

(incorporated in the Cayman Islands with limited liability) (Stock Code: 1313)

Corporate Social Responsibility 2014



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I) Overview

1. Statements of the Board

In 2014, China Resources Cement Holdings Limited (SEHK stock code: 1313.HK; the Company) was actively in response to the complex and dynamic macroeconomic situation and the intensive competition of the industry. To adapt to the new economic norms, we continuously promote reform and development, strengthen the core competitiveness of the enterprise for enhancing internal growth drivers. While maintaining a good momentum of development, the Company has achieved steady improvement on the operating results, striving to become a respectable world-class cement company.

At the same time of achieving steady improvement on the operating results, the Company has been thankful in pursuing the long-term goal of being an outstanding enterprise which is "trusted by its shareholders, loved by employees, respected by the society and praised by the public". In 2014, the Company adhered to "honesty and trustworthiness", strictly followed the bottom line of morality, legal and compliance, actively promoted corporate governance in accordance with law and regulation. The Company promotes "green development" through persistent increase in its investment of technological research and development, active promotion of technological innovation, taking the lead of reform, transformation and green development in the industry. We insist on "safe production", continuously improve safety in the production process, and strengthen safety training in order to create a safe production environment. The Company is "customers-oriented" in that we keep perfecting the systems of product guality and customer service for providing products and services of excellent quality to customers. We emphasize on "win-win cooperation" which builds a responsible value chain and strategic cooperation to grow with our partners. The Company is "people-oriented" and views employees as the most valuable resources for corporate survival and development. We are dedicated to creating a safe and harmonious working environment with broad room for career development. We believe in the "balance of responsibilities and benefits" in that we drive economic and social development of the communities, actively participate in charity and mutually share the results of its development with the community. The Company is "led by social responsibilities" in that we constantly strengthen communications and cooperation with the stakeholders, incorporate the concepts of social responsibility into our corporate business management, and work with business partners for maximizing corporate social values.





2. About the Company

China Resources Cement Holdings Limited (SEHK stock code: 1313.HK; the Company) was incorporated in 2003. The Company is one of the large cement enterprise groups with strong support from the Chinese government. Relying on its advantages of unique resources distribution and vertical integration business model for cement and ready-mixed concrete, the Company is the pioneer in the regional market that adopts the "3+2" development strategy through control, transformation and distribution of resources, making us the producer with the lowest total cost and leading market position in the region. Making use of the well-established brand name of "Runfeng Cement", the Company has become the most competitive supplier of cement and ready-mixed concrete in Southern China, with an important position in the cement industry in China.

As of 31 December 2014, the operation of the Company has covered Guangdong, Guangxi, Fujian, Hainan, Shanxi, Yunnan, Guizhou, Inner Mongolia, Hong Kong and Macau etc. The annual production capacities of clinker, cement, and concrete in operation held by our subsidiaries, joint ventures and associates have reached 62.2 million tons, 89.2 million tons and 36.1 million cubic meters respectively, making us a leader in the country.

3. Significant Events of the Company in 2014



1. On 26 February, Guangzhou Heidelberg Yuexiu Cement Company Limited, China Resources Cement (Fengkai) Limited, China Resources Cement (Nanning) Limited were the first batch of companies being awarded the "One Hundred Energy-Saving Model Enterprises" by the China Building Materials Federation among the building materials industry;

2. On 16 July, the Company ranked No.1 in the "Asia's Best Investor Relations (Basic Materials)" in The 2014 All-Asia Executive Team organized by "Institutional Investor";

3. On 19 July, China Resources Cement (Jinsha) Limited commenced operation of its NSP clinker production line with annual production capacity of 1.55 million tons and its cement grinding lines with annual production capacity of 2.0 million tons;

4. On 27 July, China Resources Cement (Midu) Limited commenced operation of its NSP clinker production line with annual production capacity of 1.55 million tons and cement grinding lines with annual production capacity of 2.0 million tons;

5. On 12 December, China Resources Cement (Nanning) Limited was honoured the "Hong Kong Green Awards 2014 – Environmental, Health, Safety Award (Corporate)" – Silver Award by the Green Council of Hong Kong.



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II) Key Performance Table

Indicator	2012	2013	2014		
Market Responsibilities					
Total assets (million RMB)	42,293.23	42,597.68	45,463.91		
Turnover (million RMB)	20,624.00	23,436.11	25,877.18		
Profit before tax (million RMB)	2,338.21	3,446.23	4,567.68		
Taxation (million RMB)	1,900.20	2,774.29	2,901.95		
Customer satisfaction (%)	85	84	87.8		
Customer complaints handling rate (%)	100	100	100		
Return on total assets (%)	7.3	9.4	11.6		
Social Responsibilities					
Number of employees	23,296	23,889	23,669		
New jobs created	1,452	593	_		
Labour contract signing rate (%)	100	100	100		
Social insurance coverage rate (%)	100	100	100		
Proportion of female executives (%)	11.62	13.02	13.00		
Number of employees with disabilities	8	13	13		
Number of annual leave per employee (days)	8	8	8		
Employee training coverage rate (%)	100	100	100		
Training cost per employee (RMB)	1,100	1,000	700		
Training time per employee (hours)	60	65	58		
Medical examination coverage rate (%)	100	100	100		
Number of occupational disease occurrences	0	0	0		
Employee job satisfaction level (%)	62	69	78		
Employee dedication level (%)	68	73	80		
Safety training frequency	71,960	91,952	99,478		
Investment for safe production (million RMB)	42.26	106.68	72.93		
Safety contingency drills (frequency)	215	302	512		
Charity donation (million RMB)	5.72	3.34	4.02		
Environmental Responsibilities					
Investment for environmental protection (million RMB)	600	574.64	569.62		
Investment for energy conservation, emission reduction and technological upgrade (million RMB)	309.8	223.67	270.14		



III) Value Creation

The Company makes use of innovative thinking to drive technological and managerial innovation by constantly changing our corporate business models and development strategies, improving the level of technology and quality, strengthening the foundation of managerial system and humanistic virtues and striving to create values for shareholders.

1. Business Performance



Profit before tax (Million RMB)



Return on total assets (%)



Taxation (Million RMB)





2. Product Innovation

(1) Product and Technology Innovation

The Company emphasizes on its value of "innovation and pursuing changes". Our product mix structure is adjusted continuously to cope with the market needs. The Company has been strengthening research. On top of the original 42.5 and 52.5 ordinary Portland cement products, we have gradually developed different types of cement products including rapid-hardening, medium-heat, low-heat, low-alkali, slag and masonry cement.

(2) Public Research Projects on Environmental Protection

In 2014, the Company, together with South China University of Technology, filed an application for "Research Project on the Environmental Impacts of Co-processing Urban Solid Waste Using Cement Kiln" in Guangdong Province and the Annual Public Research and Capacity Building Special Fund Project in Guangdong Province in 2014, namely, "Construction of Technology Center in Guangdong Province for Low-carbon Engineering of Building Materials".

(3) Patent and Invention

The Company has made 34 patent applications during the year, including acceptance of 9 patents, authorization of 8 patents (including 7 utility model patents and 1 invention patent) by the authority.

(4) Participation in Revision of Industrial Regulations

The Company has participated in the formulation and revision of 5 national standards, namely, "Portland Cement for Nuclear Power Project", "Medium-heat Portland Cement, Low-heat Portland Cement and Low-heat Slag Portland Cement", "Test Methods of Combustion Characteristics for Recovered Waste from Combustible Solids for Cement Kilns", "Test Methods of Corrosiveness of Recovered Waste from Combustible Solids for Cement Kilns against Refractories", and "Limestone Powder Used in Cement and Concrete".





1. Environmental Health and Safety (EHS) Management System

(1) Safety Culture System

Safety and health philosophy

 \star All accidents can be prevented

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- ★ I want to be safe, and I will be safe
- ★ Care for health and lives

Vision for Safety

Safe China Resources, Blessed Home

- ★ Construction of a value-creation type of safety management system with distinctive characteristics of China Resources and a safe working environment in China Resources
- ★ Care for employees' safety and health, making the Company a safe and happy home

(2) Building of Safety Management System

In 2014, the Company released the "Safety Management System of Mine and Cave of China Resources Cement Holdings Limited", "Accountability System of Safety Incidents of China Resources Cement Holdings Limited (2014 Edition)", "Safety and Environmental Protection Management Evaluation System of China Resources Cement, 2014 edition", "Procedures for Safe Operations of China Resources Cement Production Plants" and other system regulations. The Company also revised "Composite Contingency Plans for Production Accidents of China Resources Cement Holdings" and "Procedures for Safe Operations of China Resources Cement Holdings" and "Procedures for Safe Operations of China Resources Cement Holdings" and "Procedures for Safe Operations of China Resources Concrete Production Plants". The safety systems have been continuously improving.

In 2014, the Company further implemented the safety "three-tier management and control" system. The headquarter adopts the principles of "standard, evaluation, supervision and services" and professional management in management of safety and environment protection. The Company strengthened assessment over the safety responsibility pledge. In order to enhance the enforceability of safety management, in 2014, a 100-point evaluation system was implemented. The evaluation scores are taken as a safety factor coefficient and would be directly included in the assessment of the annual performance of regional offices as a whole and the general managers of these regional offices as individuals.

Safety and health policy

- ★ Safety first, with a focus on prevention and composite treatment
- ★ Compliance with laws and regulations, scientific management, and continuous improvement

Safety and health objectives

- ★ Material adverse safety accidents: 0
- ★ Target rate of injuries per 1,000 people: <3‰
- ★ Occupational diseases (diagnosed): 0

Assessment over the Safety Responsibility Pledge

In 2014, a 100-point evaluation system was implemented. The evaluation scores are taken as a safety factor coefficient and would be directly included in the assessment of the annual performance of regional offices as a whole and the general managers of these regional offices as individuals.



(3) Implementing the Accountability System of Safe Production

In September 2014, the Company issued the "Accountability System of Safety Incidents (2014 Edition)" which strengthens the efforts in accounting for the responsibilities of management personnel in safety incidents. With the accident management as the starting point, the management personnel directly or principally in charge shall be imposed economic and administrative penalty. The personnel being penalized could not be promoted within a certain time period. In case of occurrence of serious injuries and fatal accidents, the primary personnel in charge and other key positions in the unit shall be held accountable. Depending on the degree of management responsibilities, they could be imposed severe penalties such as degrade, demotion or even dismissal.

(4) Training on Safety Production

The Company is innovative on training management. Training videos (animation) was created based on the standards of safe behaviors and typical accident cases in the industry, which was distributed for training and learning by all regional offices and production plants. Some of the production plants broadcast the videos at shuttle buses and canteens. Some other subsidiaries uploaded the videos on the online learning section of OA for the employees to learn online at their convenient time.

Based on its focus on safety management, in 2014, the Company held two specific training sessions on mine safety management: at China Resources Cement Guangzhou Technical Training Center in June, and at China Resources Cement (Longyan Caoxi) Limited in October respectively. A total of 79 supervisors from all regional offices and mines at production plants participated in the training.

In November 2014, a training session on road traffic safety management was held in China Resources Cement Guangzhou Technical Training Center, and 45 participants from vehicle team leaders and relevant management staff at each production plants took part in the training. In addition, Guangdong, Guangxi, Fujian, Shanxi and other regional offices organized training sessions on safety management skills, mining and blasting technologies, occupational health management, and new safety standards, etc.

The Company continued to strengthen management and control over stakeholders, which required qualification examination over stakeholders, signing of safety agreements, and strict implementation of training prior to commencement of employment. In 2014, the Company conducted safety training of 89,030 times for our employees and 10,448 times for employees of the stakeholders.





2. Contingency Management System

(1) Contingency Mechanism

In 2014, contingency management was a key task of the Company. Regional offices were required to organize contingency drills in order to improve knowledge, skills and handling capability of contingency.

Guangdong Regional Office conducted drills of a drowning accident at a pier and food poisoning rescue etc.; Guangxi Regional Office conducted contingency drills of ammonia leakage rescue; Fujian Regional Office conducted drills of collapse and fire accidents at depots etc.; Hainan Regional Office drilled on typhoon accident rescue; Shanxi Regional Office drilled on fire and explosion accident of coal mill system; Yunnan Regional Office held a fire safety drill. In 2014, the Company conducted 512 contingency drills in total, including 309 field drills with 15,325 participants.

Case Study:

Contingency Drill at Fujian Regional Office

On 30 July 2014, the Company's Fujian regional office China Resources Cement (Yongding) Limited conducted a field drill on joint rescue at a collapse accident at Wukeng Mine Dump. Yongding County People's Government, State Administration of Work Safety, Yongding Longtan Town People's Government, Fujian Makeng Mine Rescue Team, Longtan Police Station of Yonding County Public Security Bureau, Fushi Town Clinic and other units and departments jointly participated in the field drill of collapse accident rescue. A total of 76 relevant personnel from Mine Department, Safety and Environmental Protection Department, Administration Department and other departments



Diagrams: Joint field drill of collapse accident rescue at Wukeng Mine Dump, China Resources Cement (Yongding) Limited

of China Resources Cement (Yongding) Limited attended the drill. Through the drill, the capability of joint rescue and co-ordination between the Company, various government departments and the public was effectively enhanced. The operability and applicability of the Company's contingency plans were verified, which had raised the Company's level contingency rescue capability and contingency management level.

(2) Contingency Training

In March 2014, the safety management personnel of the Company participated in the contingency management training at the Training Center of the State Administration of Work Safety in Shenzhen. In April, Hainan regional office of the Company organized three batches of training in formulation of contingency plans for safe production accidents. A total of about 100 full-time/part-time safety officers, supervisors of team leaders and above participated in the training.



3. Special Activities of Safe Production

(1) Construction of First-Class Enterprises in Standardization of Safe Production

Since 2014, the State Administration of Work Safety has been optimizing and revising Level 1 of the national safety standards. The Company initiated training on the new standards, creation of guidance and internal audit work on safety standards.

In April 2014, the State Administration of Work Safety accredited China Resources Cement (Fengkai) Limited as the First-Class National Standardized Model Enterprise Pilot Unit, which is one of four pilot cement enterprises in China. Currently, the construction work of a model enterprise of first-class safety standards in China Resources Cement (Fengkai) Limited progresses smoothly, which will lay a solid foundation for further creation, consolidation and promotion of safety standardization for the Company.

(2) Theme Activities for Safe Production Month

The Company organized activities for the safe production month, during which a total of 11,123 employees had watched the safety warning films, 11,713 employees had attended training sessions, 10,823 employees had received education on accident case study, 5,499 copies of promotion materials had been issued; 185 contingency drills had been conducted with a total of 4,699 participants; 43 times of "Safety Open Day" had been held with a total of 3,901 participants; 63 symposiums with employees and family members had been held with a total of 2,532 participants.



(3) Promotion of Safety Management Tools

In 2014, China Resources Cement (Shangsi) Limited and China Resources Cement (Longyan) Limited were selected as pilot production plants for deeper observation of safety behaviors. The Company completed the formulation of "Manual for observation of Safe Behaviors of China Resources Cement", which provides guidance on deeper observation activities for each production plant, enhances employees' safety awareness, and encourages the employees to adopt safety behaviors as their habits.

Meanwhile, the Company conducted trial implementation of work ticket system in China Resources Cement (Huizhou) Limited and China Resources Cement (Longyan) Limited. Currently, 9 templates of work ticket system have been completed at the pilot production plants and put into effective operation. After summing up the experiences, the Company would promote the use of work tickets in all production plants. This ensures further management and control of operation behaviors, implementation of operational risk analysis of inspection and repairs, provision of protection on safety measures, strengthening management and control of inspection, repairs and dangerous operations so that accidents would be avoided.



V) Responsibilities to Employees

The Company views its employees as the most valuable resources for its corporate survival and development, and is committed to creating peace and happiness for its employees and their families. The Company provides a broad career development platform for the employees to display their individual talents.

1. Employees' Dedication Level

According to the survey conducted by Aon plc, a well-recognized agency, the Company's employees' dedication level reached 80% in 2014, which was the third consecutive year of achieving the zone of excellent performance or the best employers.

Indicator	2012	2013	2014
Employees' dedication level	68%	73%	80%

Note: 2011-12 excellent performance or the best employers in China: 65% -100%;

2013-14 excellent performance or the best employers in China: 72% -100%.

2. Employee Allocation and Development

According to the requirements for the Company's strategic business development and shaping of organizational capacity, in 2014, the Company commenced organization and talent review in key positions. Based on the review results, the Company dynamically optimized the allocation of human resources by means of promotion, rotation, exchanges and exit, to strengthen the connection between appointment and development of our talents, and also standardize the management of key positions. This ensures vitality of the organization.

3. Care for Employees

The Company has adopted a series of measures relating to care for its employees. We are concerned with occupational health and we organized annual medical check-up for employees. Commercial insurances are subscribed for employees and two immediate family members on an annual basis. We set up a mailbox for employees, general manager open days, online forums and other channels to listen to our employees. Employees are well equipped with multiple technical skills through the multi-level training system, as well as building a career development channel of management, professions and technologies for employees to broaden their career development platform.

In order to promote mutual help and fraternity, the Company established the "China Resources Cement Thanksgiving Fund". It is encouraged to use team effort in resolving substantial crises of employees in their personal lives, and thereby forming a long-term mechanism of mutual help and love in times of distress. In 2014, the fund subsidized 25 employees in need with a total amount of RMB475,000.









VI) Responsibilities to Customers

1. Good Communication with Customers

For achieving the "customer-oriented" business philosophy, the Company implements a three-tier customer feedback system whereby the sales, the customer service officers and the management would visit the customers regularly. They seek to understand customers' needs and constantly improve products and services. At the same time, the Company regularly organizes meetings with customers, visits to production plants, seminars for sharing technology, and theme promotion activities etc. every year. This lets our customers have an in-depth understanding of our corporate culture and to achieve recognition of cultures and values.

Case Study:

Voice from Customers

In order to ensure all departments of the Company listen to our customers, the Customer Service Department of Guangdong Region publishes two issues of "Voice from the Customer" every month which report customers' requests, achieve interaction among various departments, and constantly improve product quality and customer service.

"The voice from each customer can only represent his individual opinion but not necessarily all. Our responsibility is to truly reflect the customers' feedback without modification." —— Guangdong Regional Office of the Company

2. Customer Satisfaction

The Company has carried out customer satisfaction survey for 5 consecutive years in order to review our products and services from the customers' perspectives and find out our shortcomings and areas of improvement. We then develop action plans to address the problems and enhance customer satisfaction level. With a good reputation among customers, the Company is at a leading position in the industry in terms of customer satisfaction level.

3. Handing Customer's Complaint and Improvement Mechanisms

The Company accepts customers' complaints through the complaint hotline and the complaint form. Our specific complaint handling team responds to customers' complaints within 24 hours and achieves a handling rate of 100%. After the complaint has been handled, we follow up with customers regularly on the use of our products, and form a closed-loop management of customers' complaints.



VII) Responsibilities to Business Partners

1. Strengthening Multi-channel Communications with Investors

Communication Mechanism

The Company is committed to protecting the rights of investors and shareholders. The Board is accountable to shareholders for creating and delivering value through effective corporate governance. As the core principle of corporate governance, the Board of Directors endeavors to maintain stable and constructive communications with shareholders and investors and promote mutual understanding through direct communications.

• Disclosure of Information

The Company has established a shareholders' communication policy. We actively respond to daily inquiries from shareholders and investors, and publish important information about the Company through the official website for corporate communications and the Company website. The Company also organizes investor presentations after the release of interim and annual results, which are simultaneously broadcast via the internet in order to raise the transparency of corporate governance of the Company.



Allocation of investor activities in 2014

• Participation of Investors

In 2014, the Company has increased interactions with shareholders and investors through participation in different activities. During the year, the Company handled a total of approximately 300 investor meetings, enquiries and conference calls which enabled direct communications with fund managers and analysts around the world. The Company organized non-deal roadshows after release of results, and participated in 5 conferences for Hong Kong and overseas investors organized by various investment banks in which we had in-depth discussions with global institutional investors on the economic situation in China and development trend of the industry.



2014 Annual Results investor presentation

In November 2014, the Company organized a two-day reverse roadshow with 22 participants including analysts, fund managers and bankers. The participants visited our cement production plant and conveyor belts in Fengkai County, Guangdong, and had good discussion and interaction with the representatives from the Guangdong Cement Association for better understanding of the development opportunities of the Company and the industry in Guangdong. Besides, in May 2014, the Company held an Annual General Meeting and around 80 shareholders attended. The Company's management, independent directors and relevant intermediary representatives gave an overview of the Company in 2014 and answered enquiries from investors.



2. Fair and Open Procurement

Integrity is the foundation of China Resources' culture and the top priority in our procurement management. Through the establishment of an effective internal procurement control system and continuous values promotion, China Resources Cement Procurement Company Limited regularly offers education on corruption-free business conduct. This prevents deviation of employees' behavior and soundly promotes fair and open procurement.

(1) Construction of Corruption-free Procurement Team

China Resources Cement Procurement Company Limited always regards corruption-free education as an important agenda in its meetings and group activities. Corruption-free education seminars were held in July and December 2014. Through explanation of legal provisions, real case analysis and shaping of positive mentality, all the procurement personnel participants were enlightened to building a positive mentality, imposing strict requirements on themselves and cherishing what they already had.

(2) Moral Standards of Procurement Personnel

In July 2014, a solemn oath ceremony was held by China Resources Cement Procurement Company Limited, whereby all the employees signed the "Sunshine Declaration" and unanimously undertook to implement fair and open procurement. They also promised to be strictly self-disciplined, abide by professional ethics, decline any gifts and money from suppliers and curb of abuse power for self-goodness.

With the guidance of anti-corruption construction and sunshine culture, as well as regulations of various systems and processes, no employees of the China Resources Cement Procurement Company are found to have violated integrity or anti-corruption requirements. With a fair and open procurement team, the employees' self-discipline and team cohesion have been strengthening.

Further Reading

China Resources Cement Procurement Company Limited is a subsidiary of the Company which specializes on largescale procurement of raw materials and accessory materials, as well as tender of additional equipment and spare parts at a later stage, management and establishment of the entire professional procurement system of the Company.

Sunshine Declaration

In July 2014, a solemn oath ceremony was held by China Resources Cement Procurement Company Limited, whereby all the employees signed the "Sunshine Declaration" and unanimously undertook to implement fair and open procurement.





(3) Corruption-free Management of Suppliers

China Resources Cement Procurement Company strongly abides by to the values of China Resources: "honesty and trustworthiness". In all written agreements with suppliers, the "Special Terms on Integrity" have to be included so that the suppliers and their employees are strictly prohibited from offering benefits to our respective employees during tender, negotiation processes for procuring agreement, or in the course of performance of the agreements.

3. Positive Acceptance of Public Supervision

The Company pays keen attention to its reputation and morale assessment by the public. The Company consciously accepts media supervision, collects and analyzes media reports, public opinions and suggestions through the public opinion supervision system. Suggestions and comments which are beneficial to corporate development are directed to the relevant departments and business areas of the Company for their continuous reflections and improvement, which will promote harmonious and stable development of the business and the society.

Special Terms on Integrity

Suppliers and their employees are strictly prohibited from offering benefits to our respective employees during tender, negotiation processes for procuring agreement, or in the course of performance of the agreements.





VIII) Green Development

1. Environmental Protection Starts from Production Plants

The Company actively promotes green production, and proactively initiates works on composite utilization of resources and environmental protection. All the cement production plants of the Company are equipped with the advanced NSP production lines and configured with low-temperature residual heat power generation system. All the certification of environmental management system and clean production audit had been passed. In addition, a third party institution was entrusted to conduct external supervision and audit in order to improve the management level of environmental protection of the production plants. The Company will continue to focus on the works of conservation of coal, electricity and water, clean production, reduction pollutant of emission, ecological environment protection and circular economy development. The Company will be constructed as a resource-saving, environment-friendly and green-oriented enterprise.

Case Study:



In 2014, China Resources Cement (Nanning) Limited, China Resources Cement (Fengkai) Limited, China Resources Cement (Guigang) Limited, and Guangzhou Heidelberg Yuexiu Cement Company Limited were awarded plaques and certificates of "One Hundred Energy-Saving Model Enterprises" by the China Building Materials Federation.



In December 2014, China Resources Cement (Nanning) Limited was honoured the "Hong Kong Green Awards 2014 – Environmental, Health and Safety Award (Corporate)" – Silver Award, which is another award following the "Hong Kong Green Award 2013 – Green Management Award, Services Provider (Corporation)" – Silver Award to China Resources Cement (Fengkai) Limited in 2013. This was the industry recognition of the Company's achievements in environmental protection and safe production.



2. Implementing Ecological Restoration to the Mines; Building "Green Mines"

The Company attaches great importance to implementing ecological restoration to the mines and building "green mines". With the main objectives of reasonable utilization of resources, energy conservation and emission reduction, ecological environment protection and promotion of harmony at mines, the Company advocates scientific mining approaches, efficient resources utilization, enterprise management standardization, environmental-friendly production technology and ecological mining environment as the basic requirements. Restoration of mines would be included in the medium-term production development plans of the Company. This provided a realistic solution to development and exploitation at the expense of simply consuming resources and destroying the ecology.

For the mining area, through reutilization of water resources in the mines, there was zero discharge of waste water. In order to reduce the impact of production activities on ecological environment and ensuring existence and continuity of species in the region, waste oil was recycled in time and measures for application of shock reduction and weak shock blasting technologies were taken. For the final slopes and permanent areas, timely measures were taken for green restoration, water retention and soil consolidation were done for minimization of ecological and environmental impacts. Non-mining regions were designated as protected and forbidden areas so that the native vegetation and protozoan species could be protected, thereby reducing migration of species caused by human factors.

Case Study 1:

Mine Restoration

China Resources Cement (Heging) Limited has commenced its green restoration work since 2012. The Company's mine has been planted with over 10,000 ivy trees, 1,000 poplar trees, 1,700 evergreen trees, over 10,000 oleander trees, and 150kg of seeds have been sown. A total green area of over 50,000 square meters has been restored and the greening effect is significant. The Company has formed a model of simultaneous mining and restoration that ensures simultaneous progression of production and environmental protection and mutual growth of economic and social benefits.



he mine prior to restoration



The mine after green restoration



Panoramic view of the mine after green restoration

Case Study 2:



National Green Mine Pilot Unit

Guangzhou Zhujiang Cement Co., Ltd., a joint venture of the Company and Heidelberg Cement AG, operates a cement production line with the new NSP technology. Its technological project for "Mine Geology, Lithological Modeling, Optimizing of Resources Composite Utilization and Increase of Restoration Rate" was awarded the "Model Mine for Mineral Resources Conservation and Composite Utilization of Advanced Applicable Technology" by the Ministry of Land and Resources of the People's Republic of China. In October 2013, it was declared as a state-level green mine pilot unit. In November, it passed the review by the Department of Land and Resources of Guangdong Province. In August 2014, the Company was accredited by Ministry of Land and Resources as the "National Green Mine Pilot Unit".



Case Study 3:

Building Green Mines for Promoting Sustainable Development

The Company's Guangxi regional office actively initiated activities to create green mines. The 6 companies, namely, China Resources Cement (Nanning) Limited, Guangxi China Resources Hongshuihe Cement Co., Ltd., China Resources Cement (Fuchuan) Limited, China Resources Cement (Tianyang) Limited, China Resources Cement (Shangsi) Limited and China Resources Cement (Guigang) Limited, had been included in Green Harmony Mine Construction Plan of Guangxi Zhuang Autonomous Region.

3. Proactive Promotion of Sustainable Development of the Cement Industry in China

In 2010, the Company joined the "Cement Sustainability Initiative" (CSI) and acted as the co-chairman of CSI in China. In recent years, in close collaboration with the Secretariat of CSI, the Company has hosted the sixth annual meeting of CSI, CSI China Safety Working Group Exchange Meeting and other major events. We actively promoted sustainable development of domestic cement industry in terms of safety, environmental protection, occupational health and green procurement. This demonstrates the influence and leading position of the China's cement industry in the global cement industry.

On 7 April 2014, the Company attended the CSI Liaison Deputy (LD) Meeting in Montreux of Switzerland and reported on the work progress of CSI China. In-depth exchanges and discussions were made with other liaison deputies on the new governing policies of CSI, work progress of various working groups, green development and other issues.



The Company's Vice President and Chief Security and Environmental Protection Officer, Mr. Zhang Yingzhong, reported on the work progress of CSI China at the LD Meeting in Montreux, Switzerland





4. Energy Conservation and Emission Reduction

(1) Implementation of Technological Transformation etc. of Cement Kiln Systems to Reduce Energy Consumption

In order to optimize and reduce its overall energy consumption, the Company implemented technological upgrade of the cement kiln systems in Guangzhou Zhujiang Cement Co. Ltd., China Resources Cement (Pingnan) Limited, Guangxi China Resources Hongshuihe Cement Co., Ltd. and China Resources Cement (Huizhou) Limited respectively. Transformation was mainly performed on coal mills, preheaters, coolers, other major facilities and equipment. This results in significant reduction of coal and power consumption in each unit.

(2) Upgrade of Denitrogenation Systems and Reduction of Nitrogen Oxide Emission

As at the end of 2014, the Company has completed denitrogenation technological upgrades on all our 41 clinker production lines. Selective Non-Catalytic Reduction (SNCR) technology was adopted in the technological upgrades. Flue gas was mixed with ammonia water under certain conditions and nitrogen oxides were reduced to nitrogen gas and water without the use of catalysts, thereby effectively reducing emission of nitrogen oxides. At present, emission of nitrogen oxides at all our clinker production lines is better than the latest emission standards of the Chinese government.



The SNCR denitrogenation system installed at China Resources Cement (Longyan) Limited

(3) Transformation of electrical dust collector to bag-type dust collector, to reduce emission of particulate matters

By the end of 2014, the Company has completed technological upgrade of a total of 23 kiln head/tail dust collectors in 17 clinker production lines, transforming the existing electrical dust collectors to bag-type dust collectors which effected emissions of lower concentration and higher operational stability. After transformation, the dust collection efficiency reached 99.99%. The concentration of particulate matters emitted was lower than requirements in GB4915-2013 standard, effectively reducing emission of particulate matters in waste gases. The Company plans to complete the transformation of all dust catchers, for making contributions to the elimination of fog and haze and the prevention and control of air pollution.



The bag-type dust collector of the kiln at China Resources Cement (Jinsha) Limited





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(4) Pure Low-Temperature Residual Heat Power Generation, to save coals and reduce emissions

The pure low-temperature residual heat power generation system recycles the residual heat generated during the cement production process and converts it into electricity, greatly improving the efficiency of energy use and reducing air pollution and greenhouse effect with good economic, social and environmental benefits. In 2014, the Company generated a total of 1.829 billion kwh of power by residual heat, equivalent to a standard coal saving of 581,600 tons and reduction of carbon dioxide emission by 1.5995 million tons (calculated according to 318g/KWh, coal consumption rate for power generation in 2014, issued by National Energy Administration).



The residual heat power generation system

(5) Entering the Carbon Trading Market

The Company strongly supports and actively participates in the pilot work for carbon emission quota management. Eight of the Company's production plants were selected as the first batch of emission-controlled enterprises in Guangdong Province. In July 2014, these 8 production plants settled the 2013 annual carbon emission quotas according to the requests from Guangdong Provincial Development and Reform Commission. Currently, the Company has accumulated considerable experiences from participation in practices of carbon trading market in Guangdong Province and was the advanced batch of cement companies which participated in carbon market trading. Currently, the construction work on the national united carbon market is accelerating. Our experience from the carbon trading work will help us to win the opportunities for carbon asset management work later.



China Resources Cement and China Resources Power achieved internal synergy on carbon quota trading

5. Circular Economy and Renewable Resources

The Company is actively involved as a corporate citizen in the large cycle of social systems to fulfill the responsibilities for green development. The Company is committed to research and exploration of effective methods for disposal of urban wastes from cement kilns with the objectives of "harmlessness, safety, resourcefulness, quantity reduction, and stability". Utilization of cement kilns for co-processing of urban sewage sludge, waste and industrial hazardous wastes would help to resolve the pollution problems of land and underground water caused by landfill disposal, difficulty in site planning for waste incineration facilities, heavy secondary pollution, as well as secondary treatment of fly ash, slag and other substances, etc., caused by urban waste incineration.

(1) Urban Waste Co-processing Projects

In recent years, rapid developments have been resulted from China's urbanization construction, which made outstanding contributions to national economic development and social progress. However, with economic development and increasing, the amount of waste generated has surged. The phenomenon of "garbage besieging city" has appeared in many cities in our country.

By means of the technology of co-processing of urban waste at cement kiln, we can not only use waste as raw fuel to reduce consumption of resources, but also take advantage of the characteristics of the cement rotary kiln itself, to thoroughly eliminate harmful substances. In 2014, the Company continued to promote the systems of co-processing of urban waste. The systems align with the general principle of "being safe, reliable and advanced", implement the high standards of clean emission targets from the European Union and Japan etc. The NSP clinker production lines of the Company have been equipped with the advanced disposal technology of advanced international standard. Compared to sanitary landfills, there has been an annual decrease of methane gas emission by 17,520,000 m³, equivalent to a reduction of 262,000 tons of carbon dioxide emission per year; annual land saving of 1.5 hectares, thereby achieving the objectives of "quantity reduction, resourcefulness and harmlessness" for the waste treatment.



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(2) Co-processing Treatment of Urban Sewage Sludge

Guangzhou Heidelberg Yuexiu Cement Company Limited is a joint venture of the Company and Heidelberg Cement AG which operates a cement production plant with New Suspension Preheater technology. The co-processing treatment of urban sewage sludge by the cement kiln of joint venture company is a key strategic science and technology project supported under the China's 11th 5-year plan, and is also named as "Guangdong Province cement kiln pilot project for solid waste treatment". The project is designed to treat 600 tons of sludge with 80% water content per day. The project is both an environmental protection project for pollution control and a renewable energy project. As at the end of 2014, more than 550,000 tons of sludge had been harmlessly treated. There has been an inherent advantage of "one stop" co-processing treatment of sludge by the cement kiln discharged from waste water plants. There is no risk of repetitive treatments and disposals, and the disposal is thoroughly clean with significant environmental benefits to the ecosystem.



(3) Integrated Use of Industrial Waste

The Company has long been committed to researching and exploring the application of industrial waste in cement production process. In terms of integrated use of industrial waste, the waste treated includes FGD gypsum, fly ash, wet cinder, bottom ash and slag. Currently, all the production plants of the Company can consume industrial waste on a large scale, and more than 12 million tons of industrial waste was consumed in 2014.

(4) Exploration of Alternative Raw Fuel

In terms of alternative fuel, Guangzhou Zhujiang Cement Co., Ltd., a joint venture of the Company and Heidelberg Cement AG, has constructed a cement kiln for co-processing treatment of waste leather which can treat 28,000 tons of waste leather per annum and save 14,000 tons of standard coal.





(5) Circular Economy Zone

The circular economy demonstration zone is a new environmental-friendly industrial development model. The recycling model of "turning waste into treasure" is achieved among pan-industry clusters, which brings about great environmental and social benefits. The Company has been actively participating in the construction of the circular economy demonstration zone. The Hezhou Circular Economy Demonstration Zone comprising cement plants, power plants and breweries has commenced operation. Through mutual share of resources and recycling of wastes, the demonstration zone reduces annual emission of carbon dioxide by 730,000 tons and sulphur dioxide by 60,000 tons respectively. Furthermore, 1.02 million tons of ash, 440,000 tons of gypsum and 400 tons of waste diatomite have been put in integrated use. 780,000 tons of water has been saved, and 2.63 million tons of waste water has been recycled.

Leveraging on the close upstream-downstream relationship in the industrial chain between coal, power and real estate businesses under the China Resources Group, the Company is now actively involved in the construction of circular economy projects such as the that in Bijie region, Guizhou, which is currently in the phase of specific planning.



The schematic diagram of China Resources Hezhou Circular Economy Demonstration Zone



IX) Charity Services

Abiding by the principle of "balance of responsibilities and benefits", the Company has proactively participated in charity. To fully take corporate advantages, its subsidiary production plants donate cement products in order to help the neighboring towns and villages in the construction and repairs of roads and bridges and infrastructure improvement. Sustainability of charitable conducts and performance has been achieved. At the same time, the Company also makes donations in cash or in kind to poor areas and families in financial hardship, thereby solving their practical difficulties. In 2014, the total external donations made by the Company amounted to RMB4.02 million. Through multiple measures such as partnering with village enterprises and performing community service by our volunteer teams, the Company actively initiates mutual community construction and promotes harmonious relationship between the Company and the community.







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