1.2 This report covers the ESG-related activities from 1 January to 31 December 2017.

2.1.3 The scope of the ESG Report covers all of the Group’s cement and clinker production in Henan, Liaoning, Tianjin, and Anhui Province, except that Zhuanghe Tianrui Cement Company Limited, Lushan Antai Cement Company Limited and Liaoyang Tianrui Liaodong Cement Company Limited, are in the process of establishing the data collection systems and thus ESG-related information was not available during the reporting period.

2.2 CONTACT DETAILS

2.2.1 We welcome any feedback and suggestions regarding to this report. Please feel free to send us your comments and questions to ir@ctrcement.com.

3 WORDS FROM THE DIRECTORS

We are pleased to share the Group's Environmental, Social and Governance (ESG) Report for 2017, highlighting significant achievements that further propelled the Group onto the path of sustainable development.

Faced with a challenging economic landscape and tightening environmental policies in China, our Group has steadily and strategically positioned ourselves in order to make the business profitable in 2017 and sustainable in the years to come. After rigorous planning and implementation, we are pleased to report that all subsidiaries of the Group have passed the four-in-one certifications of quality (ISO 9000), environmental management (ISO 14000), and occupational health and safety management system (OHSAS 18001), while all clinker production companies have passed the energy management system certification (ISO 50001). From an industry perspective, obtaining all these internationally-recognized certifications put the Group in a competitive advantage by allowing us to communicate to our customers and investors of our commitment to product quality, environmental protection, and workers' safety. From an internal-governance perspective, the procedures created from the certification frameworks helped standardize operations and mitigate associated risks.

In order to cope with more stringent environmental policies implemented by the Chinese government, the Group has made significant investments in the transformation and "greening" of the production system. As of the end of 2017, all clinker production lines have been equipped with denitrification system and bag filter, targeting the reduction of the concentration of emitted nitrogen oxides and particulates. Moreover, all clinker production lines have applied the New Suspension Pre-heater (NSP) technology, and equipped with residual heat power generation equipment which can effectively reduce electricity cost and pollution.

On a social front, we have provided ample training and opportunities to empower our staff and contribute to technological innovation. In 2017, the Group won 13 first prizes, 44 second prizes and 30 third prizes in the Industry Technological Innovation Award Selection of Henan. While we were delighted to be acknowledged in the industry for our technical achievements, more importantly, we congratulate the employees who participated in these competitions and realized their potential.

This ESG report was designed to showcase our management approach and uncompromised resolve towards being a responsible and sustainable corporation. As a responsible and sustainable corporation, we endeavor to manage our operations in an environmentally-conscious manner, continue to provide high-quality products, seek ways to develop and empower our staff, uphold a clean corporate image, and contribute to our society.

We would like to thank all departments and teams for their dedication and contribution to the Group's sustainable development.

4 ENVIRONMENTAL MANAGEMENT

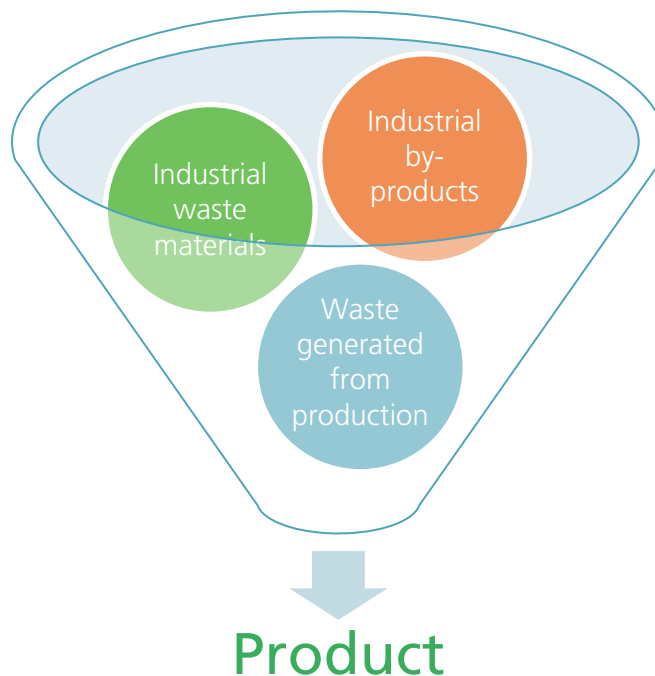
4.1.1 The Group's operations incorporated the frameworks of ISO 14001 Environmental Management and ISO 50001 Energy Management. As a result, the Group has established environmental protection and management policy, committed to:

- Complying with relevant environmental protection laws and regulations;
- Engaging with employees to raise awareness on environmental-related matters;
- Ensuring production processes were managed in a manner that complied with laws and regulations;
- Improving production efficiency through innovation;
- Optimizing resource usage; and
- Reducing air pollutants emissions, wastewater discharge, and waste generation.

4.2 RESOURCE OPTIMIZATION

Turning Waste to Gem

4.2.1 Based on the unique nature and the innovative advancements of the Group's business operations, the Group was able to utilize industrial by-products, or what others would view as waste, as resource input in the production process. Industrial by-products and waste materials such as fly ash from electric power factories, slag from steel factories, sulfuric acid slag and limestone tailings from acid factories, were able to be used as raw materials in the production process.



4.2.2 As limestone is the principal raw material in cement, the Group has positioned itself nearby limestone resources and terminal market for optimal business operations. The Group has obtained the necessary licenses for limestone extraction, and satisfied the conditions and procedural requirements of paying mining rights usage fees, mine resource compensation and taxes. The licenses allowed the Group to support continued exploitation in a manner that was compliant with existing laws and regulations in PRC.

Energy Conservation

4.2.3 In efforts to promote energy conservation, the Group has adopted the NSP kiln technology to improve the energy efficiency in production and reduce air pollutant emissions. All clinker production lines have been equipped with advanced NSP technology, which emits fewer harmful pollutants and produce higher quality cement. Moreover, this technology required less coal consumption than traditional technology used for cement production, meaning that the Group has saved a great amount of cost and contributed toward a greener production. The energy usage of NSP technology was expected to be 7–15% more efficient than traditional suspension pre-heater systems¹.

4.2.4 To further reduce raw materials consumed during the production, the Group has equipped most of the production lines with residual heat recovery system. The heat generated from the clinker production process would be captured and recycled through the heat recovery system for the use in the cement production process. The system reduced the overall energy needed to operate and minimized the pollution. During the reporting period, the Group generated electricity 673,600 MWh through adopting the system, which was equivalent to saving 82,000 tonnes of standard coal and reducing 220,000 tonnes CO₂ emissions.

4.2.5 In the reporting period, the major sources of energy consumption came from electricity usage and coal consumption for production processes, and petrol and diesel used for transportation purposes. The table below summarized the energy consumption of the Group during the reporting period.

Overview of Energy Consumption of the Group	
Coal (MWh)	21,248,812
Petrol (MWh)	3,267
Diesel (MWh)	1,081,097
Electricity (MWh)	1,970,786
TOTAL ENERGY CONSUMPTION (MWh)	24,303,963
Energy Intensity ('000 MWh/Million tonnes production)	283

¹ Reference was made to the Climate Technology Centre & Network, <https://www.ctc-n.org/products/new-suspension-preheaters-burning-system> accessed July 11, 2018.

Water Efficiency

4.2.6 Water was a significant resource used mainly for domestic activities and as cooling agent for industrial processes. Through recycling and reuse of treated water, the Group endeavored to minimize the consumption of water resource. In addition to reusing water during production, the treated water was also used for dust control and irrigation around manufacturing sites.

4.2.7 During the reporting period, the Group has treated wastewater in accordance with legal standards, and has achieved zero wastewater discharge through full reuse of **45,773m³** of recycled wastewater.

Overview of Water Consumption	
Water (m ³)	5,167,513
Intensity ('000 m ³ /Million tonnes production)	60

4.3 WASTE REDUCTION

4.3.1 The Group upheld the principles of reuse and recycle to managed wastes generated from production processes. For instance, rocks and soil wastes generated from extraction procedures were properly sorted and sold to construction sites for reuse.



4.3.2 Recyclable wastes such as waste steel generated from equipment parts replacements were regularly collected and handled by third-party recycle companies. Non-recyclable wastes such as general refuse were collected by third-party companies and disposed in landfills.

4.3.3 Hazardous wastes generated on site were mainly from chemical substances used for machinery maintenance. In some cases, the chemical wastes generated from larger production processes were reused as lubrication material for equipment and machinery on site. Other non-reusable chemical wastes were properly stored and disposed of in compliance with local requirements.

4.3.4 During the reporting period, the Group has recycled and/or reused 71% of the hazardous waste, and 94% of the non-hazardous waste, as summarized in the table below.

Overview of Waste Data			
	Total	Recycled	Recycled %
Hazardous waste (tonnes)	12.2	8.7	71%
Non-hazardous waste (tonnes)	2,065	1,933	94%

4.4 AIR POLLUTANT EMISSION

4.4.1 The burning of coal on-site contributed to the major air pollutant emissions such as carbon dioxides, nitrogen oxides, sulphur oxides, and particulates. In 2017, the Group has made investments in the transformation of production system in respect of the air pollutants mentioned, and strived to comply with the environmental standards. For example,

- Applied stringent sourcing requirements on the coal quality, in order to reduce the embedded sulfur and harmful substances;
- Electrostatic-bag composite dust collectors for reducing dust and particulates generated from fuel combustion; and
- Denitrification system to reduce the emission of nitrogen oxides.

4.4.2 The Group has constructed central control rooms to instantly track and monitor the production process, and to ensure emissions met respective standards. During the reporting period, the Group has complied with standards related to emitted particulates, nitrogen oxides and sulphur dioxide, respectively.



Overview of Greenhouse Gas Emission	
Greenhouse Gas (GHG) Emission ²	Total
Scope 1: Direct Emission (from coal burning and vehicular emissions), tonnes CO ₂ equivalent (tCO ₂ e-)	7,531,120
Scope 2: Indirect Emission (from electricity consumption), (tCO ₂ e-)	1,286,394
Total, (tCO ₂ e-)	8,817,515
Intensity ('000 tCO ₂ e-/Million tonnes production)	103

Overview of Other Air Pollutant Emission	
Gaseous Emission ³	Total
Nitrogen oxides (NO), (tonnes)	15,736
Particulate matter (PM), (tonnes)	9,340

5 QUALITY PRODUCTS

5.1.1 Based on the ISO 9001:2008 quality management international standards, the Group has established a comprehensive framework to govern the procedures to sustainable procurement and quality output of the products.

5.2 SUSTAINABLE PROCUREMENT

5.2.1 The Group has adopted a sustainable procurement policy that addressed various environmental and social aspects of the supply chain. From an environmental standpoint, since most of the raw materials could be sourced from industrial by-products, the Group has the option to source what others would consider waste as integral components to cement production.

5.2.2 During the procurement process, the Group would make supplier selections through bidding procedures based on quality, pricing, delivery time, service quality, reliability, and the geographical location. A closer proximity to the Group's operational sites would enable better control on delivery time and also reduce the environmental impacts caused by transportation. Other considerations included suppliers' track record of compliance with relevant environmental and social laws in order to reduce risks incurred by the supply chain.

² The Group reports GHG in accordance with the principles and methodologies of local and international carbon accounting standards. The emission factor is referenced from <2016中國區域電網基準線排放因子>.

³ Gaseous emissions calculated based on fuel consumption and air emission pollution factors.

5.3 PRODUCT RESPONSIBILITY

5.3.1 The Group has a dedicated quality control (QC) department responsible for monitoring the production process and inspecting the quality output of cement products. From examining suppliers to checking against local requirements on the quality and health and safety of the products, the QC department ensures the products have met all relevant laws and customer requirements. The finished products were inspected and tested in accordance with a variety of national standards, including compressive strength and cement chemical analysis.

5.3.2 In an effort to promote quality management, the Group has participated in several competitions related to quality inspection and maintenance of construction materials. In 2017, the Group won 13 first prizes, 44 second prizes and 30 third prizes in the Industry Technological Innovation Award Selection of Henan. The following were some of the Group's award certificates:



5.3.3 As an active approach to quality management, customer satisfactory surveys were initiated to help the Group improve the quality of its products and services. Responsible departments collected customer feedback on a monthly basis, consolidated and analyzed the information and followed-up with any complaints. In addition, the Group has a customer service hotline available. The Group has committed that upon receiving complaints, responsible departments shall complete the investigation within 24 hours, and convene with relevant departments to consult and resolve the issues.

5.3.4 Through active and stringent quality control during production and after-sales services, the Group recorded no recalled products relating to health and safety issues and no substantiated complaints during the reporting period.

6 CARE FOR OUR EMPLOYEES

6.1 EMPLOYMENT AND LABOUR STANDARDS

Recruitment Standard

6.1.1 In creating an environment that fostered employee job satisfaction and dedication, the Group's employment culture focused on providing employees with fair compensation and remuneration, reasonable working hours and rest periods, career development opportunities, and non-discriminatory working environment. The recruitment process focused on hiring the best-fit individual, regardless of gender, age or ethnic background. The remuneration system took into account the market standards comparable to other operating companies within the cement industry, and established for employees based on individual performance and overall company financial results. In terms of working hours and rest periods, the Group has reviewed the necessity of operations and communicated clearly with the employee before commencement of the scheduled works. The Group has provided numerous on the job training and external training opportunities for employees to embark on a good career development in the long term.



6.1.2 The Group's recruitment and employment procedures strictly complied with local related laws and regulations. The Human Resources (HR) Department had been charged with the duty to oversee employment issues. The HR department would also be responsible for background screening and regular checking to prevent child and forced labour within the Group's operational boundaries.

Diversity as a success factor

6.1.3 Diversity served as an important indicating factor that would allow the promotion of new ideas and experiences sharing within the company. The Group valued diversity and promoted a workplace that was inclusive, fair, and which fostered respect for all employees regardless of gender, racial, or ethnic differences. In the cement industry as a whole, there existed a relatively low ratio of female employees. Therefore, the Group emphasized gender equality, and provided equal opportunities for women and men in employment, promotion, development, compensation opportunities.

6.1.4 To demonstrate the value of diversity, the Group had organized Women's Day activities to encourage, support, and promote a sense of belonging amongst female employees.

Dalian Tianrui Group Cement Company Limited organized sports activities to celebrate Women's Day



6.2 HEALTH AND SAFETY

6.2.1 Health and safety was one of the overarching values of the Group. Part of being a responsible corporation meant that employees were enabled to work under a healthy and safe environment. In order to promote a safety-first culture, the Group has implemented the OHSAS18001:2007 health and safety performance management process as a means to creating a healthy and safe environment for employees.

6.2.2 During the reporting period, training and instruction in the field of occupational health and safety were provided to employees. The main objective was to raise employee awareness on operational procedures and minimize the risk of accidents and injuries. To further enhance employees' safety awareness, the Group has organized various safety education activities, such as "Safe Production Month" (安全生產月) and "Fire Drill"(消防演練). By conducting these activities, the employees' safety awareness had been effectively enhanced.

The plant in Dalian organized the "Safe Production Month" activity



Tianrui Group Zhengzhou Cement Company Limited held fire safety training and fire drill



6.2.3 Through consistent training and strict adherence to health and safety laws and regulations, the Group achieved **zero accidents and zero fatality and injury** during the reporting year.

6.3 PROFESSIONAL DEVELOPMENT

6.3.1 The Group believed that the company's growth could be attributed to resources placed on employee development. Thus, the Group focused on developing employee capabilities through diverse technical and managerial training courses. Extensive training and career development programs were provided to cover all areas of work and feature practical curriculums that enabled employees to increase their skillsets in a targeted way. Moreover, in order to prepare staff for future assignments and challenges, the Group offered training courses tailored to the needs of the company, including topics such as strategy, leadership, management, and engineering.

6.3.2 The Group's human resource policy focuses on identifying and developing talented individuals. Thus, responsible supervisors carry out systematic Group-wide evaluations to assess employees' performance and potential and encourage them to attend appropriate training.

6.3.3 During the reporting period, the Group has organized a total of **6,401** hours of various training courses for employees.

6.4 STAFF ACTIVITY

6.4.1 The Group has initiated a number of staff activities to promote company culture and employees' interactions. Activities such as team lunch, cooking, recreational sports, cultural activities, and family gatherings were initiated within the company to boost work-life balance and staff's physical and mental wellbeing.



7 ETHICS AND INTEGRITY

7.1.1 The Group understands that integrity and ethical behavior were the keys to earning customers' trust and the foundation to a success business. Thus, the Group has committed to protecting intellectual property rights, client data privacy, and preventing bribery and corruption.

Protection of intellectual property rights and client data

7.1.2 The Group has respective departments designated to oversee intellectual property and client information, and to ensure the Group as a whole complied with relevant policies and regulations related to information confidentiality and intellectual property rights.

Anti-corruption

7.1.3 The Group has established anti-corruption policy to monitor its business operations. Delegated supervisors were responsible for internal inspections in order to observe any potential bribery, extortion, fraud and money laundering cases. Whistleblowing policy has been set in place to allow employees to raise concerns internally through a confidential and comfortable reporting channel on any potential cases of corruption.

7.1.4 During the reporting period, the Group has complied with laws and regulation related to anti-corruption.

8 CARE FOR THE COMMUNITY

8.1.1 Besides business operations, the Group strived to play the role of a good neighbor and extend care to the community. As part of a social contribution, the Group was aware and devoted to avoid any disturbance and nuisance to nearby communities during its operations.

8.1.2 For example, Tianrui Group Zhengzhou Cement Company Limited carried out tree planting activities to improve its surrounding landscape and reduce the company's carbon footprint.

Tianrui Group Zhengzhou Cement Company Limited carried out tree planting activities





8.1.3 In addition, Tianrui Group Zhengzhou Cement Company Limited participated in a charitable donation organized by local labour union to support the students in financial difficulties. During the reporting period, the Group donated in total about **120 million RMB** and invested **427 hours** of service to the community.

9 LOOKING FORWARD

9.1.1 Aware of the role as one of the cement industry leaders, the Group has placed significant efforts into creating a business operation that was environmentally-conscious and socially beneficial to stakeholders. In view of China's policies and the development of the industry, the Group shall continue to be adaptable in seasons of change, innovative in the application of advanced technological equipment, committed to environment protection and sustainable development, in order to capitalize on its competitive edge and strive for greater value and better results in the future.

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