Report Norms

This is the eleventh sustainability report released by China National Building Material Group Co., Ltd. (hereinafter referred to as "CNBM"), truly reflecting CNBM's sustainability and social responsibility performance.

Entities Covered by the Report

All wholly-owned or controlled (including absolutely and relatively controlled) member enterprises of CNBM. For brevity, the terms "CNBM", the "Group" and "we" are used in the Report to refer to China National Building Material Group Co., Ltd. (unless otherwise specified in the text).

Period Covered by the Report

January 1 to December 31, 2019, some contents beyond.

Reporting Cycle

This Report is an annual report.

Basis for Preparation

Guiding Opinions on the Implementation of Social Responsibility by State-owned Enterprises issued by the State-owned Assets Supervision and Administration Commission of the State Council

Corporate Social Responsibility Reports in China for Nonmetal Mineral Products (CASS-CSR 4.0) issued by the Chinese Academy of Social Sciences

Guidelines for the Preparation of Corporate Social Responsibility Reports (GB/T36001-2015) issued by the Standardization Administration of China

Guidelines for Sustainable Development Reports (GRI 4.0, GRI-standards) by the Global Reporting Initiative (GRI)

Social Responsibility Guide (ISO26000) (2010) issued by the International Organization for Standardization (ISO)

UN Sustainable Development Goals (SDGs) 2030

Data Sources

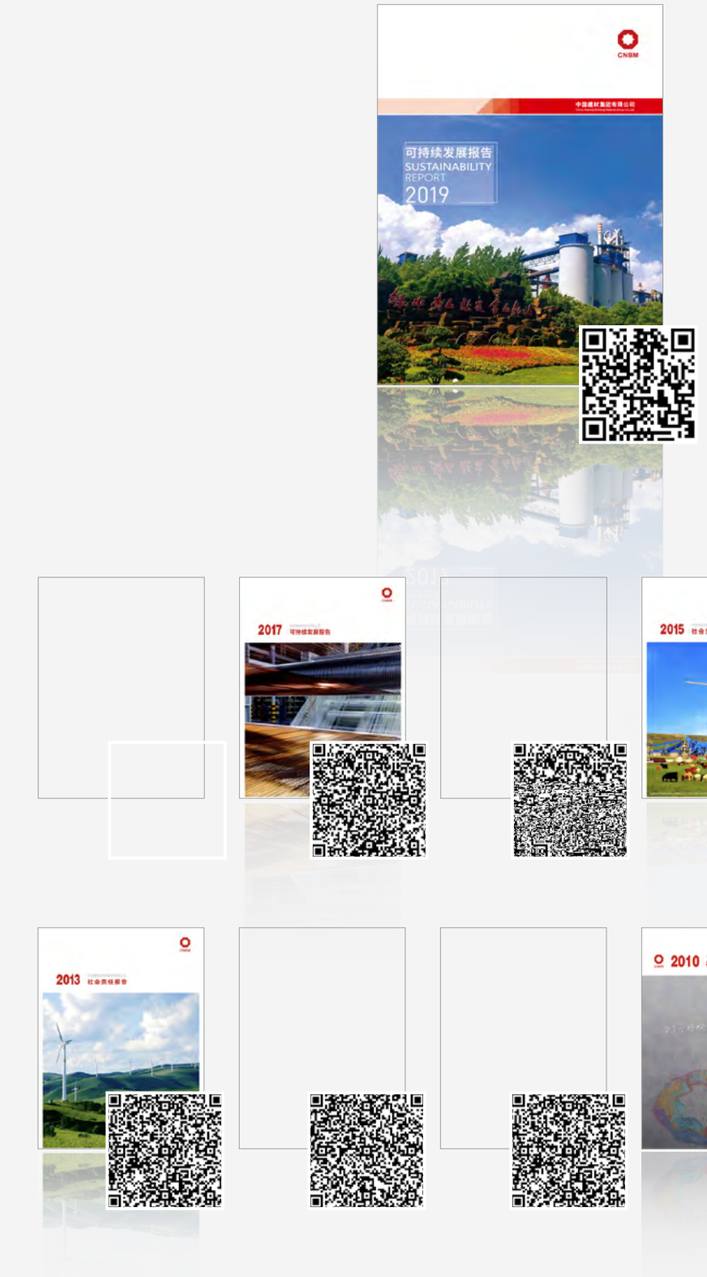
All the information and data used herein comes from the Headquarters and member enterprises of CNBM. Notes have been made in the Report to indicate information from external references. Unless otherwise stated, all monetary amounts are expressed in RMB.

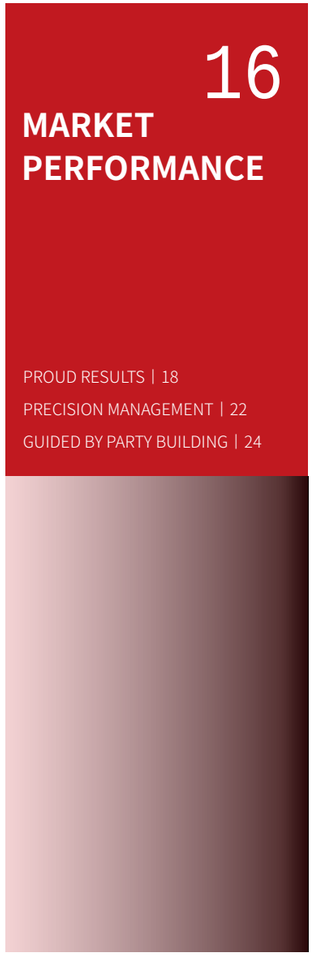
QA

We strive to ensure the authenticity, integrity and balance of the contents in the Report, and make breakthroughs in innovation and readability. Moreover, there are no false records, misleading statements or major omissions in this Report.

Report Availability

This Report has printed and electronic versions and is mainly released to stakeholders and the public in the form of a PDF electronic document. You can request the printed version via the contact information on the cover or log onto www.cnbm.com.cn to download the electronic version.





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Chairman's Address

Innovation is the primary driving force for development!

General Secretary Xi Jinping said, "Innovation is productivity. Enterprises rely on it to be strong, and countries reply on it to prosper."

CNBM is a long-standing enterprise dating back to the foundation of the China Building Materials Academy, now a subsidiary of CNBM, in 1950. In the past 70 years, CNBM has grown together with the People's Republic of China. Having adjusted its development pathways for three times, CNBM has made tremendous leaps of development. By developing new building materials and consolidating its business of basic building materials, CNBM has become the world's largest cement producer and one of the Fortune Global 500 companies through large-scale mergers and restructuring. After the restructuring of China National Building Materials Group Corporation and China National Materials Group Corporation in 2016, CNBM has forged a "tripod" business pattern, i.e. basic building materials, new materials, and R&D and engineering services. Now it has successfully become the world's top producer of building materials. In its history, CNBM has kept making innovations in fields from strategic management to routine operations, from corporate governance to state-owned enterprise reforms, and from organizational development to cultural building with innovation efforts anytime and anywhere.

Innovation-driven development

Innovation is a gene in our business. As part of our core values of "innovation, performance, harmony and responsibility", innovation is a born endowment of CNBM and has been incorporated into the Group's soul of high-quality development and serves as an inexhaustible powerhouse to deliver world-class performance. Being innovation-driven is our top strategy. To make the best use of role of innovation as "the primary driving force for development", CNBM has been carrying out all-round innovation in technology, business models, management and institutions comprehensively encompassing its goal of being one of China's top and world-class enterprises to continuously enhance the Group's vitality, competitiveness, power of control, influence and risk resistance ability, and to realize harmony with employees, competitors and the environment for inclusive and sustainable development. As a flagship of technological innovation in the industry, CNBM

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materials industry, but also profoundly affected the landscape of the industry around the world. While constantly focusing on financing and investment, the Group is shifting its business from asset management to capital management, from building materials to comprehensive materials, and from the local market to the global stage. With the hard working, wisdom and skills of all CNBM people, the Group created new records of business performance with operating revenue and profits having continuously grown at double-digit rates from 2015 to 2019. In 2019, the Group achieved RMB 398.1 billion of revenues, RMB 23.52 billion of profits and RMB 85.39 billion in social contributions. Every CNBM employee is contributing to building the Group into a long-standing "tower" by doing his or her part of the work.

Development facilitated by internationalization

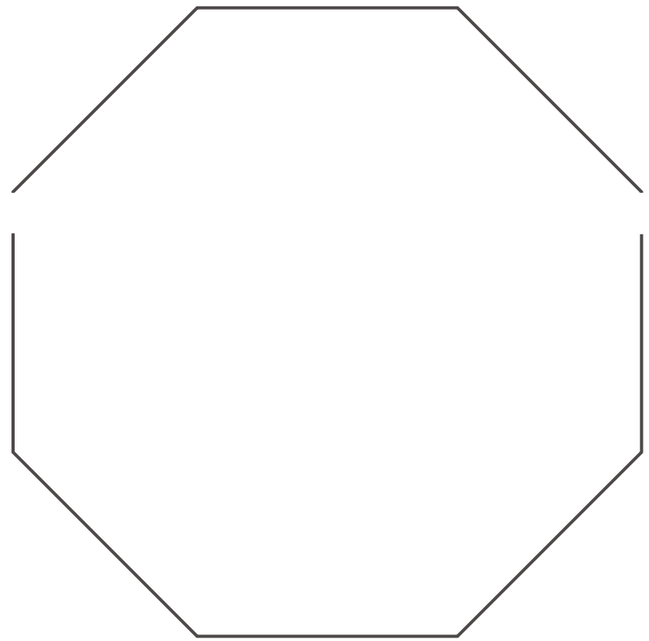
We have developed innovative practices of "going global" and new models for global procurement, marketing, service provision and resource utilization by relying on our industrial advantages and consolidating

About Us

Company Profile

China National Building Material Grouv

Corporate Culture



Development Strategy

CNBM is strategically positioned to be a pioneer of the supply-side structural reform of the basic building materials industry, innovator of the new materials and new energy industry and a practitioner of the "Belt and Road" Initiative. We actively apply the new concept of development, attach great importance to the quality of development, and implement the three major strategies of "innovation-driven, green development and international cooperation". Encompassing the pathway of development called the "three curves", i.e. refining the basic building material segment, vigorously developing new materials, and actively fostering R&D and technical services, we work to create the six business platforms of "basic building materials, international capacity cooperation, three-new industries, national material research, national mine resources, financial investment and operation", make the Group "driven by innovation, relying on quality for performance, oriented to manufacturing services, and social responsible", drive the transformation to be "high-end, intelligent, green and service-based", build CNBM into a world-class industrial investment group specializing in the material industry with global competitiveness and achieve the leap from being big to being great.

Development Strategy of CNBM

Strategic Vision	Strategic Positioning	Three Major Strategies
Strive to become a world-class industrial investment group with global competitiveness	A pioneer of the supply-side structural reform of the basic building materials industry, innovator of the new materials and new energy industry and a practitioner of the "Belt and Road" Initiative	Innovation-driven Green development International cooperation

Three Curves	Six Platforms	Four Transformations	Four "World-Class"	Four Characteristics
Refining the basic building material segment, vigorously developing new materials and actively fostering R&D and technical services	Basic building materials International capacity cooperation Three-new industries National material research National mine resources Financial investment and operation	High-end Intelligent Green Service	Technology Efficiency Management Competitiveness	Driven by innovation Relying on quality for performance Oriented to manufacturing services Social responsible

Goals and Tasks

By 2025, with revenues of RMB 500 billion and profits of RMB 30 billion, a world-class enterprise with global competitiveness will take shape.

By 2035, our revenues will reach RMB 600 billion and our profits will reach about RMB 50 billion. Innovation, profitability, control and governance capabilities and market competitiveness will all reach the world-class level, and we will have become a world-class enterprise with global competitiveness in an all-round way.

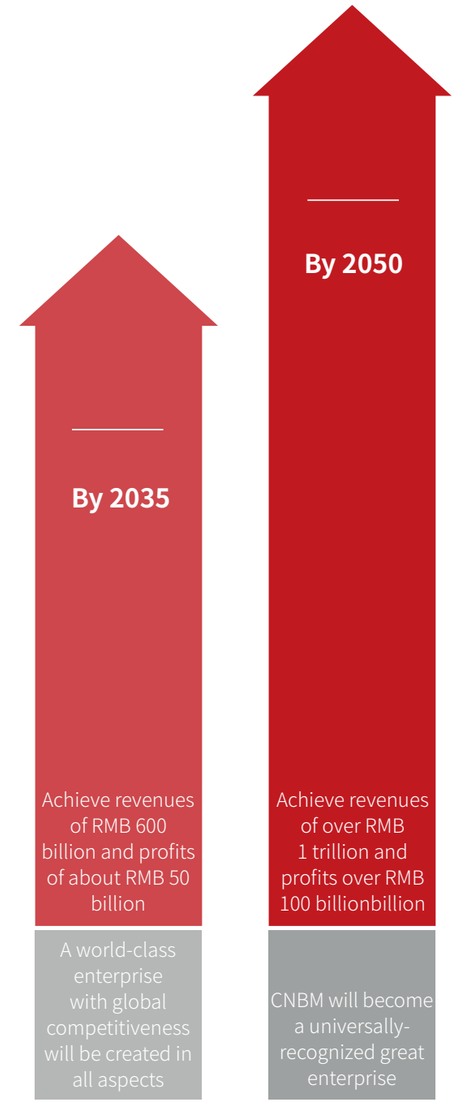
By 2050, with revenues of over RMB 1 trillion and profits of over RMB 100 billion, CNBM will become a universally-recognized great enterprise.

Focus on Three Major Events

- Seeking Progress in Robustness
- Seeking Quality in Development
- Seeking Innovation in Changes

Focus on Five Tasks of High-Quality Development

- Strengthening major business
- Streamlined structure
- Strengthening management
- Innovation and transformation
- Mechanisms revolution



Management Team

CNBM is a demonstration unit for the merger and reorganization of central enterprises, the development of mixed ownership economy, the development of state-owned

Main Lines of Business

CNBM has an annual production capacity of 520 million tons of cement and 460 million m^3 of ready-mixed concrete, both of which rank first in the world.

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The annual production capacity of plasterboard is about 2.7 billion m^2, ranking first in the world. We have high-end brands in the international market and proprietary intellectual property rights, as well as three business sectors: wall and suspended ceiling systems, w / srcauaan d cconcecttion syst mnd e8y ern rsbrw tys artl eo/ano/anrl g e o l l so lt gno s al al oo/a sr r irwind p /i☒ w woty O / m in the i ip e, ropuc tarkay☒wO/r ☒ wmtQ il ±w w , alee c w

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Proud Results

Harvest comes from irrigation with sweat. We must hard work and stay determined to pursue our goals. With the hard working, wisdom and skills of all CNBM people, the Group created new records of business performance in 2019 with revenues and profits keeping double-digit growth to be RMB 398.1 billion and RMB 23.5 billion respectively. The Group was ranked first among all building material companies in the Fortune Global 500 list for the first time with new progress and breakthrough in high-quality development.

Normative Governance

We maintain a standard corporate governance system. As the strategic, resource and cultural center, the CNBM headquarters exercises the rights and performs the duties of the capital contributors. Its business platforms focus on their core expertise and main businesses to build up profit centers. As operating entities, the enterprises at the primary level implement strict cost control while assuring quality. More than 500 member enterprises have set up standardized boards of directors and established sound corporate governance structures. We keep legal compliance and good faith in operation, strengthen risk prevention and control, and impose strict audit and supervision, comprehensive risk management and construction of central enterprises under the rule of law. All tier-2 enterprises must prepare comprehensive risk management reports. 166,000 person sessions of law publicity and education activities has been held.

In the year, the Group's operating performance was dramatically improved, and the construction of large profit platforms produce fruitful results. Nine tier-2 companies were more profitable compared to the previous year, and seven tier-2 platforms with profit up to RMB 100 million were formed. The year also saw eye-catching rise in both shipping volume and value of cement, ready-mixed concrete, wind turbine blades and other major products.

Integration and Optimization

In 2019, we conducted adjustment and optimization effectively and orderly with constantly improved the "tripod" business pattern, i.e. basic building materials, new materials and engineering and technical services. The "three-step" strategy of restructuring and integration has realized seamless interfacing at the group level and the level of Hong Kong listed companies (China National Building Material Company Limited and China National Materials Company Limited). The merger highlighted the "1 + 1 > 2" effect and has become a model for the restructuring of central enterprises. Depending on their business sectors, the member companies are being further integrated and optimized by level and phase. CTC Group has completed the integration of the testing business of 8 subsidiaries and consolidated its leadership in the business sector. Related projects and intra-group cooperation have progressed smoothly in fields of geological exploration, mine engineering services, energy conservation and environmental protection, financial services, new-type housing, intelligent industry and so on. Three regional leading enterprises in waterproof materials are reorganized to have ten major bases of waterproof materials covering the whole country.

Data Review 2019

6
sessions of "Lecture on Rule of Law" training and counsel work training

The legal review rates are
100
for rules and regulations, business decision-making and business contracts

The performance rate of economic contracts is
98.5%

Re-Upgrading of Cement Business

As the largest cement producer in the world, we have found a brand-new pathway of development through transformation and upgrading defined by keywords, such as "green", "intelligent" and "high-end", and driven the rapid change and progress of the industry. We are working to advocate the development of "high-grade, specialized, ready-mixed and product-form" cement, comprehensively promote the "Cement+" mode, drive the rapid growth of the ready-mixed concrete, aggregate and other materials, optimize the distribution of production lines, deepen the industrial chain integration and industrial restructuring, and introduce intelligent and information technology. We have built "integrated large-scale cement industry chain operation platforms" combining "cement, ready-mixed concrete, aggregate and collaborative disposal", and we have 7 pilot cement enterprises in implementing the integration management system for integration of informatization and industrialization.

CASE A demonstration intelligent production line is put into operation at Zunyi Saide Comment

To achieve world-class performance, we must take the lead in intelligent production. A typical case is the intelligent production project put into operation in 2019 at Southwest Cement Zunyi Side Co., Ltd. Combining world-leading information and intelligent concepts and a variety of artificial intelligence, online monitoring and control technology, the project consists of nine systems for building a new-generation of intelligent enterprise, fully realizing unattended control of incoming raw materials, production process and shipping of finished products, thus dramatically reducing manual operations on the production line, and makes a great difference in the cement production process. With no more than 80 employees, the plant has reduced the production line's coal equivalent consumption for clinker production to 92kg and comprehensive power consumption of cement production to 68 kWh. Its overall energy consumption has been saved by more than 30% and f-CaO acceptance rate of clinker out of the kiln has been higher than 95%. This project represents a solid step for China's cement industry embracing the era of intelligent manufacturing.

Rapid Development of New Materials

We work actively to accelerate the cultivation of the system of "six categories of new materials", establish a technological agglomeration integrating advanced production technology, essential technical equipment, inspection and certification, and standard development, and realize an effective closed-loop and virtuous cycle from R&D to industrialization and marketing of new materials.

- China's first production line of image light-guided recognition materials is put into operation
- China's first production line of microcrystalline graphite flotation purification and processing is put into operation
- 8.5th-generation TFT LCD glass substrates terminates long-time monopoly by foreign companies
- The photoelectric conversion rates of copper indium gallium selenium thin film batteries and cadmium telluride power generation glass reached new highs
- Mass production of high strain point glass, glass for double glass PV modules, special borosilicate glass, 1 mm G3-class silicon nitride ceramic balls

CASE Bringing wings for development of new materials industry

A country's economic and social development, scientific and technological progress and national defense strength can be measured through two important indicators including R&D level and industrialization scale of the "new materials industry". CNBM has a clear vision of the future development direction and has gradually developed into a representative of China's new material industry with constant breakthroughs in R&D and production of new materials, such as high-grade carbon fiber, ultra-thin electronic glass, thin-film solar cell, lithium battery separators and high-precision industrial ceramics. In March 2019, journalists from Economic Daily visited CNBM to explore the development status of China's new material industry...

A Report on
the Economic Daily

New Benchmarks in Engineering Services

As the world's largest building materials manufacturer and engineering service provider, we have been striving to transform from building cement production lines only to a diverse range of engineering and construction activities and provision of technical services. For the plasterboard business, we have built production lines with a total of capacity of 90 million square meters in 3 countries. China Building Material Test & Certification Group ("CTC Group") has participated in the testing for projects in a number of countries in Africa and Central Asia and carried out conversion of more than 10 standards and related cooperation, and its professional strength has won international recognition. In 2019, the Group signed 24 agreements with 21 overseas enterprises at the second China International Import Expo for cooperation in promoting engineering services, and won 2 China Construction Engineering Luban Prizes and 3 National Prime-Quality Project Prizes.

Deepening of Reform

In 2019, we steadily implemented pilot reforms. Now, the pilot reforms cover seven CNBM enterprises, of which four are included in the "Dual-Hundred-Enterprise Action Plan". Two CNBM enterprises are included in the fourth batch of Mixed Reform Pilot Enterprises designated by the National Development and Reform Commission, and one is undergoing the reform of employee shareholding. In the Group's pilot state-owned investment company proposal, which has been approved, the "4335" guiding principles have been clearly established to build the headquarters for strategic management and control, and create a state-owned capital investment company with competitiveness, capability of innovation, influence, control and risk prevention ability in operation. Along with the deepening reforms of internal mechanisms, the innovation capability and morale of our employees have been fully mobilized with the equity incentives in listed companies, employee shareholding, sharing of excess beyond performance targets, participation in project investment, equity incentives and post-linked dividend distribution in scientific and technological enterprises and so on. The correction of "government-like headquarters" has taken effect. The three business units have been reshaped to form more large-scale specialized profit platforms. The three-tier management mode of "government - headquarters - investment enterprise" is being constantly improved. While constantly focusing on financing and investment, the Group is shifting its business from asset management to capital management, from building materials to comprehensive materials, and from the local market to the global stage.

Five Pilot Reforms

- Pilot enterprise for the merger and reorganization of central enterprises
- Pilot enterprise for the development of mixed ownership economy
- Pilot enterprise for the development of state-owned capital investment companies
- Pilot enterprise for the deepening implementation of the duties and power of the board of directors
- Pilot enterprise for employee stock ownership in mixed ownership enterprises

Guided by Party Building

We have implemented the "two requirements for consistency", incorporated the Party's leadership into the corporate governance, make discussions by the Party Committee a precondition for the Board of Directors to make decisions on major issues. By clearly defining the authority and responsibility related to the "three major transactions and one large transaction", the Board of Directors have improved its ability to "set strategies, make decisions and prevent risks", and high-performance Party building is leading the high-performance development of the Group. At the same time, we have solidly promoted education with the theme of "remaining true to our original aspiration and keeping our mission firmly in mind", covering more than 2,000 grass-roots Party organizations and nearly 40,000 Party members. The education has helped the broad base of Party members and cadres hold firm beliefs, supplemented their knowledge, boosted confidence, and firmly controlled the rudder of ideology. We have adhered to strict and humane management, continued to consolidate the "three basic developments", comprehensively deepened the "three transformations", promoted circuit inspection and audit in an integrated way. Three persons received punishment under the Party discipline, and an atmosphere of probity and upright conduct becomes even stronger.

We have actively strengthened education and publicity, delivered training for Party committee leaders, Party organization secretaries, and middle-aged and young Party cadres, cultivated the one of the "Top Ten Brands of Party Building Work", carried out activities such as celebrating the 70th anniversary of the founding of the New China, art performances, and flash mobs, edited and published special issues on the 70th anniversary of the founding of the New China, and told stories of the Group. In the year, 56 entities and individuals were awarded the honors of advanced grass-roots Party organizations and labor models of central enterprises, and 554 people received the Medal of 70th Anniversary of the Republic. The Group has built up an increasing centripetal force of high-quality development.

Brand names in terms of Party building	Name of Party Organization
"Three-Building" working method of China Jushi for Party building	Party Committee of China Jushi Co., Ltd.
"135" working mode of Sinoma International (Nanjing) for overseas Party building	Party Committee of Sinoma International Engineering Co., Ltd. (Nanjing)
"Six-three" standard working method of Bengbu Glass Industry Design and Research Institute for Party building	Party Committee of CNBM Bengbu Glass Industry Design & Research Institute
"Six projects" of Zhongfu Lianzhong	Party Committee of Lianyungang Zhongfu Lianzhong Composites Group Co., Ltd.
Precise Training Project of China Building Materials Academy for young talents of science and technology	Party Committee of China Building Materials Academy Co., Ltd.
"Screw" Fastening Project of Xuzhou China United	Party Committee of China United Cement Xuzhou Co., Ltd.
"1 + N" Party members' political birthday activities in Nanjing Fiberglass Research & Design Institute	Party Committee of Nanjing Glass Fiber Research & Design Institute
"Three-Five-Five" working method of Guizhou Sandu for Party branches	Party Committee of Guizhou Sandu Southwest Cement Company Limited
"Five Integration" project jointly built by the Party and masses at Taishan Fiberglass	Party Committee of Taishan Fiberglass Inc.
Red Benchmarking Plan of BNBM	Party Committee of Beijing New Building Material Public Limited Company

Employees of Sinoma Cement (Luoding) Co., Ltd.

Employee Singing Competition of China United Cement Dezhou Dam Cement Co., Ltd. Celebrating the National Day

Celebrating Activities of Sinoma Taishan (Yunfu) Co., Ltd.

Taishan Fiberglass Inc. Celebrates the 98th Anniversary of the Founding of the CPC

Innovation Management

Innovation System

We have actively built a national level material research platform. CNBM has set up China's largest and strongest integrated technology development center in the fields of building materials and inorganic nonmetallic materials represented by 26 research institutes as well as national key laboratories, national enterprise technology centers and other innovative platforms, while creating an efficient, collaborative and open system for technological innovation. The Group received the "Award for Contribution to Technological Innovation" for the fifth term from the SASAC.

We keep improving the organizational structure of the technology centers, build platforms for technology transfer and achievement commercialization, and create a whole chain of collaborative innovation featuring "R&D + industrialization". We have compiled 6 volumes of learning materials on industry-research collaboration, and commercialized and promoted a large number of new technologies, processes and new achievements in various industrial sectors. In 2019, the Group obtained the approval for a national enterprise technology sub-center in the field of glass technology and engineering services. The number of national enterprise technology centers of Group continued to rank first among the central enterprises, and their operation is rated as excellent after evaluation by the SASAC.

By integrating internal standardization resources, the Group has set up the first standard committee with 17 professional technical committees for cement, glass fiber and carbon fiber, thermal insulation and sound-absorbing materials, engineering construction, etc. It has also set up the CSTM Building Materials Standard Committee and works to build a leading association standard system. The group applied for 35 new association standards in the year. We are developing an industry center for testing and evaluation of new advanced inorganic nonmetallic materials, and establishing the industry's new material testing evaluation and certification system.

We pay special attention to the construction of innovation platforms for the new materials industry, coordinate the advantages in resources of the three national key laboratories of green building materials, new float glass technology and special fiber composite materials, and promote the construction of the two industry centers for test and evaluation of advanced inorganic nonmetallic and composite materials. We obtained the approval for several national and industry-level platforms, including the national technology center for engineering of glass furnace fused cast refractories of the building materials industry, and joined the Global Quality Alliance. We also have two newly approved national quality inspection centers for corrosion and protection of building works and for refractories.

Guiding through Innovation

Data Governance

We keep building a sound data governance system to achieve coordinated strategic, holistic, normative, collaborative and security nature of big data. As typical examples, China National Building Material Engineering has developed the Intelligent Glass Factory Intelligent Center System; the mechanical arms and bagged cement robot loading systems developed by Triumph Robotics play an important role in the key production processes; China Jushi has been included in the second batch of National Intelligent Manufacturing Benchmark Enterprises by the Ministry of Industry and Information Technology; China United Cement Tai'an has built the world's first industrial intelligent cement plant, being acclaimed as the "world's dream factory of cement"...

China's First Indigenously-developed 8.5th Generation TFT-LCD Glass Substrate Successfully Rolls off the Production Line

CASE Building Tomatoes a Home of Science and Technology

Leveraging its own advantages in the glass industry, CNBM has made innovations in intelligent agriculture by introducing greenhouse technology from the Netherlands and applying a scientific environmental control system to ensure the high yield of greenhouses around the year. Through three-dimensional use of the space, these greenhouses not only have reduced footprints but also produce satisfactory economic benefits. On April 6, 2019, CCTV Financial Deep Discovery aired a report on the vegetable greenhouses built by Triumph Group at the Triumph Haofeng Intelligent Agriculture Park in Linyi, Shandong Province.

On February 18, 2019, Hu Chunhua, Member of the Political Bureau of the CPC Central Committee and Vice Premier of the State Council, visited the Triumph Haofeng Intelligent Agriculture Park

CCTV Financial Deep Discovery news report

Emerging Achievements

We have been vigorously implementing the transformation and application of innovation achievements encompassing the core goal of "being strong, superior and world-class". By the end of 2019, the Group has accumulated 12,124 valid patents and won 5 first prizes of the National Awards for Scientific and Technological Progress. In the year, it was granted 100 new international patents and successfully applied for 3 international standards. The Group won 1 Chinese Patent Gold Award and Specialized Champions of Manufacturing Industry for 3 products, had 47 projects designated as R&D achievements for "2nd generation" technology and equipment innovation and improvement, and 25 national key projects in the material field. Many of its technologies and products played an important role in the missions of Chang'e 4, the Daxing Airport, the National Day military parade, and other national key projects and major events.

CASE China's First 8.5th Generation TFT-LCD Glass Substrate Rolls o f the Production Line

At 3:28 p.m. on September 18, 2019, an 8.5th-generation thin film TFT-LCD glass substrate rolled off the production line at CNBM (Bengbu) Photoelectric Materials Co., Ltd., which marked that China became the third country in the world able to produce new generation liquid crystal display glass substrates after the United States and Japan. 8.5th-generation thin film TFT-LCD glass substrates are core components of LCD TV display panels of and over 65 inches. China complete relied on foreign technology and products before the day, so the breakthrough in new generation LCD glass substrates is of great significance to ensure security of China's information display industry.

CASE Image Light-Guided Recognition Chip Material Project Completed and Put into Operation

In 2019, the Institute of Glass Science and Special Glass Fiber, China Building Materials Academy completed the development of the world's first large array, ultra-thin, high-performance and low-cost image light-guided recognition chip materials to meet the compelling demand in fields like in-screen fingerprint identification by leveraging its sound foundation of research of core material technology for low light level night vision.

This material is a two-dimensional optical waveguide array created with regular arrangement of micron-level optical waveguides. Due to the excellent optical insulation characteristics between adjacent optical waveguides, optical images can pass through a transparent layer of more than 3mm without deterioration of the image quality. They can effectively block the ambient stray light from entering the image sensor to ensure the accuracy of image signal extraction. This material is mainly used in smart phones with all-screen design, smart door locks, financial transactions and payment, identity recognition (customs, airports, etc.), public security, criminal investigation, etc. In the future, it can also be applied in high-throughput gene sequencing, precision medicine, drug research, and is the world's only large-area in-screen fingerprint identification technology for commercial use. At present, this material has been used and proved on a number of flagship models of mobile phones. It significantly improves the performance of in-screen fingerprint identification modules as well as the user experience. It has been hailed as a "futuristic tech" that revolutionizes in-screen fingerprint identification.

China's first image light-guided recognition chip production line

Collaboration on Innovation

We have established a technological innovation system with enterprises as the main players, market as the guide and deep integration of industry, universities and research institutes for continuously driving collaboration on innovation with capital as the link and featuring close collaboration between the industry, universities, research institutes and users. The system has helped build open service platforms for the industry and effectively enhanced the competitive advantages in integration, interaction and innovation.

Data Review 2019

3
national SME public service demonstration platforms

848
academic exchanges activities held and organized

35,000
participants in academic exchanges activities

Cooperation with Universities

We have worked with the Ministry of Education in building science and technology support platforms, technology alliances, knowledge alliances and other forms of cooperation. We have also cooperated with universities such as Peking University, Wuhan University of Technology and Nanjing Tech University to reduce the costs of R&D and shorten the cycles of R&D and application. Taishan Fiberglass and Jinan University jointly developed and built the world's first high-performance electronic glass fiber production line with an annual capacity of 50,000 tons, breaking the monopoly of foreign companies in this field.

Industry Platforms

We have actively participated in the development of industrial technological innovation alliances and taken the lead in founding the China's Component-Based Building Materials Industry Alliance and the Mineral Functional Material Industry Alliance, and are preparing for founding the China Solid Waste Recycling Industry Alliance. Through the Carbon Fiber Industry Alliance, the Group has facilitated the testing of Zhongfu Shenying's T800 by the Russian Institute of Aviation Materials and its early certification for the China-Russia wide-body jet program.

Working with other Enterprises

We have founded a collaborative innovation consortium among central enterprises, focused on key projects and tasks to promote collaboration between central enterprises. CNBM has identified 7 potential fields of cooperation, including T800 carbon fiber, with COMAC; worked with AECC and other enterprises in developing high-performance large-size structural parts with indigenous intellectual property rights; implemented demonstration application of domestically-made carbon core cables in newly built ±1,000kV UHV transmission lines with State Grid; developed carbon fiber front covers and other lightweight parts in collaboration with Changan Automobile, AVIC Composite Materials and other enterprises; held collaborative innovation and exchange meetings between China Aluminum and CNBM centering on green applications of building materials in seven technical fields.

AGV (automated guided vehicle) at Taishan Fiberglass Inc.

Material G[illegible]y [illegible]201[illegible]

Green Management

We take the blue sky as our top responsibility and make green development as one of our three major development strategies. We prioritize the elements of business in the order of "environment, safety, quality, technology and costs", putting the environment in the first place, strive to achieve environmental compliance, constantly establish and improve the green management system, continuously assess and improve the emergency response plans for environmental pollution, and build green and low-carbon modes of development to ensure that all pollution sources and environmental risk points remain stable and controlled.

Three Foundations

Organization

To meet the requirement that "both CPC committee and the management are held accountable with dual responsibilities" for ecological and environmental protection, a leading group has been set up for energy conservation and emission reduction. The headquarters sets up a social responsibility and energy conservation and environmental protection office, and all member enterprises establish energy conservation and environmental protection functions by category and hierarchy to achieve the comprehensive coverage of the energy conservation and emission reduction management system.

Three Systems for Enhanced Management

Statistics

Monthly statistics are maintained with 12 reports in six categories, such as energy statistics, pollutant emissions and product energy efficiency. Yearly statistics are maintained including capital investment, waste treatment and pollutant discharge permit.

Monitoring

Powered by information technology, this all-level statistical monitoring system for energy conservation and emission reduction has been running stably for 9 years. With the help of the third-party open platforms, we regularly monitor the environmental performance of member enterprises and urge solution of major environmental issues in a timely manner. At the enterprise level, online environmental monitoring systems for pollutants are being established and improved to ensure the synchronous operation of monitoring equipment and production equipment.

Evaluation/Assessment

A top-down energy conservation and emission reduction evaluation and assessment system

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Green Manufacturing

We adhere to the concept that "lucid waters and lush mountains are invaluable assets", follow the "three principles of green manufacturing", emphasize environmental protection in selection of raw materials, production and product applications, pursue energy conservation and pollutant control through the whole process, and fight the battle for defending the blue sky, clear water and clean land.

Selection of Raw Materials

> We advocate circular economy, make the best use of industrial waste and urban building waste, and use clean and renewable energy for fuel wherever possible.

A Photovoltaic Power Plant at BNBM Ningbo

We rely on technological innovation to utilize industrial by-products as raw materials and reduce the consumption of natural mineral resources to the greatest extent possible while the product quality is ensured. In the raw materials for cement, the proportion of mine slag, steel slag, fly ash and other industrial waste has been increased to replace partial mineral raw materials from the nature. In the raw materials for plasterboard, we have developed a complete set of equipment and technology for producing new-type wall plasterboard with 100% flue gas gypsum after desulfurization from coal-fired power plant instead of natural ore through independent innovation.

In terms of energy sources, we have been actively upgrading production processes, exploring the options of non-fossil energy such as solar energy and biomass, increasing the procurement and use of clean energy, replicating the modes of "cement + PV" and "glass + PV", and making breakthroughs in developing new building materials and energy plants. The 2.8MW distributed power generation project at the Ningbo Plasterboard Base has achieved the four objectives of "saving, reducing, preventing and lowering". It can generate about 66.25 million kWh of electricity and save 23,500 tons of coal equivalent throughout its design life. By actively promoting waste heat power generation, the Group now has an installed capacity of 2375.5 MW per year from cement waste heat power generation, capable of generating over 10.26 billion kWh, saving 1.2 million tons of coal equivalent and reducing more than 6 million of carbon dioxide emissions. Efforts are being made to improve the levels of energy efficiency. We have improved the combustion efficiency by optimizing and upgrading kiln systems and enhanced the efficiency in power consumption by improving the energy efficiency of motors and revamping fans, frequency conversion and grinding systems for energy-saving to reduce the energy consumption per unit of products to the greatest extent possible. Seven cement enterprises of the Group were included in the "Energy Efficiency Leaders in 2019" and nominees list. BNBM received the award of the "Most Influential Enterprise Brand for Green Development in 2019".

Practicing Concept of Green Development and Furthering Comprehensive Utilization of Resources

To expand the application and development of comprehensive utilization of solid waste, Xinjiang Midong Tianshan has been working to solve difficulties in solid waste discharge, protect the ecosystem and environment, and has achieved win-win objectives by revising the formulas of raw meal and clinker, revamping mixing and production equipment and optimizing the production process flows. The company has built the first new-type dry process production line in China that replaces the natural raw material --- calcareous limestone --- with 100% calcium carbide slag. By consuming about 2 million tons of calcium carbide slag per year, the production line reduces exploitation of natural limestone by 1.75 million tons and the emissions of carbon dioxide by about 770,000 tons. Besides consuming all the industrial calcium carbide slag from the upstream enterprises, the company has indigenously developed and utilized new solid waste materials to replace common raw materials from mining. By increasing the use of industrial waste such as fly ash, coal gangue and silica fume discharged by the upstream enterprises, it reduces the discharge of solid waste by 350,000 tons and the production costs by about RMB 4 million per year.

Dabancheng Branch of Xinjiang Tianshan Cement Co., Ltd.

Manufacturing Processes

We work to reduce emissions, pursue zero wastewater, waste gas and solid waste, and improve the capacity of resource recycling.

We actively respond to climate change by reducing production of the cement segment to reduce carbon dioxide emissions from the source. We pay special attention to the recycling of water resources and solid waste produced in our operations, and to noise control to ensure that the noise from our operations meet relevant standards at boundaries and minimize the impact on nearby residents. In the mining stage, we improve the comprehensive utilization rate of resources making effective use of low-grade ores; in the shipping stage, we take appropriate measures to prevent undesired emissions of dust in storage, packing and transfer; in the production stage, we actively impose pollutant emission control, increase the coverage of high-efficiency bag filters, apply our indigenously developed nitrogen oxide emission reduction technology, and install desulfurization and denitrification systems for cement kilns. As a result, our internal emission limits are not only lower than the limits in the national standards, but also lower than those in European standards. 19 cement clinker production lines of China United Cement in Henan and Hebei provinces have met the ultra-low emission limits.

CASE China United Cement Juxian Puts "Environmental Protection Isolation Gowns" on Equipment

Dust suppression, noise control and pollution reduction of cement production equipment have been chronic problems besetting the industry for many years. To control noise and suppress dust at the same time, China United Cement Juxian uses sound-proof and dust-proof wall composed of metal plates and sound-absorbing boards for main and auxiliary equipment group such as the grate cooler fan group. The internal and external walls are colored in gray. The inner walls have soft and irregular surface to maximize the noise diffusion and absorption, while the outer walls are covered with blue tiles. The enclosure is clean and tidy, and looks like beautiful "isolation gowns" for the machinery and equipment.

The maximum noise intensity measured at the same monitoring points is reduced from 110 dB to less than 70 dB, and the dust emission is reduced almost zero after the renovation. The measures effectively control the emission of dust and noise, and completely change the scene of roaring machines and blinding dust.

Products and Applications

We pay attention to energy conservation, environmental protection, comfort and health, and are committed to providing reliable and green building materials.

Green Services

Green development is an essential strategy to solve pollution. We are committed to providing our industrial chain partners with various categories of green products and services, helping optimize and upgrade the structure and service level of the green industry continuously.

Professional technical services

The energy conservation of new buildings can reach more than 75%, and more than 90% of the building materials can be recycled. High-efficiency and energy-saving combustion systems, pollutant emission reduction technology, waste heat power generation, collaborative disposal and other technologies are used to provide constant energy-saving and environmental protection technical services, such as professional environmental monitoring and diagnosis, technical renovation and intelligent control. China National Building Material Engineering provides cloud platforms and intelligent factory services for enterprises, and has been designated as an "Intelligent Manufacturing System Solution Supplier" by the Ministry of Industry and Information Technology.

Integrated consulting services

As CTC Group is the industry's largest third-party test and certification service organization, we provide consulting, evaluation and certification services in energy assessment, energy management system certification, CDM projects, green building materials evaluation, carbon verification and so on. In 2019, we carried out conversion and cooperation with the standardization authorities of Mongolia and other national countries for more than ten standards, and realized the "going out" of building materials industry standards for the first time.

Ecological value-added services

We promote the use of building material kilns to dispose of industrial by-products and urban waste in an effective and harmless way. By 2019, we have built 24 production lines for collaborative disposal, including 13 for handling hazardous wastes, 5 for municipal solid waste and 6 for other solid waste.

Comprehensive ecological restoration services

China National Geological Exploration Center of Building Materials Industry has been steadily promoting geological disaster control, and its three contingents have undertaken 7 ecological restoration projects. Sinoma Mining Construction Co., Ltd. is expanding to provide "mining service+", developing the ecological restoration industry and green engineering services, and has obtained "Class-C Qualification for Geological Disaster Control".

Data Review 2019

Area of new-type housing:

725.0

thousand square meters

Consumption and disposal of solid waste:

101.0

million tons

A Glimpse of CNBM Zambian Industrial ParkW

CASE Ecological Restoration of Mountains, Rivers, Forests, Lakes, Grasslands and Farm Fields

The topography, landscape and vegetation in Qitaihe City, Heilongjiang Province had been damaged for a long time due to reckless mining to meet the needs of urban construction and regional economic development.

The Liaoning Contingent of China National Geological Exploration Center of Building Materials Industry has undertaken the project of "Mountain Mass Restoration and Ecological Restoration and Improvement For Abandoned Coal Mines in Qitaihe City, Heilongjiang Province" since July 2019. The contingent preforms its work by following the concept that "mountains, rivers, forests, lakes grasslands and farm fields constitute the community of life" as noted by General Secretary Xi Jinping. The survey and design of the project mainly covers 6 major areas and 107 work areas in Qitaihe City with a total area of 313.6 hectares. The project is mainly intended to restore the damaged mountain masses and abandoned mines in the City in the Woken River Basin, and to monitor the settlement in abandoned coal mines. The contingent has set up a project team consisting of its best managerial and technical personnel who are experienced in difficult tasks in harsh areas. By following the business policy of honesty, law-abiding and efficient operation, the team works to present beautiful products to the harmonious society with the concept of safety, environmental protection, high quality and high efficiency. This project has also been included in the third batch of pilot projects for ecological protection and restoration for mountains, rivers, forests, lakes, grasslands and farm fields in Heilongjiang Province.

CASE On Way to Re f ned Management on Water Environment

Water pollution has become increasingly serious due to the production activities by the human kind together with the continuous social and economic development. *The Action Plan for Water Pollution Prevention and Control* released by the State Council requires that the water environment should be improvement in the first phase by 2020, which posing new requirements for the development of enterprises.

China Building Material Test & Certification Group Co., Ltd. actively practices the responsibility for environmental protection and leverages advanced technology and the river basin guardian system in river and lake management and protection to make the water clearer, the scenery more beautiful and the ecosystem more harmonious.

On the one hand, small and micro stations are built and databases are set up for each wastewater discharge port or cross-boundary cross section to effectively realize rapid detection, real-time monitoring, accurate traceability and targeted governance, and make the regional management further refined. On the other hand, close cooperation mechanisms have been developed through monitoring and sampling with USVs as well as patrol and tracking with UAVs to effectively cover the blind areas between very two stations in the basin, accurately lock sources of pollution, and provide strong technical support for the emergency response authorities.

Green Operations

Eco-Enterprises

We take all possible efforts to minimize the damage caused by production to the natural environment and attach great importance to reclamation in mine areas and greening in plants. We actively promote the building of national green mines and garden-like ecological factories, and have created a number of factories in gardens, on grasslands and in forests. 34 member enterprises of the Group are designated as green factories by the Ministry of Industry and Information Technology; 32 mines have passed the national green mine assessment; and 19 member enterprises have been received the title of "National Building Material Emerging Industry Demonstration Enterprise".

CASE Plasterboard King's Green Building Future

BNBM has been committed to promoting green buildings, cities and residential environments. The company has put forward and advocates the industrial concept of "Green Building Future". It invests 5% of its revenues in R&D every year and has established a national enterprise technology center, academician expert workstations, postdoctoral workstations and CNAS laboratories. It has more than 4,000 Chinese core patents and international patents. In 2016, it became one of the few enterprises that took the lead in undertaking the key research and development projects of the 13th Five-Year Plan. BNBM has developed a complete set of technology for producing plasterboard with 100% industrial by-product gypsum with owned intellectual property rights. This technology fills the technical gap for efficient use of low-quality gypsum after desulfurization, reaches the international level and breaks the monopoly of foreign companies. It leads the development of efficient utilization of gypsum after desulfurization, energy conservation and emission reduction in China. With innovative and upgraded ability of formaldehyde decomposition, Longpai-branded formaldehyde-free plasterboard achieved removal of 93.9% formaldehyde. With leading indicators and innovative features, the plasterboard has become exclusively designated product of national key projects such as the venues of APEC and G20 summits.

A Production Site of Beijing New Building Material Public Limited Company

Data Review 2019

418
manufacturing enterprises have passed the clean production certification

Organized or participated in
1,959
environmental protection publicity activities

173,326
employees had participated in trainings related to energy conservation and environmental protection

Office power consumption
215.0
million kWh

Rate of mine/ecosystem restoration
32.7%

A Glimpse of China United Cement Rizaho Co., Ltd.

Idea Communication

We have practiced the environmental protection responsibility and promoted the idea of green environmental protection together with suppliers, customers and employees since the implementation of the "Responsibility for Blue Sky Action" plan in 2015. At the same time, we advocate green office, which has been included in routine performance evaluation, promote the construction of electronic office and video conference systems, and add luster to a beautiful China through organizing energy-saving technology exhibitions, training, low-carbon transportation, afforestation, fish stocking and other public service activities. We pay close attention to global climate change, actively participate in international events such as the World Bank Energy and the New Climate Economy Conference and the China-France Economic Summit, and share our practices in performing the Paris Climate Agreement, complying and implementing carbon reduction and low carbon policies, technological innovation in the cement industry to promote low-carbon transformation, and response to energy and climate change.

CASE Blue Sky Action, Green Production

China United Cement Corporation actively practices the development concept that "lucid waters and lush mountains are invaluable assets", follow the basic national policy of saving resources and protecting the environment, and comprehensively implements CNCM's core concept of "efficient use of resources to serve the construction" and "Responsibility for Blue Sky" action declaration. It has formulated and released the *Blue Sky Action Plan of China United Cement (2019-2021)* to improve the efficiency of resource and energy recycling, improve product quality, reduce emissions of particulate matter, nitrogen oxides, sulfur dioxide and other pollutants as well as greenhouse gas, carry out the construction of green mines and ecological civilization factories, and create a number of model enterprises of international-class ecological civilization for safeguarding high-quality development of the company.

China United Cement Dezhou Dam Cement Co., Ltd.

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Safety and Stability

Sound Foundation

We have taken active measures to perfect the workplace safety responsibility system featuring that "both CPC committee and the management are held accountable with dual responsibilities, joint efforts in action and management, and punishment for negligence", carefully perform responsibilities as workplace safety owners, formulated / revised four major regulations, including the *Emergency Response Plan for Workplace Safety Accidents* and the *Emergency Response Plan for Natural Disasters*, formulated 7 safety checklists for safety management and production sites, completed the records of safety management and related processes, improved the occupational health management system, provide a favorable work environment for employees through preparation of the *Rules on Supervision and Management of Occupational Health in Operational Sites*, periodical employee health examination, psychological consulting and training, and further enhanced the Group's efforts for creating a intrinsically safe enterprise.

Safety Enhanced with Science and Technology

We implement a strategy enhancing safety with science and technology. As required for "building an intrinsically safe enterprise", all member enterprises actively tackle major technical difficulties in workplace safety, strengthen cooperation and achievement transformation between the enterprises, and make scientific and technological progress an important driver of workplace safety.

- China United Cement and Ningxia Building Materials Group have adopted an intelligent video inspection technology, which greatly reduces safety risks associated with manual inspection of the clinker production lines
- Sinoma International has launched a mobile APP called "Smart Safety Keeper", which can be accessed via the company's WeChat account to facilitate the its "Smart Safety" efforts
- The bagged cement robot loading system jointly developed by Ningxia Building Materials Group and Triumph Robotics greatly reduces the occupational health hazards and labor in the loading process
- VR experience is utilized in safety training delivered by Beijing Triumph in an overseas project
- South Cement and CTC Group participated in formulation of 4 industrial/association safety standards, including the *Guidelines for Safety in Mechanical Cleaning of Cement Silos and Guidelines for Safety Management in Cement Storage and Transportation*, which guide improvement in safety of the industry

Site of Conch Project (Phase I) in North Sulawesi, Indonesia

CASE "e-Safety" Facilitates Early Warning

Ningxia Building Materials Group has actively established the "e-Safety" early warning platform and created a mobile APP relying on the 13 elements of four categories in workplace. The APP's functions include workplace safety objectives, workplace safety organization and personnel management, workplace safety input, rules and regulations management, workplace safety education and training, operation safety management, production equipment and facilities, inspection and hazard management, emergency rescue management, workplace safety accident management, hazardous source management, and performance evaluation, which boost the ability of mobile office for field operators and enhance the timeliness of safety management.

The APP focuses on identification of hazards, application for work tickets, safety risk warning and other functions, realizes the registration of safety hazards, mobile handling of work tickets, approval of applications with mobile phones, and avoids troubles due to a complicated system and those in finding safety ticket signatories around the plant area. Moreover, the safety and security data of the whole plant is sent to the managerial personnel and the field personnel in a timely manner, effectively enhancing the safety management level. At the same time, by expanding the scope of application, using the existing video monitoring platform and combining the voice intercom system, Ningxia Building Materials Group has set up more safety management monitoring points at the sites and high-risk areas, which helps reduce the number of inspection personnel and the frequency of inspection. The APP is interfaced with the access control, attendance check, personnel and vehicle positioning systems to further expand the scope of safety monitoring. The location information of both visitors and employees is collected by the systems to present number of personnel in the plant in real time. Their locations are displayed on a GIS map by work during normal hours, work overtime, prolonged stay and other status.

In addition, the "e-Safety" early warning platform realizes a closed-loop system of perception, transmission and processing by combining the technology of Internet of Things, cloud computing and Mobile Internet. The data monitored by the platform includes real-time data from various workplace safety monitoring and detection devices, real-time video streaming and equipment status data, operation parameters of important equipment (such as liquid level, pressure, temperature, humidity and concentration) with major potential hazards. When the value of any parameter reach the warning threshold, it is displayed directly on the GIS map and triggers interlinked alarms, thus realizing effective prevention and control of safety risks.

Data Review 2019

4,366

safety management personnel

Coverage of employee occupational health examination:

94.0%

Safety Standardization of Sinoma Cement (Hanjiang) Co., Ltd.

Hazard Management

In 2019, we executed activities with the themes of "Year of Workplace Safety Law Enforcement" and "Intensified Correction of Workplace Safety Violations" to a greater extent, and organized special inspections such as safety month inspections, safety inspections prior to the Mid-Autumn Festival and the National Day, inspections at overseas operations, autumn and winter workplace safety inspections focused on identification of unsafe behaviors of people, unsafe state of assets and management loopholes. To urge the member enterprises to identify risks, impose control by level and deal with safety hazards, the Group conducted audit in 48 randomly selected member enterprises, discovered 335 potential safety hazards, and gave comments to correct the insufficiency in workplace safety with hazard-specific countermeasures. Each member enterprise has also improved the safety and emergency response management systems according to the requirements of the Group by taking account of their respective conditions. Ten tier-2 enterprises revised and improved their emergency response plans. By improving the all-employee workplace safety responsibility system, Sinoma International signed 19,928 workplace safety agreements in the year to ensure performance of the responsibility.

CASE Interaction between All Levels of Management to Improve Emergency Response Capability

On June 17, 2019, an earthquake with a magnitude of 6.0 hit Yibin, Sichuan Province. CNBM activated its emergency response plan at the earliest possible time, and its teams arrived at designated places promptly. The member enterprises near the earthquake area also activated their respective emergency response plans at their earliest opportunity. The general managers of these enterprises led teams to check employees who worked during the earthquake, high slopes, tall buildings/structures, important equipment and facilities, and actively deliver education on earthquake emergency to employees to ensure the workplace safety of the enterprises. Personnel from the Group's Safety & Emergency Response Department arrived at the earthquake-stricken area as quickly as possible to deal with outstanding problems. During the period, Junlian Southwest Cement, Tuojiang cement and other enterprises organized a Southwest Cement Party Member Commando, which actively participated in the relief work after the earthquake. The Group's Poverty Alleviation Office provided dedicated assistance of more than RMB 200,000 to the families of 51 employees affected by the disaster. After the earthquake, all levels of the Group's management worked together to fulfill their respective responsibilities, while member enterprises in the earthquake area resumed production and work in an orderly manner. The response efforts serve as a good example for rapid response to sudden natural disasters and improvement of emergency response in the future.

Data Review 2019

10,473

organized emergency drills

An Ammonia Leakage Emergency Drill held by Sinoma Cement Co., Ltd.

Safety Culture

We attach great importance to the "Workplace Safety Month" activities, actively popularize safety knowledge, and promote the development of safety culture. During the Safety Month of 2019, all member enterprises actively participated in the nationwide online contest on the law on emergency response management with a total score of 740,000. The Group organized three sessions of safety training for the "three types of personnel" and two sessions of continuing education for registered safety engineers with a total of 500 participants. China Building Materials Academy has established a pool of 35 safety experts, and organized open classes and publicity activities on workplace safety in the form of lectures, storytelling, singing, sitcom, etc. The academy was designated an Advanced Organization in National "Workplace Safety Month" Activities of 2019. Sinoma Energy Conservation has been awarded the title of "Advanced Organization" of the "Ankang Cup" National Safety Culture Publicity Work for three consecutive years, and Chengxian Qilianshan Cement was awarded the title of "Model Enterprise of National Safety Culture Development in 2019".

Data Review 2019

2.7

million participants in training related to occupational health and safety

343

member enterprises have established employee mental health systems or measures

CASE Safety Culture Makes Home Safer

Located in Juxian County, Rizhao City, China United Cement Rizhao Co., Ltd. has developed a unique safety culture under the influence of the city's profound historical and cultural heritage. The company always follows the pathway of "ensuring safety with culture and promoting safety with culture based on the company's conditions and intrinsic safety". Centering on the people, the company observes the workplace safety policy of "safety first, prevention first, comprehensive management", sums up the safety culture concepts and codes to be followed by all cadres and employees, strengthens the safety culture among the employees and actively promotes the "family" element of safety culture closely linking the safety of employees with their family happiness. Various kinds of activities are held to enhance publicity of the safety culture, and educate the employees to bear safety in their mind and behave safely. The safety concept has taken root in the mind of employees, and the safety vision is reflected in all critical links of production, safeguarding the healthy and sustainable development of the company.

Since 2014, China United Cement Rizhao has successively won the titles of " 'Five-Star Advanced Organization' in Promoting Five-Access to Enterprise Employee Culture of Rizhao City", "Model Enterprise of Safety Culture Development in Shandong Province", "Award of Outstanding Organization of Workplace Safety Month of Shandong Province", "Advanced Organization of Workplace Safety in Shandong Province", and "Class-1 Enterprise of Workplace Safety Standardization in Industry and Trade Sector". In May 2019, the company was designated as a "National Model Enterprise of Safety Culture Development" by the China Association of Work Safety, recognizing the wisdom and work of all the cadres and employees of the company in the development of safety culture.

Employee Development

Protection of Rights and Interests

We strictly abide by relevant laws and regulations, conscientiously protect the essential rights of employees provided for by governments and the International Labour Organization, insist on equality in employment, sign employment contracts with employees according to the law and pay contributions to social security insurance programs; promote and establish of a sound pay and benefit system; protect employee privacy, take care of vulnerable groups, eliminate harassment, abuse and use of child labor, and prohibit forced labor in any form; conscientiously implement the policies on the employment of the disabled, ethnic minority employees, and demobilized servicemen. The Group met and surpassed the objectives for employment demobilized servicemen designated by the Ministry of Veterans Affairs in 2019. We underline democracy in management and transparency in corporate affairs, in a bid to ensure equal pay for male and female employees, and work to create a safe, healthy and comfortable working environment for employees.

An Outdoor Development Session for Employees from Taishan Fiberglass Inc.

Employee Quality Model of CNBM

Cultural Environment

Three-principle: Treat people kindly, deal with affairs indulgently, and work in a relaxed environment

Three-capacity: Centripetal force, affinity, and cohesion

Requirements for employment

Three-strict: Follow strict rules in self-cultivation, the use of right, and self-discipline

Three-practical: Work, start up business, and live practically

Five-feature: Learning capacity, market awareness, professional ethic, expertise, and high ideological level

Eight-focus: Focus on policies, overall situation, accountability, contribution, practical work, effectiveness, integrity and self-discipline

Standard of Conduct

Be reverent, grateful, humble and appropriate

Rule for Cadres

Behave meticulously, work meticulously, exercise power meticulously, make friends meticulously

Employee Cultivation

We attach importance to the cultivation of employees' qualities, encourage employees to "spend more time on study and concentrate more energy on work", and deliver various forms of training with internal training supplemented by external training and with invited instructors and internal instructors. We have created a unique three-level talent quality development model, and employees have two channels for promotion and career development. A scientific assessment and evaluation system has been established, and the results of evaluation are combined with the pay system, appointment, dismissal and transfer to create comprehensive mechanisms for motivation and career development of employees. In 2019, we have recommended candidates for various high-level scientific and technological designations with Peng Shou elected to the Chinese Academy of Engineering.

Researchers at National Key Laboratory of Green Building Materials

CASE Peng Shou Elected to the Chinese Academy of Engineering

On November 22, 2019, the *Chinese Academy of Engineering released the Results of Membership Election of the Chinese Academy of Engineering* in 2019. From the field of chemical engineering, metallurgy and engineering materials, Peng Shou, President of CNBM Bengbu Glass Industry Design & Research Institute Co., Ltd. and Director of the National Key Laboratory of New Float Glass Technology, was elected to the Chinese Academy of Engineering.

Peng Shou has been tracking the demand for new glass materials in China, established a technological innovation system for China's glass industry, and developed various types of new glass materials urgently required by the emerging industries in the country. Through innovation and research, he has developed "ultra-thin information display glass", realized stable industrial-scale production of the world's thinnest 0.12mm float ultra-thin touch glass and production of China's first float new generation TFT-LCD glass substrates with independent intellectual property rights, made breakthroughs in the key technology of "high quality float glass", and designed the world's largest glass furnace. The unique process of "one kiln, multiple lines" developed by him ended China's long-term dependence on imports. He and his team have developed and manufactured

Happy Tidbits

CNBM has adhered to the concept of people-first in promote the balance between work and life for employees, safeguard the legitimate rights and interests of female employees, and ensure that pregnant employees can enjoy prenatal examination, maternity leave, lactation leave, reimbursement under maternity insurance and maternity allowances. The Group frequently holds activities such as employee sports games, reading parties and art performances to effectively alleviate the stress in work and enhance the cohesion across the Group.

We also pay close attention to the life of employees with difficulties and disabilities. The Group have released and implemented the *Measures for Management of Employee Consolation, Care and Assistance*, and established mechanisms for employee consolation, care and assistance. The measures including the "Love Fund of and Mutual Assistance for Serious Diseases", the "Golden Autumn Student Assistance" program and the "Sunshine Employment Program" have deliha / 5 s aof a /Aclu " tgs

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"Belt and Road" Initiative

Construction Upgrading

By following the principle of "consultation, joint development and sharing", we have been steadily implementing the "six-one" layout of internationalization. We have made a remarkable contribution to the "Belt and Road" Initiative by bringing technology and equipment for manufacturing the most advanced green building materials which are energy saving and environment-friendly to countries along

Innovation Cooperation

We have created an ecosystem of innovation featuring "overseas industries + technology + services", established the OKORDER integrated service platform for cross-border e-commerce with the mode of "cross-border e-commerce + overseas warehousing", and built the intelligent industry service platform with the mode of "Internet + O&M services". We carry out a wide range of high-level, scientific and technological cooperation in various forms with universities, research institutes and government departments from countries along the "Belt and Road" and contribute to the development of these countries.

Nobel Laureate Sheldon Glashow Visits CNBM (Chengdu) Optoelectronic Materials Co., Ltd.

Joint platforms

Together with foreign partners, we have built international R&D platforms, such as the China-UK Joint Laboratory of Advanced Building Materials, the China-Egypt Joint National Laboratory of High Performance Glass Fiber and Composite Materials, the China-Ethiopia Laboratory of Materials Science and Technology Transfer Incubation Center, and the Kazakhstan Branch of Asia Cement and Concrete Research Institute to promote the exchange and cooperation related to talent, technology, capital, standards, patents and management experience of the new material industry.

Joint R&D

We encourage member enterprises engaged in the business of new materials to actively cooperate with overseas leading research institutes for jointly efforts in addressing technical problems. Zhongfu Lianzhong cooperates with a German company to have developed four types of wind turbine blades for low wind speed condition, two of which have been mass produced.

Sharing of resources

We organized top foreign experts to participate in academic workshops and international conferences held in China, and appointed well-known foreign professors and academicians as visiting professors to hold academic lectures on cutting-edge technologies around the world. Beijing Sinoma Synthetic Crystals Co., Ltd. has conducted technical exchanges with many foreign enterprises and research institutes in Sweden, Germany and Japan to drive research of the advanced nitride ceramic technology and development of the international cooperation base.

Community Development

Adhering to the concept of "being true, honest, altruistic and trustworthy", we strictly follow the principle of "contributing to local development, cooperating with local enterprises, and getting along with local residents". We are welcomed by local governments, enterprises and people around the world as we are builders of peace and friendship, actively fulfill the responsibilities as world citizens, strictly observe local laws and regulations, fully respect local religious beliefs and ethnic customs, actively integrate into the local culture and enthusiastically participate in public welfare undertakings. In Mongolia, we co-founded the China-Mongolia Foundation for Culture, Education and Social Development and have donated RMB 4.5 million, which have benefited more than 4,000 households in Mongolia. We also implement the "Warm Winter Program" to provide financial aid to local students of primary and secondary schools and consolations to local herdsmen.

CASE Happiness in Desert

Saudi Arabia is an ancient, traditional, rich and mysterious country located in the desert of the Arabian Peninsula. The YCC Waste Heat Power Generation Project in Saudi Arabia consists of the waste heat boilers, steam turbine generator sets, air coolers and 15 diesel generators and other auxiliary equipment for one 8,500 t/d cement production line and one 11,000 t/d cement production line. It is the largest waste heat power generation project in terms of unit installed capacity in the world so far, a representative project in the Middle East and the largest overseas export order of Sinoma Energy Conservation.

The waste heat power generation project is located by the Red Sea with a long coastline within the plant area. In the design stage for the project, the project department chose high standards for treatment of wastewater discharged in the process of waste heat power generation and provided an increased capacity for treating production and domestic wastewater. All production and domestic wastewater are treated and finally reused in production to realize zero discharge of wastewater. After the project is put into operation, the waste heat will be used to generate electricity of 250 million kWh per year while reducing carbon dioxide emissions by about 220,000 tons, equivalent to saving of more than 80,000 tons of standard coal.

In addition, to ensure the high-quality completion of the project, the members of the project team also solicited recommendations from various sources and kept communication with the owner comprehensively in connection with the project planning, technical scheme validation, basic design confirmation, construction drawing review, equipment manufacturing supervision, sea and land transportation, port handling, customs clearance, site subcontractor selection, safety management process, progress and quality monitoring in civil engineering and installation, system commissioning and complete set startup. All units produced electric power and connected to the power grid in a one-off manner. The project turns over a new leaf in the field of cement waste heat power generation in the world.

On December 3, 2019, the 7th Chinese Enterprise Global Image Summit sponsored by the China Foreign Languages Publishing Administration under the guidance of the Publicity Department of the CPC Central Committee and SASAC was held in Beijing. At the summit, Sinoma Energy Conservation won the award of "2019 Outstanding Cases of Chinese Enterprise Global Image Development --- Outstanding Performer of Social Responsibility" for its practices in the Saudi Arabian project.

YCC Waste Heat Power Generation Project in Saudi Arabia

Targeted Poverty Alleviation

We are fighting a battle with decisive significance for poverty alleviation. CNBM focuses poverty alleviation efforts on the "two no worries and three guarantees" and has constantly increased the funding and support by having invested RMB 383 million and implemented more than 400 projects for poverty alleviation on a cumulative basis. In 2019, CNBM launched the final battle against poverty in the designated counties/district (Shitai County of Anhui Province, a county severely stricken by poverty, Jingyuan County of Ningxia Region, and Zhaoyang District, Yongshan County and Suijiang County of Yunnan Province) encompassing the "six strategies" addressing the people's livelihood, development of industries, employment, health, education and e-commerce. With the help of the Group, Jingyuan County and Suijiang County passed the poverty alleviation assessment and acceptance in 2019 and have been removed from the list of poverty-stricken counties. The remaining three counties/districts are expected to get rid of poverty successfully in 2020. The Group was named "Model Non-Governmental Organization of Poverty Alleviation" by the municipal Party committee and municipal government of Guyuan.

55

cadres taking temporary positions for poverty alleviation in local communitini☒

CASE Successful Grid Connection of a Ground-mounted Photovoltaic Power Plant built by CNBM (Chengdu) Optoelectronic Materials Co., Ltd.

On September 30, 2019, the first ground-mounted CdTe glass cell power plant built by CNBM (Chengdu) Optoelectronic Materials Co., Ltd. in China was successfully connected to the power grid. It is a village-run photovoltaic power plant project for poverty alleviation in Chicheng County, Hebei Province.

In 2019, there were 1,725 registered impoverished households distributed in 45 villages in Chicheng County, which faced heavy and tough tasks of poverty alleviation. By following the principles of "the Party's leadership, the government as the leading player, the masses as the main force, targeted poverty alleviation, ecology protection, and adaptation to local conditions", CNBM (Chengdu) actively performs the social responsibility as a central enterprise, and has built three power plants with a total installed capacity of 12MW for poverty alleviation in Chicheng County. The power plants have increased the value and utilization of land in the rural areas and helped the local residents increase income and get rid of poverty.

The power plants are completely built with CdTe solar cells with the largest single size per cell in the world indigenously by CNBM (Chengdu). The CdTe solar cells are made by depositing a group of cadmium telluride, an advanced photoelectric functional material with stable chemical properties, between two pieces of ordinary glass. This method makes the glass conductive and capable of generating power, suitable for buildings integrating photovoltaic power generation, ground-mounted power plants, etc. As one of the most competitive technologies for energy conservation and environmental protection, CdTe solar cells not only facilitate the transformation of the building materials industry, but also can effectively reduce the building energy consumption in China. It is of great significance in terms of energy conservation, emission reduction and energy structure transformation, and is a typical example of innovative technology driving the supply-side structural reform.

After the village-run PV power plants for poverty alleviation are built in Chicheng County, they will supply affordable electric power for the local impoverished residents, assist 1,725 poor households to increase income, and generate RMB 3000 of "sunshine bank savings" per household every year. The technological innovation has contributed to income increase of poor households and victory of the decisive battle against poverty.

Targeted industrial development

The Group is helping develop planting, storage and deep processing of apple and kiwi fruit trees in one district and two counties of Zhaotong, build the "Zhaotonghong" brand of plateau apples, and execute projects for systematic development of Yunnan Embroidery, which is called an "industry on fingertips", to assist local women to gain skills for increasing income and self-development ability. In Shitai County, Anhui Province, the Group has invested RMB 9.67 million to build a poverty alleviation workshop project called "Migrant Workers Enterprise Park", and more than RMB 4 million to conduct exploration of geothermal resources, laying a foundation for industrial development. Gansu Qilianshan Cement has invested RMB 1.389 billion to build two cement production lines in Tibet, with an annual capacity of 2.4 million tons of clinker after completion, which will effectively fill the gap of cement supply in Tibet.

E f orts for improving livelihood

In Jingyuan County of Ningxia, the Group has invested more than RMB 10 million to build Yangling Village into a model project and exquisite project of "beautiful village construction" for poverty alleviation integrating health care facilities, village history museum, farmhouse restaurants and hotels, and tourist trails.

Stable jobs and income increase

Relying on the enterprises around designated counties/districts for poverty alleviation, efforts have been ensure the whole family gets out of poverty after one family member gets employed. Special job fairs for poverty alleviation were held in Yongshan County, Yunnan and Shitai County, Anhui. A total of 177 employees were recruited, including 101 from registered impoverished households. The enterprises also offer technical posts with relatively high income such as "excavator operator", "loader operator", "blaster" and "rock drill worker" with preferential recruitment conditions, so the poor candidates with low education background and zero skills can also apply for the jobs.

Medical assistance for better health

A team of 73 medical experts was set up to carry out volunteer activities. They have provided free medical treatment to a total of 2,550 patients, held 6 medical lectures attended by more than 1,300 people, set up 12 expert workstations in local hospitals with nearly 1,240 trainees, who constitute a medical force that will never leave.

Education empowering the future

To provide intelligence support for the efforts of poverty alleviation, the Group has organized various kinds of training at all levels for 1,359 participants, sowing the seeds for prosperity for the local people. "CNBM Shanjian Colorful Classrooms" have been held in four counties and one district with 13 teaching points covering more than 520 children. We have invested RMB 5.5 million in Jingyuan County of Ningxia to build 48 CNBM Smart Cloud Classrooms for building a modern education system with connectivity to high-quality education.

E-commerce setting up a golden bridge

We attach great importance to e-commerce in poverty alleviation for accurately driving the development of rural industries. Since its launch, the "Hebaodan" platform has sold agricultural products worth more than RMB 24 million from the four counties and one district, and all the proceeds from the sales have gone to the cooperatives with both social and economic benefits. We have also worked with benlai.com to sell Songluo tea from Shitai County of Anhui Province and wild apples from Zhaotong of Yunnan Province with a sales amount of RMB 1,952,300.

Warm charitable deeds

Relying on the "Shanjian Public Welfare Fund", the Group has successfully created platforms for poverty alleviation and charity activities. Party members, cadres and employees of the Group actively respond to the call, and carried out more than 10 "Party building + poverty alleviation" theme activities in each designated county for poverty alleviation, and donated nearly one million yuan of money and articles. On the 6th China Poverty Alleviation Day in 2019, the Group called for donation by the cadres and employees, who enthusiastically responded. A total amount of RMB 5,923,000 was raised with donations from 87,703 people.

To further execute poverty alleviation efforts by the youth, promote positiveness among the youth, and support the Group's decisive battle against poverty in the designated counties, the Group successfully held "CBNM Shanjian Colorful Classrooms" on August 1 through 5, 2019, relying on the platform of "CBNM Shanjian Public Welfare Fund" in collaboration with the five designated counties for poverty alleviation. During the activities, free love schoolbags were delivered to the children together with the care and company of the CNBM people.

13 teaching points were set up, covering more than 520 children. More than 80 volunteers from the Group's headquarters and 16

Value of Responsibility

Concept of Responsibility

We closely track the requirements of stakeholders, adhere to the core concept of "efficient use of resources to serve the construction", and take "innovation, performance, harmony and responsibility" as our core values. In the course of development, we pay attention to the appropriate combination of technological innovation and management innovation, and pursue win-win coordination among the market, environment and society. We insist on harmony with competitors, employees, the nature and the society, and perform the social responsibility in terms of market performance, technological innovation, energy conservation and environmental protection, employee care, and corporate citizenship in practice.

Model of CNBM Social Responsibilities

Selection of Topics

Taking into account the current situation of social responsibility development and the characteristics of the Group's operation, we have defined the five responsibility frameworks of "market performance, scientific and technological innovation, energy conservation and environmental protection, employee care, and corporate citizenship". Finally, we have determined the annual core topics of corporate social responsibility from the list of substantive candidate topics.

1 Overseas Community Co-construction
2 Information Disclosure
3 Community Integration
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20 Employee Rights and Interests
21 Green Services
22 Responsible Supply
23 Concept of Responsibility
24 Green Products
25 Cultivation of Innovative Talents
26 Environmental Management
27 Employee Cultivation
28 Supply Chain Management
29 Corporate Governance System
30 Risk Management and Control
31 Green Production
32 Strengthening Party Building and Anti-corruption
33 Innovation Management
34 Safe Operation
35 Governing Enterprises by Law
36 High-quality Development
37 Quality Management
38 Credit Business

Social Responsibility Planning 2018-2020

Value of Responsibility

Deepening the concept of responsibility

Deepening the integration of responsibility and business management

Deepening the mechanism for employee responsibility fulfillment

Responsibility Management

Strengthening the top-level design of social responsibility

Improving the organizational system of social responsibility management

Strengthening the training of social responsibility talents

Improving the performance evaluation of social responsibility

Responsibility Communication

Strengthening communication with stakeholders

Creating an important and sustainable responsible brand

Developing rich responsibility theme activities

Creating a normalized responsibility communication platform with stakeholders

Responsibility Sharing

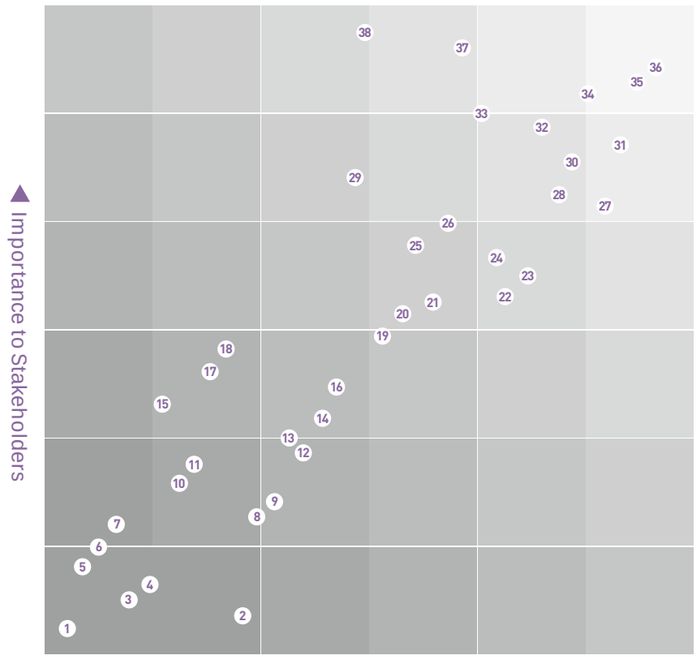
Enriching the social responsibility management platform

Developing social responsibility benchmarking

Strengthening research on responsibilities

Strengthening external publicity

Promoting the CSR report preparation of member enterprises



Responsibility Management

Encompassing the strategic vision of "striving to become a world-class industrial investment group with global competitiveness", we actively improve sustainable development management and drive high-quality development by relying on all-round innovation in technology, business models, management and institutions comprehensively.

Data Review 2019

35,839
hours of social responsibility-related training for employees

3,258
sessions of social responsibility events organized or participated

643
sessions of social responsibility assessments or evaluations

Organizational Structure

Establish a social responsibility work promotion leading group as the top leading body headed by the chairman of the board of directors to lead and promote the social responsibility work of the Group

Based on the headquarters functional organization for social responsibility management, guide and promote member enterprises to strengthen social responsibility management and actively implement the practice of fulfilling their social responsibilities

With member enterprises at all levels as nodes, and in accordance with the unified requirements of headquarters, clarify the functional departments and managers, and actively implement the practice of fulfilling responsibilities. By the end of 2019, 341 member enterprises have set up their social responsibility management organizations and had 1,521 full-time and part-time employees for social responsibility management.

Ability Improvement

Prepare and issue the *Corporate Social Responsibility Reports in China for Nonmetal Mineral Products (CASS-CSR 4.0)* jointly with the Chinese Academy of Social Sciences

Take the CNBM "Shanjian Public Welfare" Fund as an important platform to create a brand of social responsibility

Keep stable operation of the "CNBM Social Responsibility Management Information System" and achieve online management of personnel and information

Establish an index system of the Group social responsibility with 369 indicators in all to ensure the integrity of social responsibility reporting

Strengthen pilot demonstrations, promote corporate accountability practices and participate in various training courses, such as China Social Responsibility 100 Forum

Performance Evaluation

Prepare and publish annual social responsibility reports, publish performance trends on website columns from time to time, establish an information disclosure system and build an effective communication platform

Participate in external performance evaluation, implement comprehensive evaluation and benchmarking in reporting quality, accountability performance and responsibility management, learn from each other's strengths and make up for each other's weaknesses for continuous improvement

Promote the integration of social responsibility and Group operation management, and form a "six-star enterprise" evaluation system

Continuous Improvement

Give full play to the resources of the think tank of internal management experts to guarantee the applicability and operability of the substantiality and mechanism of social responsibility management

Establish cooperative relations with professional organizations, grasp the development trends of social responsibility at home and abroad, and ensure the professionalism and compliance of the Group's social responsibility management system

Enable the extroverted responsibility management, such as brand responsibility activities, deep responsibility communication and theme responsibility publicity, so that the influence of responsibility is increased gradually

Continuously improve the member enterprises' CSR report publishing rate and quality, and promote the systematization and normalization of CSR performance

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Responsibility Sharing

Facilities of Sinoma Cement (Luoding) Co., Ltd under the Sunglow

Data Review 2019

41,162
suppliers were evaluated and reviewed

19,300
suppliers with long-term cooperation with CNBM passed environmental management system certification

286
suppliers were removed from our list due to noncompliance with corporate social responsibility

398
potential suppliers were rejected due to noncompliance with corporate social responsibility

Guided by Responsibility

As a permanent member of the UN Global Compact and the World Cement Sustainable Development Initiative (CSI), we have promoted the dissemination of the concept of global responsibility and its implementation through more diversified and internationalized platforms.

We recognize and abide by the "Ten Principles of the Global Compact" and actively contribute to the achievement of the sustainable development goals of the United Nations; actively participate in social responsibility sharing and initiative activities in different fields, participate in launching China Social Responsibility 100 Forum and rely on China Federation of Industrial Economics, China Building Material Federation, China Building Materials News and other platforms to disseminate ideas, share experiences and launch initiatives, and work with stakeholders to seek better ways of sustainable development.

Driving Development of Supply Chain

We work to enhance the access system for supplier management for fully guaranteeing the equal rights and interests of small and medium-sized suppliers; incorporate social responsibility into the supplier evaluation system to urge suppliers to continuously improve their product quality; supervise and promote suppliers to pay attention to employees' physical and mental health; deeply integrate the concept of responsibility into supplier evaluation, product design, strategic cooperation mechanism and other processes to guide the performance of responsibilities in the supply chain; build "YANGCAITONG", a professional distribution supply chain service platform for building materials, which helps realize the transformation and innovation from offline to online operations, Internet+ project distribution and supply chain finance. Moreover, we adhere to transparent procurement and make every effort to eliminate commercial bribery by promoting the integration of regional procurement and bidding, standardization of the bidding process, transparency of the bidding performance and informatization of the bidding management. We implement localized procurement of bulk raw materials to reduce transportation costs. In 2019, China United Cement, Sinoma Cement and Qilianshan Cement saved more than RMB 200 million through centralized procurement of materials on-line in collaboration with Alibaba. 100% cement dealers now deliver orders online to Southwest Cement, and Ningxia Building Materials has e-commerce applications covering all of its all business lines.

Responsible Supply

We insist on fair dealing, attach great importance to quality management, integrate quality management into the whole process from raw materials entry to products delivery, and fully promote the construction and certification of quality management standard systems. We have set up a pre-sales consultation, in-sales reception and after-sales service system to respond to and deal with customers' complaints and inquiries at the first time, so as to improve customer satisfaction; we have built a professional customer service team, able to provide professional technical training for dealers on a regular basis and organize customer training meetings to carry out product promotion and offer customers the basic knowledge of green building materials, the considerations in building materials selection and use, and the knowledge of product anti-counterfeiting. Moreover, we have been always paying attention to protecting the privacy of customers and implementing a strict confidentiality system for customers' personal data. At the same time, we have established modern logistics parks for rational planning of supply and marketing as well as logistics schemes, reducing resource occupation and ultimately improving sales efficiency. In addition, we have built an Internet sales platform, providing worldwide online trading services for building materials products to reduce carbon emissions related to customers and sales representatives during business travel.

A Complete Package of Equipment for Float Glass Production Line

Honor of Responsibility

Data Review 2019

742

manufacturing member enterprises have passed quality standard system certification

Product knowledge popularization and customer training were delivered to

110,310

participants from customers

100%

of main business products were found acceptable in national sampling inspection

99.5%

customer complaints were solved

252.3

million tons of bulk cement was sold

130,148

person-sessions received training delivered for suppliers in fields of safety, energy, laws, etc.

Implemented responsible procurement of RMB

266.5

billion

The study of "Industrial Expansion of a Large Scale Building Materials Enterprise Group Led by Technological Innovation" won a first prize of National Innovation Achievements for Enterprise Management Modernization

The Group won the awards of "Enterprise of Outstanding Performance", "Enterprise with Outstanding Contribution to Technological Innovation" and "Enterprise with Outstanding Contribution to Energy Conservation and Emission Reduction" for the term of 2016-2018

CNBM is ranked 5th among the Top 10 State-Owned Enterprises of Corporate Social Responsibility Index, 7th among the Top 300 Chinese enterprises, and among the "Outstanding Performers of Corporate Social Responsibility" for seven consecutive years

CNBM won the title of Enterprise with Outstanding Contribution to Social Responsibility in 2019

CNBM won the "Golden Bee Award of 2019 Excellent Corporate Social Responsibility Reports • Leader Enterprise Award" for the fifth time

CNBM was ranked eighth among the "Top 500 Chinese Enterprise of Credit" and fourth among the "Top 100 Chinese Manufacturing Enterprise of Credit" at the China Enterprise Credit Development Forum 2019 and the 10th Integrity Public Welfare Ceremony jointly held by the China Enterprise Reform and Development Society and the China Cooperative Trade Enterprises Association

It was ranked 51st among the Top 500 Chinese Enterprises, 15th among China's Top 500 Manufacturing Enterprises and 62nd among China's Top 100 Multinational Companies in 2019

61 achievements were awarded the "2018 National Achievement Awards for Management Modernization Innovation by Building Materials Enterprises", and 33 individuals were named "2018 National Outstanding Persons with Contribution to Management Modernization Innovation by Building Material Enterprises"

The Group won the six awards including the fifth "State-Owned Enterprises News Special Award", "Radio and Television Work Award", "Excellent Work Award"

In 2019, the Group successfully entered the list of "China's 100 Models of Brands Contributing to National Power Ceremony"

China National Building Material Company Limited has been awarded the title of "Excellent Issuer of Corporate Bonds" by Shanghai Stock Exchange for three consecutive year

BNBM won the highest award in the field of quality management in China - "National Quality Award", and became the only enterprise in the field of building materials in China that has all the three top awards in terms of industry and quality

BNBM was awarded the only "Outstanding Contribution Award of Global Gypsum Industry" at the 19th Global Gypsum Conference

The "Longpai" brand of BNBM won the title of "China Brand Annual Award No.1" of 2019

China Building Materials Academy and some other member enterpises won the title of "Top 100 Enterprise in Building Materials Service Industry in China", Triumph Group and some other member enterpises won the title of "Top 100 Building Materials Enterprises with Potential of Growth in China", and BNBM won the title of "Harmonious Building Materials Enterprise"

The BAYAH cement project in Indonesia and the GOE cement project in Egypt undertaken by CMBI Construction won the "Luban Award for China Construction Projects (Overseas Project) in 2018-2019"

China Jushi won the "Sustainable Growth Award" and "Technological Innovation Award" at the "2019 High Quality Development Forum of Shanghai Stock Exchange Listed Companies and the "Gold Quality" awards ceremony hosted by Shanghai Securities News

The "Study and Practice of the 'Five-Cattle' Spirit to Provide Political Assurance for High-Quality Development of State-Owned Enterprises" conducted by Bengbu Glass Industry Design and Research Institute won a first prize of "Excellent Achievements in Reform and Development of Chinese Enterprises"

China National Building Material Engineering won the titles of "National Enterprise with Intellectual Property Advantages in 2019", "Best Practice of Enterprise Achieving Sustainable Development Goals in 2019" and "Pilot Demonstration Enterprise of Integrated Development of Building Material Manufacturing Industry and the Internet in 2019". It also won the "Good Story Award about Chinese Enterprises", "Friendship Envoy Award" and "Excellent Works Award" at the first Competition of Short Video in 100 Countries along the "Belt and Road".

CTC Group won the title of "2019 Golden Horse Award of China's Securities Market • Pioneer Responsible for Rewarding Investors"

Sinoma Energy Conservation Limited won the award of "2019 Excellent Case of Overseas Image Building of Chinese Enterprises" and the "Excellent Social Responsibility Award"

CNBM
Fights for Love

Daring to fight till we win is a persistent spirit and distinct quality of the CNBM people. Novel coronavirus, an unprecedented virus, broke out in early 2020, and the war for prevention and control of the pandemic was quickly launched. This was a test facing every Chinese people and requiring their participation. Since the outbreak of the epidemic, CNBM --- the world's largest comprehensive building materials industry group and a leading new materials developer and comprehensive service provider --- has strictly implemented the spirit of the instructions from the CPC Central Committee and the State Council, expedited the delivery of quality building materials and services to the front line against the disease while impose strict prevention and control measures within

The Glass Institute of the China Building Materials Academy immediately organized employees living in Beijing to resume production and work overtime to produce infrared lenses. By the end of April, it had delivered 800 sets of high-precision infrared lenses to the front line in cities such as Guangzhou, Chengdu and Wuhan for epidemic screening.

Nanjing Fiberglass Research & Design Institute Membrane Material Co., Ltd. urgently delivered dozens of tons of high-efficiency glass fiber filter paper to the first line fighting against the epidemic. The filter paper is able to filter 99.97% of particles with a size of 0.3 micrometers or larger. It was widely used in the Leishenshan Hospital and the Huoshenshan Hospital in Wuhan and other projects, having considerably mitigated the risk of virus transmission and played a key role in the epidemic prevention and control.

Production Project of Neutral Borosilicate Glass of Triumph Junheng Co., Ltd.

Triumph Junheng Co., Ltd. urgently produced a batch of raw materials for 5.0 neutral borosilicate glass tubes, and collaborated with domestic bottle makers to provide 10 million free glass bottles to the research institutes studying vaccine for the novel coronavirus.

The ceramic flat membranes and equipment indigenously developed and produced by **Shandong Industrial Ceramic Research & Design Institute** are able to intercept and treat various particles, colloids and microorganisms larger than more than 30 nanometers, and widely used in the drainage treatment of medical wastewater, municipal sewage, industrial wastewater and other fields...

CNBM Volunteers Fighting against the Epidemic

> In the campaign against the epidemic, China National Building Material Group has actively taken the political and social responsibility, and the member enterprises of the Group and their employees have taken the initiative supporting our efforts. Among them, many volunteered and defied the difficulties and served as examples of our image of being responsible, courageous and humane.
>
> ——Zhou Yuxian, Party Committee Secretary and Chairman of CNBM

To support Wuhan City in fighting against the epidemic after its "lockdown", various goods were shipped from all over the country continuously, so how to transfer these goods to designated places though the "last kilometer" became a key problem. Teams of CNBM embodied the dedication spirit of the Group as a responsible central enterprise with actions by taking the risk of being infected with the fearless courage.

Zhang Yuan, an employee of Sinoma Energy Conservation then staying in Wuhan, immediately applied for joining the "Team of Youth Volunteers for Epidemic Prevention and Control in Wuhan City", and persuaded his wife to join him. They managed to deliver goods to the Hankou Hospital and other locations in Wuhan.

Shan Mingzhou, an employee of China National Geological Exploration Center of Building Materials Industry Contingent in Hubei, joined the volunteer organization of the Changyuanli Community, Hanxing Sub-District, which is separated by just a street from the Huanan Seafood Market, where the first cases of novel coronavirus were reported. He worked actively to meet the needs of residents of the community.

Xiong Siqing and Cui Peng from Wuhan Building Material Industry Design & Research Institute actively participated in the investigation and statistics collection of residents at home and their health conditions, give away free masks to residents and property management firms, and contact food suppliers for group purchases, which were highly recognized by their communities.

Gao Minjie, from CTC Group Suzhou, volunteered to work at the medical observation station for novel coronavirus pneumonia infection at Sujin, Gusu District, Suzhou. He said that as a Party member, he should stand out at such a moment as a pioneer and example and do what he can for the prevention and control of the epidemic.

Party members Bai Feng, Yang Yandong and Qikang of Buerjin Tianshan Cement worked with community cadres in health registration and purchase of necessities for the residents. Yue Zhonghong, a first-line employee, joined the community's "epidemic prevention team" to disinfect the buildings on time every day. Wunierlbike patrolled by the road leading to the entrance of his village.

Wang Jiawei, an employee of the Guanzhuang Dongli Hospital of China Building Materials Academy, actively applied for working at the front line of disease screening, performing the duties of a physician.

Jiang Bo, a young employee of South Cement Quzhou, organized his colleagues to assist the government officials on duty on expressways in Jiangshan. They sent ginger soup and fruit to more than 700 Party members and volunteers on duty at check points in 15 communities and more than 200 villages.

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Resumption of Work and Production to Ensure Supply for Related Industries

> Our resumption of work and production has not only stabilized our own business and workforce, but also maintained orderly operation of the production chain of China's building materials industry, and positively contributed to the stability of the global industrial chain and supply chain of building materials.
>
> ——Zhou Yuxian, Party Committee Secretary and Chairman of CNBM

Our economic society is a dynamic cycling system, which cannot be stopped for a long time. In line with the instructions of the CPC Central Committee and the State Council, CNBM made meticulous and detailed arrangements for facilitating the resumption of work and production while keeping in mind our responsibility for the country, people, employees and shareholders. During the Spring Festival alone, more than 180 enterprises maintained production with more than 35,000 employees working on the first line.

Cement: Cement enterprises that treat domestic and medical waste made all possible efforts to resume work and production as required by the local governments, while other cement enterprises decided the time for resumption production depending on the market supply and demand, evasion of peak production, and other factors.

New materials: Enterprises producing products helping combat the epidemic already resumed production during the Spring Festival holiday and reached full production capacity after the festival to ensure supply. Enterprises producing new-type glass such as electronic glass, photovoltaic glass and display modules maintained production continuously with record highs of outputs and yield rates. China Jushi, a fiberglass maker, sent dedicated buses to collect employees and safely transported them back to work across several provinces. The wind turbine blade enterprises successfully completed this year's first export order to Japan. In the fields of carbon fiber, lithium membrane, ceramics, refractory materials, etc., the enterprises participating in major national projects executed their work as scheduled and delivery key products on time.

Engineering and technical services: The first batch of high-performance optical fiber image inverters, anti-glare window glass and other products were shipped, realizing smooth startup of production and operation. Nearly 200 overseas projects of cement, glass, photovoltaic, energy conservation and other engineering and construction works progressed smoothly. Four new contracts were signed for overseas cement, gypsum board, photovoltaic, housing and other construction projects, and two new contracts were signed for overseas equipment supply. Several other projects successfully started operation or production.

Future Prospects

2020 is the last year of the plan for building a well-off society in an all-round way and of the 13th Five-Year Plan. It is also a critical year to achievement of the first of the "Two Centenary Goals" and laying a sound foundation for the 14th Five-Year Plan and achievement of the second of the "Two Centenary Goals". CNBM will stay confident in its pathway with firm goals and resolved to perform its responsibility with unbeatable courage, sense of responsibility, hard work and perseverance. We will keep materializing our glory and dreams in building a world-class industrial investment group with global competitiveness and developing from being big to being great.

We always adhere to innovation-driven development, carrying out all-round innovation in technology, business models, management and institutions comprehensively to provide strong support for the high-quality development, and promote rational division of work of the innovation chain, complementary advantages of the industrial chain and co-construction and sharing of the value chain.

We continue to empower development through reform, take the opportunity of reform of state-owned capital investment companies to actively adjust strategic positioning, optimize the management and control models, accelerate resource integration, deepen the mechanism reform, and continuously demonstrate the benefits of the deepening reform, and find a new duplicable way for healthy development of state-owned enterprises.

We shall insist on facilitating development by internationalization, tackle dia_

Appendix Responsibility Performance

Market Performance

Fortune Top 500 Building Material Enterprises in 2019

Ranking in 2019	Company Name	Revenues in 2019 (USD million)	Country
203	CNBM	52610.6	China
226	Saint-Gobain	49300.4	France
397	CRH	31625.0	Ireland
447	Lafargeholcim	28088.8	Switzerland

Data Source: www.fortunechina.com

Total Revenues and Profits of Enterprises above Scale in China Building Materials

Unit: RMB 100 million

Data Source: China Building Material Quantity Economic Supervision Society

Production of Cement from 2010 to 2019

Unit: 100 million tons

Year	CNBM	China	Global
2019	3.7	23.3	42.0
2018	3.4	22.1	39.5
2017	3.4	23.2	41.0
2016	3.2	24.0	42.0
2015	2.4	23.5	41.0
2014	2.5	24.8	41.8
2013	2.4	24.2	40.0
2012	2.7	21.8	38.0
2011	1.9	20.1	36.0
2010	1.7	18.8	33.1

Total Revenues and Profits from 2010 to 2019

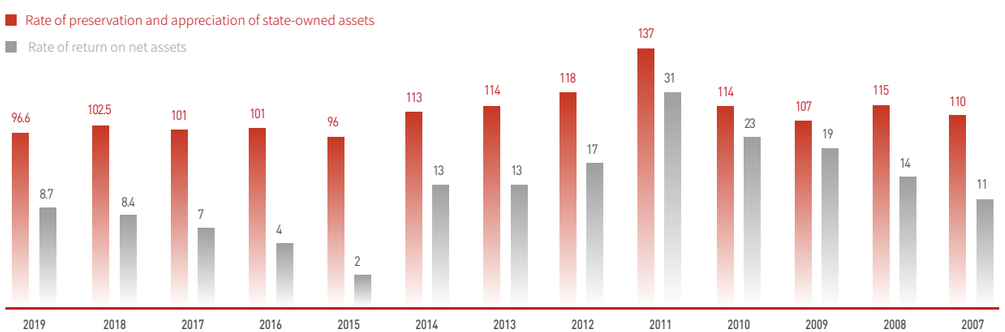
Unit: RMB 100 million

Year	Revenues	Profits
2019	3981.0	235.2
2018	3480.0	206.6
2017	3021.2	151.1
2016	2612.3	75.8
2015	1992.5	38.4
2014	2504.3	130.1
2013	2522.6	115.1
2012	2174.3	111.6
2011	1940.9	158.5
2010	1353.6	75.6

Data sources: National Bureau of Statistics, U.S. Geological Survey

Rate of Preservation and Appreciation of State-owned Assets and Rate of Return on Net Assets from 2007 to 2019

Unit : %



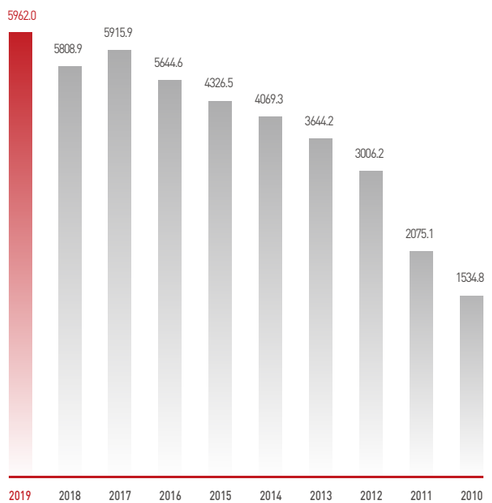
Performance of Listed Companies in 2019

Unit: RMB

Stock name	Stock exchange	Stock code	Dividends per share	Earnings per share
CNBM	Hong Kong Exchanges and Clearing	3323.HK	0.3500	1.3010
BNBM	Shenzhen Stock Exchange	000786.SZ	0.0820	0.2610
China Jushi	Shanghai Stock Exchange	600176.SH	0.1930	0.6078
Sinoma International	Shanghai Stock Exchange	600970.SH	0.3010	0.9200
Tianshan Cement	Shenzhen Stock Exchange	000877.SZ	0.5100	1.5598
Ningxia Building Materials	Shanghai Stock Exchange	600449.SH	0.5100	1.6100
Qilianshan Cement	Shanghai Stock Exchange	600720.SH	0.5800	1.5890
Sinoma Tech	Shenzhen Stock Exchange	002080.SZ	—	0.8223
Triumph Science & Technology	Shanghai Stock Exchange	600552.SH	—	2.2900
Sinoma Energy Conservation	Shanghai Stock Exchange	603126.SH	0.0700	0.2016
Luoyang Glass	Shanghai Stock Exchange	600876.SH	—	0.1000
Luoyang Glass Company Limited	Hong Kong Exchanges and Clearing	1108.HK	—	0.0965
Ruitai Technology	Shenzhen Stock Exchange	002066.SZ	—	0.1110
CTC	Shanghai Stock Exchange	603060.SH	2.0300	0.6765

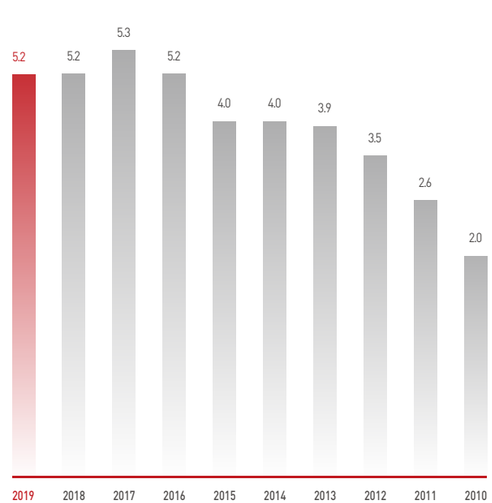
Total Assets from 2010 to 2019

Unit: RMB 100 million



Cement Capacity from 2010 to 2019

Unit: 100 million tons



Technological Innovation

Science and Technology Awards at or above the Provincial and Ministerial Level from 2010 to 2019

Unit: Item

Year	Awards at or above the provincial and ministerial level	National Science and Technology Progress Awards	Technology Innovation Awards
2019	166	3	0
2018	231	1	73
2017	197	2	66
2016	173	2	82
2015	123	0	48
2014	117	1	48
2013	145	1	54
2012	152	0	89
2011	132	2	46
2010	63	0	17

Standards – CNBM Presiding over and Participating in Compilation or Revision from 2010 to 2019

Unit: Item

Year	Total Standards	International	National	Industrial
2019	88	0	52	36
2018	167	4	90	73
2017	122	4	90	28
2016	91	2	57	32
2015	62	2	36	24
2014	104	3	35	66
2013	59	1	8	50
2012	22	1	5	16
2011	28	1	15	12
2010	79	0	30	49

Annual Patent Application and Authorization from 2010 to 2019

Unit: Item

Year	New patent applications	Invention patents	Patents newly authorized	Invention patents
2019	3308	1638	1804	478
2018	2287	1056	1571	385
2017	2144	1039	1524	428
2016	2156	880	1793	455
2015	1568	566	1492	193
2014	1571	531	1381	106
2013	1262	373	848	128
2012	766	228	729	143
2011	630	170	487	80
2010	514	173	420	54

Accumulative Patents from 2010 to 2019

Unit: Item

Year	Accumulative patents	Invention patents
2019	12124	3164
2018	10967	2765
2017	10024	2403
2016	8408	1913
2015	5663	900
2014	4255	687
2013	3231	589
2012	2549	448
2011	1606	288
2010	1232	227

Expenditure on Scientific Research Activities from 2010 to 2019

Unit: RMB 100 million

Year	Expenditure on scientific and technological activities	Expenditure on research and test development
2019	113.3	95.9
2018	95.4	81.9
2017	77.3	59.3
2016	66.3	51.2
2015	50.6	40.9
2014	57.7	41.6
2013	54.9	36.2
2012	49.7	33.4
2011	46.7	31.6
2010	28.2	20.7

Revenues from Scientific and Technological Innovation from 2010 to 2019

Unit: RMB 100 million

Year	Revenues from scientific and technological innovation	New product sales revenues
2019	28.4	577.6
2018	30.1	555.9
2017	16.6	468.5
2016	15.7	339.0
2015	11.5	256.5
2014	8.8	289.9
2013	10.3	259.4
2012	9.4	248.4
2011	11.0	240.3
2010	14.1	158.4

Energy Conservation and Environmental Protection

Comprehensive Energy Consumption per RMB 10,000 Output Value from 2010 to 2019

SO2 and COD Emissions per RMB 10,000 Output Value from 2010 to 2019

Comprehensive Energy Consumption per Ton of Cement from 2010 to 2019

Nitrogen Oxide Emissions per Ton of Cement Clic A 10 on of f

Performance of Solid Waste Disposal and Utilization from 2010 to 2019

Performance in Utilization of Water Resources and Waste Heat Resources from 2011 to 2019

Employee Care

Employee Profile from 2010 to 2019

Unit: Person

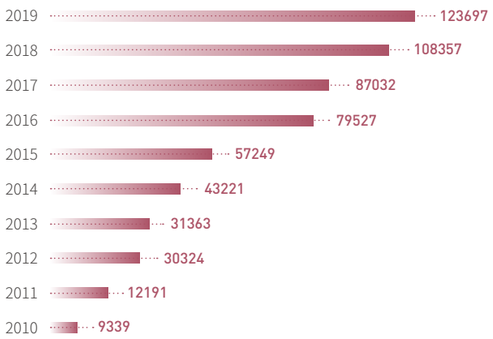
Year	Total number of employees	Foreign, Hong Kong, Macao and Taiwan employees	Ethnic minority employees	Disabled employees	Proportion of female employees in management
2019	204763	483	5808	1729	16.2%
2018	208680	1059	5167	1697	18.7%
2017	221421	750	5985	1732	18.4%
2016	234511	1126	5964	1875	18.3%
2015	176610	841	3521	1449	17.2%
2014	176854	892	3120	2263	18.4%
2013	179421	1234	3031	1685	18.1%
2012	165652	1190	2706	1620	13.5%
2011	126385	594	3516	1023	11.6%
2010	112676	397	1566	599	24.0%

Progress of Enterprise Annuity from 2010 to 2019

Year	Number of member enterprises participating in enterprise annuity (entity)	Number of employees participating in enterprise annuity (person)
2019	207	56174
2018	100	35644
2017	74	24093
2016	71	22871
2015	68	22165
2014	67	21750
2013	67	21131
2012	66	20392
2011	53	13368
2010	38	12811

Occupational Health and Safety Investment from 2010 to 2019

Unit: RMB 10,000



Employment Contract and Social Security Coverage and Labor Union Membership from 2010 to 2019

Unit: %

Year	Coverage of employment contracts	Coverage of social security	Proportion of employees with labor union membership
2019	100	92	78
2018	100	90	78
2017	100	98	92
2016	100	98	91
2015	100	98	91
2014	93	88	70
2013	96	92	75
2012	96	92	80
2011	94	91	73
2010	88	87	——

Employee Training Performance from 2011 to 2019

Year	Training programs organized and participated (session)	Employees' training participation (10,000 hours)	Employees' on-the-job academic degrees obtained (case)
2019	107787	137	1679
2018	75187	485	1424
2017	52676	112	2251
2016	47554	331	3028
2015	32672	133	2882
2014	43352	91	3520
2013	37491	164	2387
2012	21028	126	1138
2011	11975	108	1580

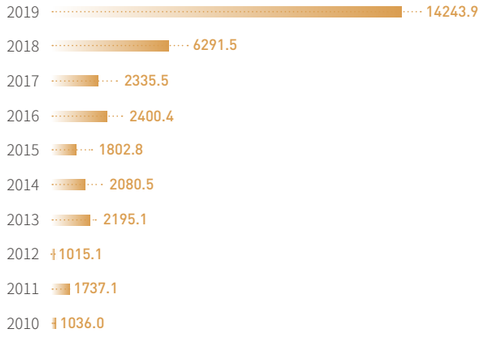
Workplace Safety Performance from 2010 to 2019

Year	DIFR recorded per 1,000 employees (%)	New case of occupational diseases (case)
2019	0.4	1
2018	0.5	1
2017	0.5	2
2016	0.5	0
2015	0.9	3
2014	1.3	2
2013	1.6	1
2012	2.3	3
2011	1.4	19
2010	1.5	24

Corporate Citizenship

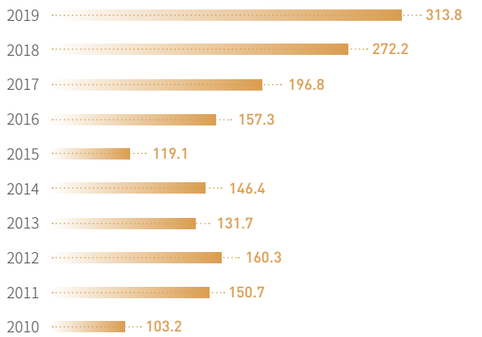
Social Public Welfare Expenditure from 2010 to 2019

Unit: RMB 10,000



Payment of Taxes from 2010 to 2019

Unit: RMB 100 million

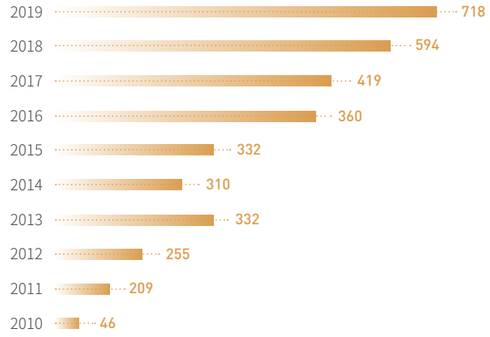


Assistance of Students from 2011 to 2019

Year	Special scholarships established (item) scholarships established (item)	Total scholarship provided (RMB 10,000)	Number of students awarded or subsidized (person)	Internship bases established (base)	Undergraduate posts provided (person day)
2019	22	113	284	132	52689
2018	18	73	188	118	45464
2017	14	72	155	163	31519
2016	8	37	266	134	34030
2015	8	36	159	47	26586
2014	31	53	227	97	28619
2013	18	112	506	119	36530
2012	20	136	466	98	17815
2011	27	——	727	——	——

Number of Supported Social Welfare Projects from 2010 to 2019

Unit: Item



Performance in Employment Assurance from 2011 to 2019

Unit: Person

Year	Number of new employees	Current year's graduates	Military personnel transferred to civil work
2019	27763	3890	22
2018	26553	3626	141
2017	29612	4727	139
2016	22342	3129	23
2015	16929	2473	10
2014	23617	3848	46
2013	16081	4383	158
2012	15901	3743	521
2011	21182	4276	241

Volunteer Activity Organization from 2011 to 2019

Year	Volunteer groups established (group)	Input in volunteer support (RMB 10,000)	Number of staf volunteers (person)	Volunteer service provided (hour)
2019	213	2219	10343	40192
2018	189	126	6853	44445
2017	335	363	5334	25164
2016	112	344	5646	28157
2015	56	191	2187	14840
2014	65	145	3400	9418
2013	109	145	4864	10681
2012	67	91	3337	39778
2011	——	——	——	10618

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Feedback

Dear Readers:

Thank you very much for your attention and support to the social responsibility work of China National Building Material Group Co., Ltd. Please kindly fill in the following questionnaire. We'll continue to improve in the future according to your comments and suggestions.

Your comments on China National Building Material Group Co., Ltd. Sustainability Report as follows:

Overall evaluation: ☐ Very good ☐ Good ☐ General ☐ Not good ☐ Rather poor

Richness in contents: ☐ Very good ☐ Good ☐ General ☐ Poor ☐ Rather poor

Page suitability: ☐ Very good ☐ Good ☐ General ☐ Poor ☐ Rather poor

Design: ☐ Very good ☐ Good ☐ General ☐ Poor ☐ Rather poor

Language friendliness: ☐ Very good ☐ Good ☐ General ☐ Poor ☐ Rather poor

In your opinion, what are the most essential elements for China National Building Material Group Co., Ltd. to perform its social responsibility:

☐ Operating Performance ☐ Scientific and Technological Innovation ☐ Energy Conservation and Environmental Protection ☐ Employee Care ☐ Corporate Citizenship ☐ Responsibility for Governance

What do you think we should do to further strengthen our social responsibility management:

☐ Information collection ☐ Organizational structure construction ☐ Talent training ☐ Performance evaluation ☐ External publicity ☐ Stakeholder management ☐ Public welfare planning ☐ Level of annual report preparation ☐ Research on social responsibility ☐ Others_____

How would you like to know about our responsibility performance:

☐ Printing report ☐ Social Responsibility Column on Official Website ☐ WeChat Public Account ☐ Professional media on social responsibility ☐ Others_____

What would you like to see in China National Building Material Group Co., Ltd. Sustainability Report?

_____

Which performance of China National Building Material Group Co., Ltd. do you pay more attention to in the future?

_____

Other comments and suggestions?

_____

In what position did you participate in our activities for collecting opinions?

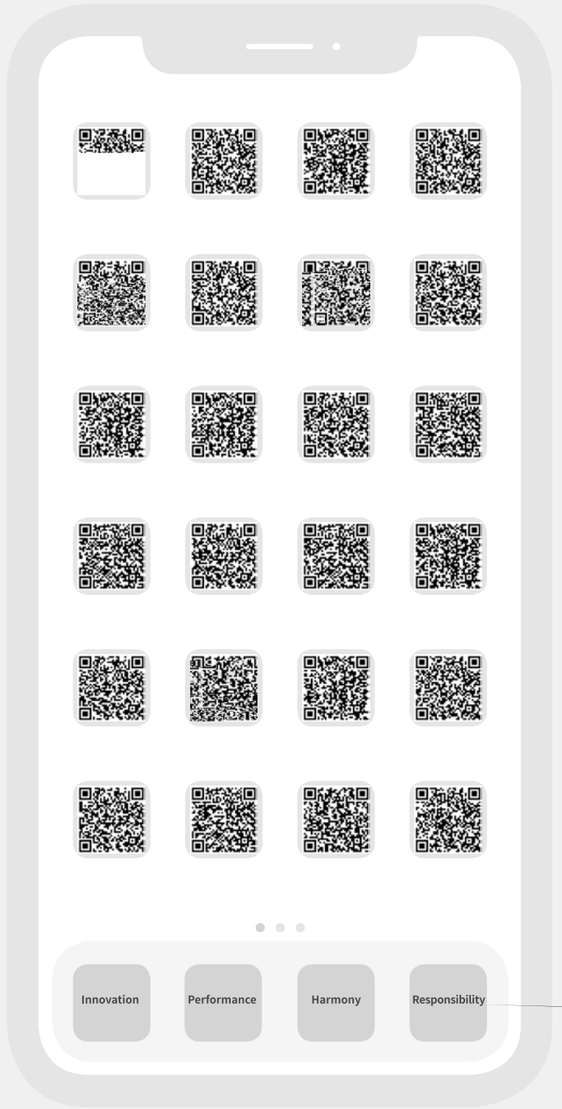
☐ Government department ☐ Institutional investors ☐ Small and medium shareholders ☐ Financial institution ☐ Industry association ☐ Supplier ☐ Customer ☐ Competitive enterprise ☐ Partner ☐ CSR professional institution ☐ Public welfare organization ☐ News media ☐ Group middle and senior manager ☐ Group staff ☐ Others _____

In order to contact you conveniently and respond to your comments and suggestions in time, please offer your contact and related information. We'll keep it reliably confidential.

Name:: _____ Occupation: _____ Institution:: _____

Contact Address: _____ Zip Code: _____ e-mail: _____

Telephone: _____ Fax: _____



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