

*Chasing Dreams in the New Era
Creating a Better Life Together*



2019

Sustainability Report



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About the Report

Reporting Period

The report covers a whole year from January 1, 2019 to December 31, 2019, with certain content in previous years or in 2020.

Reporting Boundary

The report incorporates the management practices and performance of the headquarters and shareholding enterprises of China Nonferrous Metal Mining (Group) Co., Ltd.

Compilation Basis

This report is compiled in accordance with the following standards, including the *Guidelines to the State-owned Enterprises Directly under the Central Government on Fulfilling Corporate Social Responsibilities* and the *Development Guidelines During the 13th Five-Year Plan Period* issued by the SASAC, *GRI Sustainability Reporting Standards (GRI Standards)* and *Supplementary Guidelines for Mining Industry* issued by the Global Sustainability Standards Board (GSSB), the Ten Principles of the United Nations Global Compact, *ISO 26000: Guidance on Social Responsibility (2010)* issued by International Organization for Standards and *GB/T 36001-2015 Guidance on Social Responsibility Reporting, China Industrial Enterprises' Social Responsibility Management Guidelines (2015)* issued by China Federation of Industrial Economics, etc.

Release Cycle

The report is annually released. This report is the 9th social responsibility report released by China Nonferrous Metal Mining (Group) Co., Ltd.

Data Sources

The data cited in this report are from the official documents, statistical reports and the official website of China Nonferrous Metal Mining (Group) Co., Ltd. The unit in the report that involves the amount of capital defaults to RMB, and other currency names are specified in special circumstances.

References

For the sake of convenience, China Nonferrous Metal Mining (Group) Co., Ltd. is also referred to as "CNMC" "the Group" and "we" in the report.

Report Commitment

China Nonferrous Metal Mining (Group) Co., Ltd. assures that no fictitious record, misleading statement, or material omission are included in this report, and will be responsible for the report's authenticity, accuracy and completeness.

Report Access

You can download the electronic version of the report on our official website - <http://www.cnmc.com.cn/>.

If you want the printed version of the report, or propose suggestions and opinions on the report, please contact with the Corporate Culture Department China Nonferrous Metal Mining (Group) Co., Ltd.

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Messages From the Chairman



CNMC implements the strategy of “three main businesses, two drivers, one reform”. With emphasis on our main businesses, we deepen the reform and pool strengths to achieve greater progress in all respects. Despite escalating risks and challenges at home and abroad, and interwoven emerging and previous conflicts, we have secured smooth production and operation, and achieved new progress. In 2019, we were bestowed China Spectrum Award for remarkable accomplishments in branding, and the honorary title of 70 Outstanding Chinese Brands in Celebration of the 70th Anniversary of the PRC. We also ranked the 38th among China's Top 100 Multinational Corporations in 2019.

We pursue long-term value in full swing. Highlighting high-quality development, we have accelerated internationalization, marketization, specialization, materialization, and capitalization, and doubled down on the overall reform. To fully implement the Belt and Road Initiative, we have set up international R&D centers overseas labs, and sponsored major international conferences such as the Outreach Event for the Great Lakes Investment and Trade Conference, so as to step up efforts in external strategic cooperation and internal coordinated development. In 2019, two of our projects, the Deziwa Copper-Cobalt Project and the Lualaba Copper Smelting Project in Congo (K), were completed and put into service. The 400,000-ton high-purity cathode copper clean production project of CNMC Daye Nonferrous Metals Group Holdings Co., Ltd. the Dairi Lead-Zinc Deposit Project in Indonesia were officially kicked off. All these outcomes show that we are on a track of steady and quality development.

We deliver projects with superior quality and ingenuity. In pursuit of professionalism and craftsmanship, we have established specialized platforms and innovated in managerial expertise as well as technologies, to break bottlenecks and resolve deep-rooted conflicts and problems. By setting up and improving a risk prevention & control system and emergency management system, and carrying out work safety inspections, we have achieved all-round progress in work safety indices. In 2019, we invested RMB 1.902 billion in research and development, and got 3 national-level science and technology projects approved. Our practices in commercializing scientific outcomes have been included in the model case collection of the State-owned Assets Supervision and Administration Commission of the State Council (SASAC), and promoted among central SOEs. In the past year, over 10,500 safety inspections at all levels were organized, and the rectification rate of accident hazards reached as high as 99.1%.

We protect Mother Earth by defending clear waters and blue skies. Upholding the idea of green, circular and low-carbon development, we earnestly assume the responsibility of ecological protection. We have rolled out energy conservation management and applied energy saving technologies to enhance resource efficiency and built green mines. The Sareke Copper Mine, Tongshankou Copper Mine and 6 other mines were included in the list of national-level green mines and our experience of CNMC NFC Africa Mining Plc. in developing green mines was included in 2019 Central SOEs Green Development Report. In 2019, we invested about RMB 614 million in environmental protection, and 15 of our subsidiaries were newly certified by ISO 14001/ISO 24001 Environmental Management Systems.

We advocate openness and win-win cooperation. A cooperation pattern that fosters mutual benefits with Belt and Road countries and even the world is promoted for localized operation and local employment. We also have contributed to improving the local life in countries and regions along the Belt and Road. Besides, we have innovated in the work pattern and developed an open, transparent, efficient and responsible supply chain system. In 2019, we provided 31 domestic suppliers training sessions for 558 trainees; we led the formulation and amendment of 1 international, 5 national, 7 industrial, and 4 national military standards.

Live our dream and we share happiness. We put people first and care for our employees so as to enhance their happiness and sense of belonging. We proactively practice overseas responsibility and develop local communities for mutual benefits. We set up China's first monitoring station for infectious diseases in Zambia, and founded China's first overseas vocational and technical college. Moreover, we support poverty alleviation, and have adopted targeted measures to help impoverished regions shake off poverty. In 2019, we fulfilled all commitments made in the Letter of Responsibility for Fixed-point Poverty Relief, and invested and tunneled RMB 8.02 million into Lianghe County.

The year 2020 marks the closing year for China to achieve targets set in the 13th Five-Year Plan. It is also a crucial year for CNMC to move ahead with its reform, and transform and upgrade itself. Riding on the wave of the supply-side structural reform, we will continue to advance internationalization, marketization, specialization, materialization, and capitalization, and double down on the overall reform. With priority given to international business, we will pace up building ourselves into a world-class tech-based, well-managed and quality-oriented mining enterprise with global competitiveness.



——— Wang Tongzhou, Chairman of CNMC

About Us

Corporate Profile

Founded in 1983, China Nonferrous Metal Mining (Group) Co., Ltd. is a large central state-owned enterprise administered by the State-owned Assets Supervision and Administration Commission of the State Council (SASAC). The Group mainly specializes in the development of nonferrous metals, construction projects, and trade and services. CNMC is one of the first nonferrous metal companies in China that implemented the "going global" strategy, and one of the most successful companies of its kind in international business. The Group has completed and run a batch of exemplary mining projects in Zambia, Congo (K), Mongolia, Myanmar, Tadjikistan, and a number of other countries and regions. Covering over 80 countries, its business involves various nonferrous metals, such as copper, nickel, zinc, gold, and cobalt. The Group has 26 secondary subsidiaries and 8 subsidiaries listed domestically or abroad, and 52,715 employees, ranking the 38th among China's Top 100 Multinational Corporations in 2019. Besides, it has been bestowed China Spectrum Award for remarkable accomplishments in branding, and been granted the honorary titles of 70 Outstanding Chinese Brands in Celebration of the 70th Anniversary of the PRC, as well as Overseas Resources Development Strategy Meritorious Enterprise in China's Nonferrous Metals Industry.

Corporate Culture

We actively incorporate a scientific CSR philosophy into our corporate culture, and hold relevant events on a regular basis, such as CSR kick-off meeting, assessment and improvement meetings and Global Corporate Sustainable Competitiveness Summit. In this way, we foster a responsible corporate culture.



Attend the 2019 Global Corporate Sustainable Competitiveness Summit

Mission

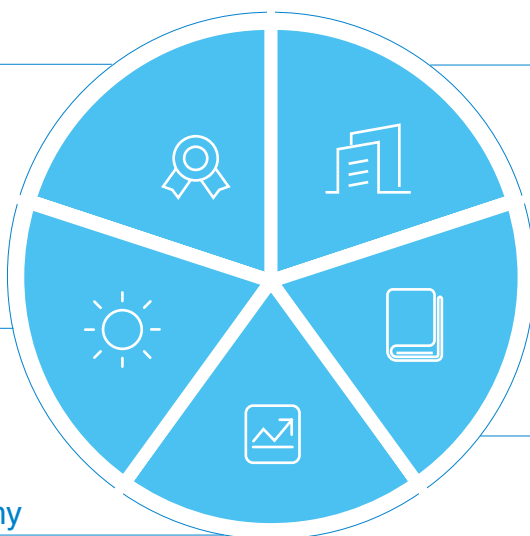
Developing resources to serve our country, give back to society, grow with employees, and shape a harmonious society

Corporate Spirit

Making the company prosperous with unyielding efforts and be enterprising and innovative

Management Philosophy

Lean and standard management, collaboration and high efficiency



Vision

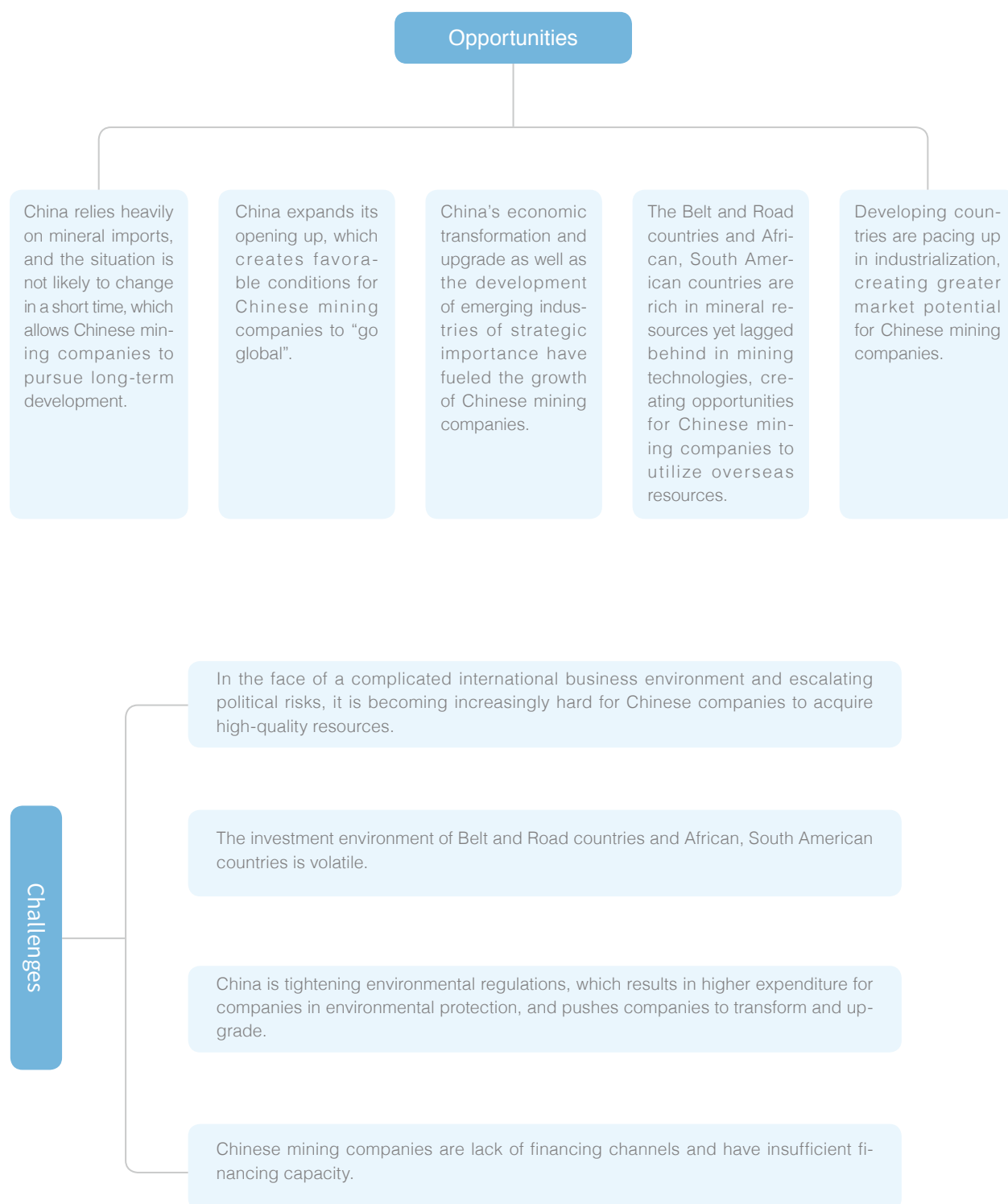
Building a world-class tech-based, well-managed and quality-oriented mining enterprise with global competitiveness

Corporate Value

Honest and Creditworthy
Pragmatic and Innovative
Serving the Country with Resources
Win-Win

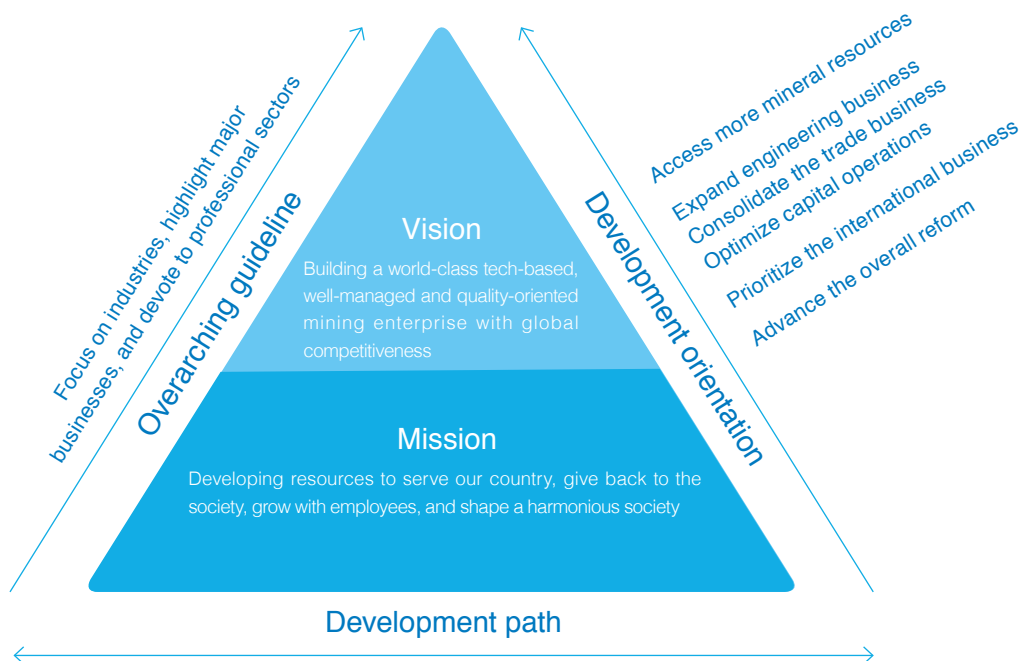
Corporate Strategies

Sustainability Opportunities and Challenges of CNMC

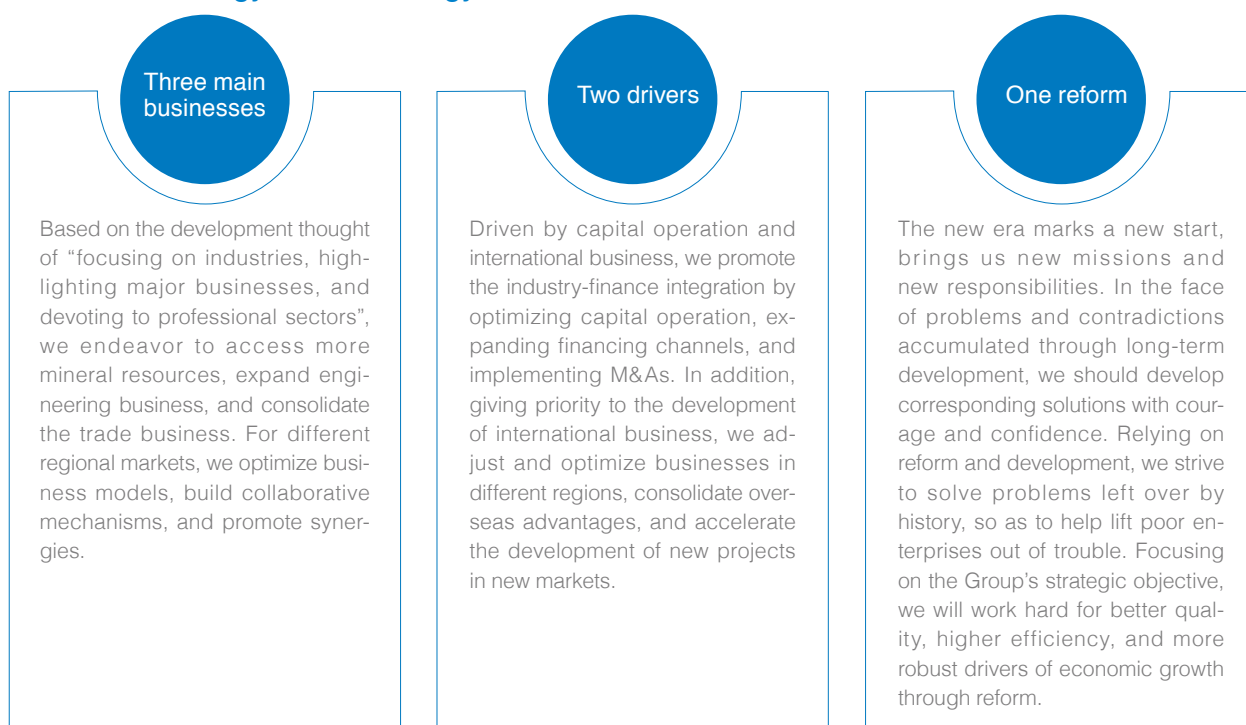


Sustainability Strategy

We promulgated the *Strategic Outline on the Medium- and Long-Term Development of CNMC* in January 2019. In line with the overarching guideline of “focusing on industries, highlighting major businesses, and devoting to professional sectors”, the outline set out a “321 strategy”, or the strategy of three main businesses, two drivers, one reform. It urges CNMC to access more mineral resources, expand engineering business, consolidate the trade business, optimize capital operations, prioritize the international business, and advance the overall reform, so as to build a world-class tech-based, well-managed and quality-oriented mining enterprise with global competitiveness.



Internationalization, marketization, specialization, materialization, and capitalization
“321 strategy”: the strategy of three main businesses, two drivers, one reform.



Organizational Structure



CSR Roadmap

Development of nonferrous metals



Our resources involve various nonferrous metals, such as copper, nickel, zinc, lead, tungsten, tin, gold and cobalt; we have invested in and run 9 mines and 9 smelting plants overseas, and possessed more than 20 million tons of heavy nonferrous metal resources; we rank the top among Chinese mining companies in the number of developed overseas copper projects.

A “going global” pioneer of China’s nonferrous metal industry



Our businesses cover more than 80 countries and regions, including over 30 Belt and Road countries; we have won titles of China-Africa Friendship Award – the Top 10 Chinese Enterprises, Leading Chinese Multinational Company, and Overseas Resources Development Strategy Meritorious Enterprise in China’s Nonferrous Metals Industry.

CSR Events

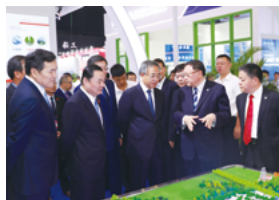
- CNMC achieved a new high record total profits in 2019.



- A series of activities organized in CNMC in celebration of the 70th birthday of the PRC.



- CNMC at the First China-Africa Economic and Trade Expo.



- International Research and Development Center of CNMC Zambia Lab was founded.





Construction projects

We have undertaken a large number of engineering projects in China and many neighboring countries, as well as in West Asia, the Middle East, North Africa, and South Central Africa; we also have undertaken a large number of world-class mine extraction, selection and smelting projects in more than 30 countries and regions; China Nonferrous Metal Industry's Foreign Engineering and Construction Co., Ltd., a subsidiary of CNMC, was named one of the Top 225 International Contractors and ENR Top 200 International Design Firms, and won China Construction Engineering Luban Prize and National Quality Engineering Silver Award for multiple times.



Trade and services

As one of China's largest raw copper importers, we have developed a trade network covering over 40 countries and regions, and realized an average annual trade volume of over RMB 50 billion and average annual imports totaling more than USD 1 billion.

Sino-Zam Vocational College of Science and Technology was founded.



CNMC actively fulfills social responsibility and has won multiple awards.



CNMC's subsidiary, Congo (K) Lualaba Copper Smelter SAS delivers the first batch of qualified Blister.



CNMC Finance Co., Ltd. was founded.



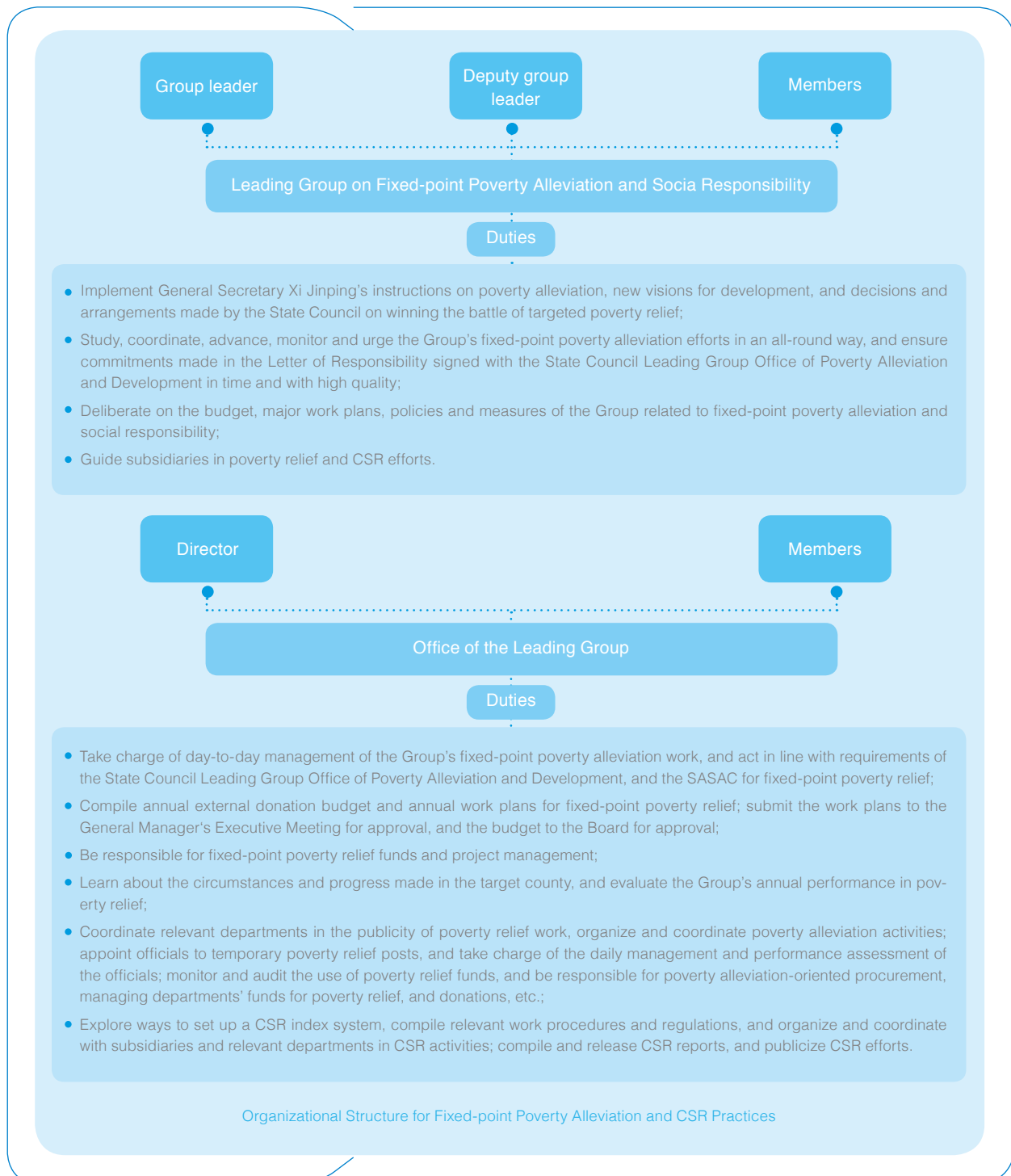
CNMC Deziwa Copper-Cobalt Smelter project delivers the first batch of cathode copper.



Sustainability Management

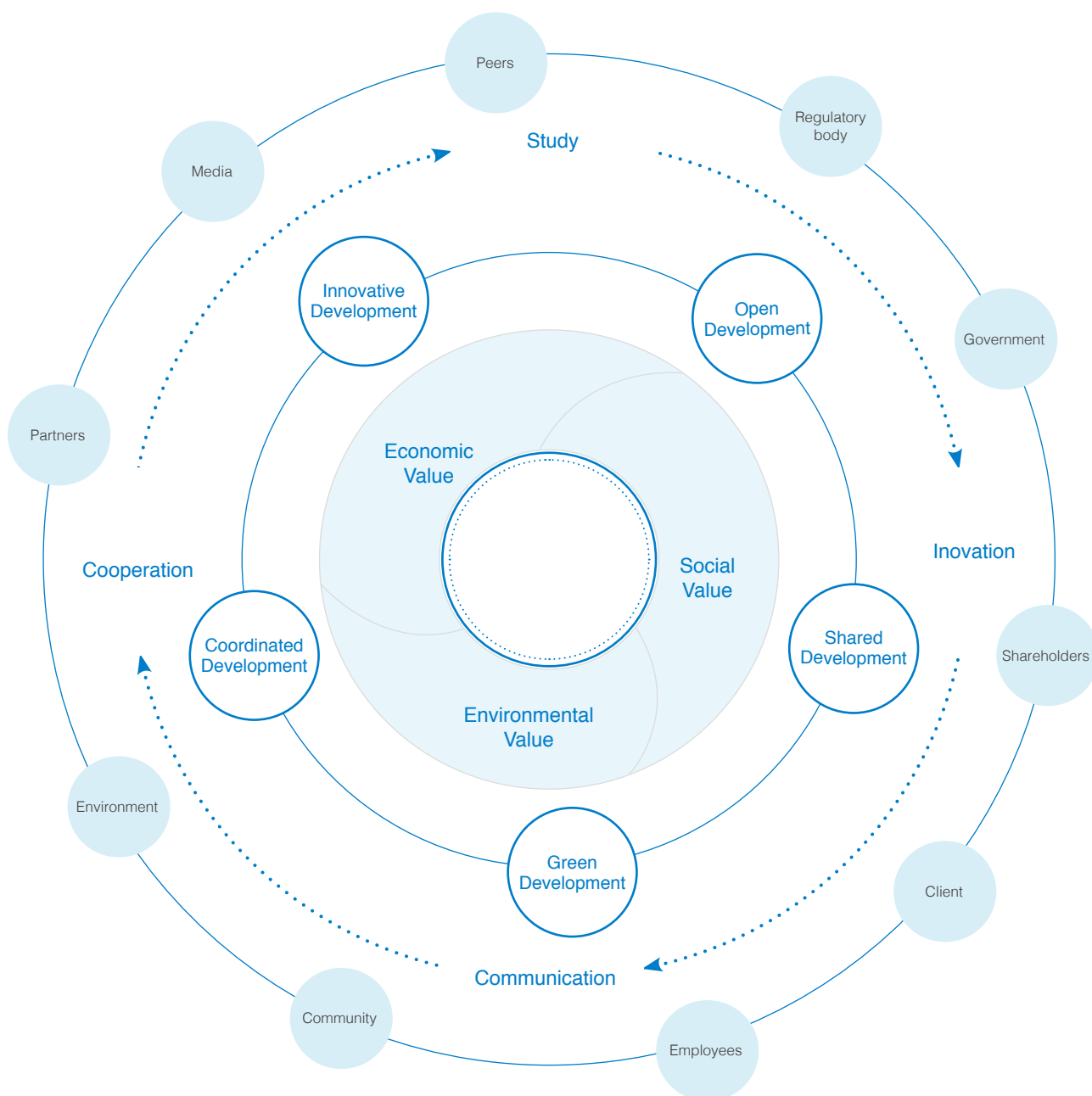
Management Structure

CNMC sets great store by sustainable development. We have set up the Leading Group on Fixed-point Poverty Alleviation and Social Responsibility, with Chairman as the group leader. An office was also established under the Leading Group at the Corporate Culture Department with department heads of the headquarters as members. Our subsidiaries have assigned CSR liaison officers to improve the CSR mechanism. Based on all these measures, we foster a social responsibility mechanism with clear responsibilities and rights, better coordination between the headquarters and subsidiaries, and complete coverage, thus providing stronger organizational support for fulfilling social responsibility.



Management Model

As a company with international operations, we manage our businesses in a responsible way, and develop and utilize resources sustainably. By promoting coordinated development of our three main businesses, namely resource development, construction projects, and trade and services, we hope to generate economic, environmental and social values by developing nonferrous metals to the maximum. We cooperate with stakeholders to drive economic growth and contribute to a harmonious society.



Management Progress

CNMC continuously advances CSR management in line with the corporate value of “honest and credit-worthy, pragmatic and innovative; serve the country with resources and achieve win-win results”. We have improved our CSR work plans, and disclosed CSR information and communicated with stakeholders in time to facilitate orderly CSR work. We have been awarded as Five-star enterprise rated by Chinese Industrial Corporations Sustainability Transition Assessment and Rating System and GoldenBee Excellent CSR Report 2019 · Leading Enterprise.

We compile task books for departments at the beginning of each year. And we integrate CSR performance, such as the organization, budgeting, compilation and publication of sustainability reports, into the performance assessment of employees, to let social responsibility play a role in performance assessment.

We compile sustainability reports on an ongoing basis, and take an active part in the Press Conference for Releasing CSR Reports of Central SOEs organized by the SASAC. We release reports in various forms, such as electronic and print versions, Chinese, English and French versions, and summary report in one flyer, etc., to fully unleash the interactivity and influence of our reports, and drive CSR research and exchanges.



“SOE Open Day” and CNMC Open Day

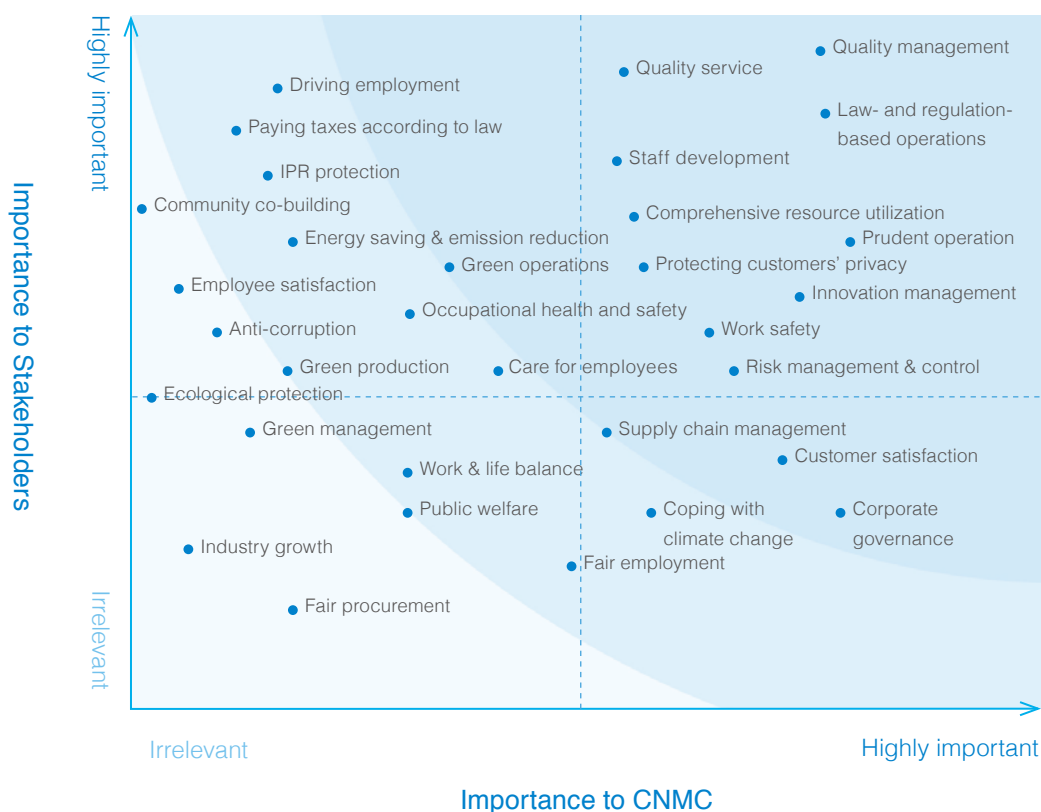
In August 2019, the “SOE Open Day” event with the theme of “Staying True to Our Founding Mission by Deepening the Reform, and Taking on Responsibility by Promoting Green Development” was successfully launched in CNMC Daye Nonferrous Metals Group Holdings Co., Ltd. a subsidiary of CNMC. The event was hosted by the Publicity Bureau of the SASAC and organized by CNMC. We invited representatives from all walks of life to visit the clean production demonstration project of CNMC Daye Nonferrous Metals Group Holdings Co., Ltd. Boyuan Environmental Co., Ltd., and the rare and precious metals workshop of its smelting plant. Through a series of activities, we improved communication with people from different sectors, deepened mutual understanding and won support. The event served as a bond for us to work with partners to develop friendly and win-win relationships with mutual respect and trust, consolidating our brand image as a responsible central SOE.



“SOE Open Day” draws extensive attention of the media

Materiality Analysis

Based on the sustainability background and corporate strategic priorities, we have analyzed and evaluated the external environment, our own strategies and sustainability capacity. We have identified expectations and demands of stakeholders, and sorted out material topics relevant to internal management and the whole operation process. Key topics in different aspects are determined and prioritized, pushing the Group to step up sustainability efforts in a more in-depth manner.



Stakeholder Communication

Stakeholders	Expectations	Response
The government and regulators	<ul style="list-style-type: none"> • Complying with laws and regulations • Driving economic growth and transformation • Paying taxes in accordance with the law 	<ul style="list-style-type: none"> • Carrying out law- and regulation-based operations • Upholding business integrity • Serving national-level development strategies, such as the Belt and Road Initiative, guaranteeing the security of national strategic resources • Having paid RMB 4.666 billion of taxes • Fueling the development of local specialty industries
Shareholders	<ul style="list-style-type: none"> • Maintaining and increasing the value of state-owned assets • International operations • Working towards the goal of becoming a world-class mining group 	<ul style="list-style-type: none"> • Achieving RMB 1.727 billion in total profits • Lowering the asset-liability ratio by 2.42% from that at the beginning of 2019 • Ranking the 38th among China's Top 100 Multinational Corporations in 2019
Clients	<ul style="list-style-type: none"> • High-quality products and satisfactory services • Smooth communication channels 	<ul style="list-style-type: none"> • Setting up 77 Quality Control groups • Seven subsidiaries won international, national, provincial or ministerial awards for superior quality in 2019 • 36 projects won quality-related awards in 2019 • Scoring 97.34% in customer satisfaction • Zero major quality accidents and major customer complaints
The environment	<ul style="list-style-type: none"> • Sustainable development of resources • Energy conservation and emission reduction • Ecological conservation • Climate change 	<ul style="list-style-type: none"> • Having invested approximately RMB 614 million in environmental protection • 15 subsidiaries newly certified by ISO 14001/ISO 24001 Environmental Management Systems • Increasing the recovery rate and comprehensive utilization rate of mineral resources • Giving special attention to the prevention, control, and treatment of air, water and soil pollution • Launching the construction of green mines, and promulgating the <i>Work Plan on Green Mines Development</i>

Stakeholders	Expectations	Response
Employees	<ul style="list-style-type: none"> • Respecting and safeguarding basic rights & interests • A competitive salary system • Smooth career development paths • A comfortable and safe work-place 	<ul style="list-style-type: none"> • Continuously improving the democratic management system, represented by the Workers' Congress and the Labor Union • Signing labor contracts with all employees, and prohibiting child labor, forced labor and discrimination throughout the work process • 100% social insurance coverage • Formulating the <i>Talent Development Plan</i>
Partners	<ul style="list-style-type: none"> • Compliance operations • Honesty & reciprocity • Win-win cooperation • Common development 	<ul style="list-style-type: none"> • Formulating the <i>Suppliers Management Measures</i> • The domestic contract fulfillment rate of suppliers reached 99.57% • Proactively exploring ways to build a green supply chain for integrated development, mutual benefits and win-win results • Domestic companies having given 31 training sessions to 558 suppliers
Peers	<ul style="list-style-type: none"> • Fair competition • Protecting the favorable environment for industrial development 	<ul style="list-style-type: none"> • Growing along with industry peers and creating favorable, fair and transparent market relationships • Leading the formulation and amendment of 1 international, 5 national, 7 industrial and 4 national military standards • Innovating in products and services to provide reference for industry peers
Community	<ul style="list-style-type: none"> • Concerning community development • Participating in public services 	<ul style="list-style-type: none"> • Carrying out heart-warming activities and providing emergency relief • Having donated RMB 21.1141 million to society • Organizing activities for social welfare, such as combating COVID-19 and "520 Volunteers" • Having invested and tunneled RMB 8.02 million for poverty relief
Media	<ul style="list-style-type: none"> • Open and transparent information 	<ul style="list-style-type: none"> • Company website • Media interviews • Organizing activities like "Green Open Day" and "SOE Open Day", etc.

Living up to New Expectations of the New Era and Shouldering New Responsibilities

The year 2019 marked the 70th founding anniversary of the PRC. We adhered to the overarching goal of ensuring stable operations while striving for progress. With concrete actions taken, we served the overall interests by being a pacesetter, and forged ahead and shared the destiny with our motherland, paying tribute to the 70th birthday of China with outstanding performance.



Advancing Bravely for Over Three Decades

In the past three decades since the founding of CNMC, the Group has undergone four development stages with each stage marked by different tasks and missions. CNMC has achieved outstanding progress in every stage, and always forged ahead and moved forward together with China.

Stage 1

From 1983 to 1995, gradually forming the main business of project contracting after the initial stage of exploration

Founded in April 1983, China Nonferrous Metal Industry Corporation established China Nonferrous Metals Industry Foreign Engineering Company (the predecessor of China Nonferrous Mining Group Co., Ltd.) in order to launch foreign business cooperation by giving full play to China's edge in the nonferrous metal industry. As the only window for China's nonferrous metal industry to go global and carry out commercial and technological cooperation, the Corporation was responsible for opening a new chapter of China's overseas projects and labor service cooperation. It led the design, construction, geological exploration and equipment manufacturing sectors in China to enter the overseas market, thus having the genes of "going global".

Stage 2

From 1995 to 2005, completing the strategic transition from single project contracting to the core business of nonferrous metals exploitation

In the early stage of development, China Nonferrous Metals Industry Foreign Engineering Company mainly contracted medium and small civil construction projects. As China's reform of the state-owned business system was deepening, the company decided to develop nonferrous metal resources as its core business based on the situations of China's nonferrous metal industry, while continuing overseas project contracting. The company successively invested in and developed a number of key overseas resource development projects, including Chambishi Copper Mine and Sino-Metals Leach Plant in Zambia, Tumurtin-Ovoo Zinc Mine in Mongolia, and the Tagaung Taung Ferro-Nickel Smelter in Myanmar, to build itself into an international mining group step by step.

Stage 4

From 2015 to now, restructuring, improving quality and efficiency, streamlining the organizational structure and building capacity to grow bigger and stronger

In 2015, CNMC set out the guiding principle of "deepening the reform, consolidating management, and raising the quality and returns of development", and strategically positioned itself to "win more resources, advance internationalization and pursue high-end development". The Group laid an emphasis on developing resources in South Central Africa, and took an active part in the Belt and Road Initiative and international production capacity cooperation. Centering on the improvement of quality and efficiency, the Group earnestly pressed ahead with the removal of ineffective and inefficient assets, further improved quality and efficiency, controlled and prevented risk. In 2019, in line with the overarching guideline of "focusing on industries, highlighting major businesses, and devoting to professional sectors", CNMC achieved RMB 131.520 billion in operating income, RMB 1.727 billion in total profits, and RMB 722 million in net profit, which increased by 17.63%, 19% and 14% respectively on a year-on-year (YoY) basis, setting a new high record.

Stage 3

From 2005 to 2015, expanding the corporate scale and gaining influence, and being listed among the Fortune Global 500

The Corporation was renamed China Nonferrous Mining (Group) Co., Ltd. in 2005. Facing challenges like insufficient resources, limited financial support, and a poor foundation for development, it is an inevitable choice for CNMC to grow bigger and stronger in a rather short time. During 2005 to 2015, CNMC successively merged with and acquired 15 companies, completing and constructing 62 projects with a total investment of RMB 25.5 billion. The Group reached RMB 50 billion in asset size in 2010, and was listed in the Fortune Global 500 in 2012. In 2015, the Group's assets totaled RMB 125.5 billion, the operating income RMB 170.8 billion and the output of nonferrous metal products 1.56 million tons, respectively 18, 34 and 31 times of the figures in 2005.



Serving the Country

State-owned enterprises are the important material and political foundation for promoting socialism with Chinese characteristics. CNMC always stays true to its founding mission and serves the overall interests. In implementing significant national strategies and arrangements, the Group conscientiously takes on responsibilities and serves as an important player in carrying out China's "going global" strategy and the Belt and Road Initiative.

Practicing President Xi Jinping's important thought of "building a community of shared future for mankind" to give full play to our comparative advantages as a first-mover in overseas operations

We concentrate our efforts on promoting international cooperation under the framework of the Belt and Road Initiative and have achieved concrete results. After undertaking the Aktogay copper mine (with an annual ore processing capacity of 25 million tons), Bozshakol copper mine (30 million tons), and the 250,000-ton Pavlodar electrolytic aluminum plant in Kazakhstan, in 2019, we signed project contracts with Pakistani companies, including the one with ER on the Telimele Bauxite Project in Guinea. We have established pragmatic and win-win partnerships with more than 30 countries and regions along the Belt and Road, making prominent contributions to fostering common prosperity around the globe, and building a community of shared future for mankind.

Sincere Cooperation for a Better Future: SOMIDEZ and Lualaba Copper Smelting Project completed and put into operation

On January 15, 2020, SOMIDEZ and Lualaba Copper Smelting Project held a joint ceremony in Kolwezi city of Lualaba province, Congo (K) to celebrate the completion of construction and kick-off of operation. The DRC government, CNMC, partners, employees, and residents in the local community attended the event and witnessed the achievement. By upholding the principle of consultation, contribution and shared benefits, CNMC successfully completed and put into operation the two projects, driving the growth of Congo (K) as a part of the Belt and Road Initiative, and embarking on a new chapter of China-Congo friendship.



Guests of the ceremony inspect the plant area of SOMIDEZ and Lualaba Copper Smelting Project

Fighting "Three Tough Battles" with key focuses and determination

We resolutely implement President Xi Jinping's instructions on preventing and defusing major risks. In line with the requirement of "risk control is a must in business management", we study the analysis of risk prevention & control cases and specific research reports every month, actively cope with potential risks, and guarantee smooth reform and development. To strengthen targeted poverty alleviation, we hold work meetings to assign responsibilities and schedule plans, and we invested and introduced 8.02 million in poverty relief in 2019, helping Lianghe county win the battle against poverty. We stick to "proactive safety management and environment protection". Regarding the construction of green mines as a key move for comprehensively living up to pollution prevention and control requirements, we formulate guiding opinions on green mines, and integrate green mine standards into our corporate standards and practice them in international operations.



CNMC holds the Trade Fair of Agricultural Products and Local Specialties of Lianghe county, the fixed-point poverty relief target of CNMC

Serving the country with resources to guarantee the security of national strategic resources

CNMC owns more than 20 million tons of heavy nonferrous metal resources at home and abroad, and 12.75 million tons of copper reserves. By producing domestically and transporting overseas products back to China, the Group provides one million tons of copper each year to the domestic market, accounting for 8.33% of the apparent consumption (production plus imports, about 12 million tons per year) of copper in China. The Group has an obvious competitive edge in the development of major nonferrous metals, such as copper, nickel, lead, zinc, tungsten and tin. We are devoted to developing nonferrous metal resources, and have formed a full industrial chain with copper development as the main business. In this way, we unswervingly serve the country with resources.

Major Performance in 2019

★ **38th**

among China's Top 100
Multinational Corporations

★ **69th**

among Top 500 Manufac-
tures in China

★ Businesses cover more than

80 countries and regions

★ Subsidiary of CNMC, China
Nonferrous Metal Industry's
Foreign Engineering and Con-
struction Co., Ltd., has been
ranked the

86th

among Top 250 International
Contractors ,and rated as a

Class **A** enterprise among

China International Contrac-
tors in 2019, and entered
the list of ENR Top 200 In-
ternational Design Firms



★ RMB **121.228** billion
Total assets

★ RMB **131.520** billion
Operating income

★ RMB **1.727** billion
Total profits

★ **1.7036** million tons
Output of nonferrous metal products

★ **20.40** million tons
Heavy nonferrous metal resourc-
es at home and abroad

CNMC in Action in the Outbreak of the COVID-19 Pandemic

The sudden outbreak of the coronavirus disease 2019 (COVID-19) in early 2020 highly concerns every Chinese. In the face of the pandemic, CNMC took actions swiftly. We established at once the Leading Group on COVID-19 Actions, galvanized concerted efforts to fight against the virus, and spared no efforts in safeguarding the health and safety of employees. We also rushed to support the hard-hit region, and stayed together with stakeholders and helped them go through the hard time.

Standing Ready to Combat COVID-19



Pooling Strengths and Being United as One to Tide Over the Hard Times

As a Chinese saying goes, when disaster strikes one place, aid comes from all sides. CNMC substantially assumes the responsibility during the COVID-19 pandemic, and mobilizes workforce, material and financial resources to contribute to the victory of the battle against the coronavirus.



By the end of June 2020, more than **840** CNMC employees had engaged in the fight against the virus on the front line as volunteers to safeguard our city and homeland.



By the end of March 2020, CNMC had donated money and supplies worth more than RMB **13** million to Hubei province and other areas. The Group also sourced **50,000** protective masks and **7,500** protective gowns to the SASAC's Wuhan Command Center for COVID-19.



To protect employees from the pandemic and resume work and production in an orderly manner, CNMC has provided employees with more than **390,000** masks, more than **300** thermal detectors, more than **5,600** pairs of disposable medical gloves, and a large amount of disinfectants, medical alcohol and other supplies. As of the end of March 2020, **107** out of **124** companies (**86.3%**) under CNMC had got back to normal operations.



Sourcing 50,000 masks from overseas for supporting Hubei province



The "iron army" of China 15th Metallurgical Construction Group Co., Ltd. is rushing to assist in the urgent expansion project of Hubei Maternal and Child Health Hospital (Guanggu Branch)



The "520" volunteers from CNMC Daye Non-ferrous Metals Group Holdings Co., Ltd. are helping to load and unload supplies for fighting COVID-19 at hospitals



To empower the overseas battle against COVID-19, CNMC and its subsidiaries and branches have donated more than **250,000** masks, more than **300** thermal detectors, more than **250,000** disinfecting wipes, more than **3,600** bottles of disinfectants, more than **100,000** pairs of disposable medical gloves, **10,000** medical protective gowns, more than **1,000** bottles of hand sanitizers, and medicines worth more than RMB **600,000**, etc.



To publicize anti-virus actions, CNMC also opened a special column "CNMC on the Move to Fight COVID-19" on its official website, where more than 400 related reports have been released. The Group also published **77** special news reports on the theme through external media outlets, including central and state-owned media, as well as overseas and industrial media, attracting a total of 8 million page views.



CNMC opened up an online counseling channel to provide psychological assistance to 10 subsidiaries in Zambia and Congo (K). By the end of April 2020, **934** employees had their counseling records set up, and **17.16%** of employees have received counseling service. **20** employees have successfully booked counseling service, and **13** of them have completed counseling.



Houses in the residential base of China-Zambia Cooperation Zone are being renovated for quarantine (only for the use of the Cooperation Zone)



Chambishi Copper Smelter Limited donates necessary supplies to Bushfire Children's Home



CNMC Nickel Co., Ltd. donates supplies for containing COVID-19 to the Ministry of Natural Resources and Environmental Conservation of Myanmar

Pursuing Long-term Value in Full Swing

There is a Chinese saying that goes: "To ordain conscience for Heaven and Earth, and to secure life and fortune for the people". CNMC also keeps its mission firmly in mind, and conscientiously upholds loyalty while performing its duty, and complies with regulations and lives up to high moral standards. Instead of being conservative we make reform in a profound way and prioritize international operations. In this way, we hope to lay a solid economic foundation for long-term prosperity by growing our businesses and make new contributions in the new era.





The Tagaung Taung Ferro-Nickel Smelter in Myanmar

Optimizing Corporate Governance

We continue to improve the corporate governance system by enhancing governance capacity on an ongoing basis, and strive to explore ways of building a modern SOE institutional system with Chinese characteristics.

Governance System

We take the initiative to explore and innovate in ways to establish a modern enterprise system. Taking the Board development as an opportunity, we have consolidated the top-level design of our corporate system. And we have formulated a catalogue of four major issues, namely the decision-making system of major issues, the appointment of major officials, major arrangements, and the use of large-volume capital. The corporate structure and operation mechanism have also been improved, so that we could advance the modernization and internationalization of our corporate governance system and build higher capacity in this aspect.

Establishing a modern enterprise system

Based on the connection between institutions, procedures, different groups of personnel, and key points for deliberation, we endeavor to develop a better corporate system, and have basically formed four more institutional systems respectively for investment, construction, procurement and administration, thus greatly improving our corporate governance system and enhancing the governance capacity.

Consolidating the leadership constantly

We now appoint Chairman and General Manager respectively and add new members to the leadership to form a top executive team with a reasonable structure, outstanding capabilities, team spirit, and proper and admirable conducts. We comprehensively strengthen the leaderships of subsidiaries, and adopt stricter standards for the selection and appointment of officials. In 2019, we adjusted the positions of 131 officials and newly promoted 41 to leadership positions, and selected 142 nominees for Outstanding Middle-age and Young Officials.

Regulating corporate governance

For 123 qualified subsidiaries at different levels, we have pushed them to amend the corporate governance system, and promoted the system of delegating directors and supervisors. We have built an information system for "four major issues". Thus subsidiaries have reported 27,087 issues, realizing all-level supervision and management for major decisions, and further regulating the corporate governance system.



Meeting of the First Session Board of Directors

Compliant Operations

We have set up the Audit and Risk Management Committee, and stick to law-based corporate governance and compliant operations. Through establishing a long-term risk management mechanism, we aim to realize the goals of “strengthening internal control, preventing risks, and enhancing compliance”. And we continue to improve the information disclosure mechanism to ensure steady and sustainable growth.

Risk Management

Risk management is an inalienable part of corporate governance. We integrate risk control into compliance management, and enhance risk management through team building, institutional construction, system development, capacity building, awareness raising and proper evaluation.

Set up a risk control team

Mobilize **29** subsidiaries to set up a risk control and compliance management

team of **201** members;

promote **4** subsidiaries to integrate the functions of risk management, internal control, compliance and legal affairs into one Legal Affairs and Risk Control Department

Improve procedures and regulations

Go over **174** regulations and

128 business procedures, and compile Work Plan on Compliance Management and Manual on Risk Control and Compliance, to actively include legal affairs into the Group's articles of association

Better the internal control system

Hold the Group's main leaders accountable for supervising the internal control system, assign specific functional departments to assume the responsibility, and establish a top-down and full-coverage internal control system; gradually develop a work mechanism with powerful leadership, clearly defined duties and procedures, and standardized and orderly operation

Evaluate risks

Set up a risk database that includes **5** Class 1 risks (strategic, financial, market,

operation and legal risks), **37**

Class 2 risks, and **117** Class 3 risks; carry out 2019 Assessment of Major Risks with reference to the database

Raise the compliance awareness

Organize **4** training sessions on compliance management, urge subsidiaries to carry out compliance management training and effectively strengthen the compliance awareness

Regulating Information Disclosure

We keep bettering the information disclosure mechanism. Through formulating the *CNMC Management Regulations for Information Disclosure* and *CNMC Management Regulations for Financial Information Disclosure*, we have developed a regular reporting mechanism that requires monthly reports of compliance information on statutory issues, internal control, legal cases, etc. In the meantime, we keep improving the release of CSR reports and the disclosure of non-financial information, winning greater recognition and support from investors.



CNMC has released CNMC sustainability reports for eight consecutive years

Protecting the Rights and Interests of Investors

We comply with the requirement of the Listing Rules to protect shareholders' rights and interests, and attach equal importance to the sustainability of CNMC and reasonable returns for investors. Through multiple channels like service hotline and field visits, we take the initiative to communicate with shareholders, collect the opinions of investors, external directors and the Supervisory Board, and answer questions that concern small and medium-sized investors, with a view to protect the rights and interests of investors.



External directors are conducting an inspection visit to the Refinery Workshop of the Rare and Precious Metals Plant, CNMC Daye Nonferrous Metals Group Holdings Co., Ltd.



The asset liability ratio
dropped by **2.42%**
compared with the rate in
early 2019

Strengthening the Synergy Between Three Main Businesses

In line with the overarching guideline of “focusing on industries, highlighting major businesses, and devoting to professional sectors”, we endeavor to access more resources, expand engineering business and consolidate the trade business. Well-targeted strategies are put in place for different regional markets, and we optimize the business model and foster the synergy mechanism to promote coordinated development.

Accessing More Resources

While prioritizing the development of copper resources, we actively develop lead-zinc, nickel and cobalt, and prudentially develop tungsten, gold, silver and lithium, and have delivered multiple product mixes. We have an overall plan to build up new smelting capacities and business layout, and accelerate transforming the deep processing business. With the support of frontier technologies in the world, by developing and importing alternative, high value-added processed products, and innovating in resource development models, we continue to enhance the capabilities of integrating and utilizing resources.

● **20.40** million tons
Heavy nonferrous metal resources possessed at home and abroad

● **66,057** m
Total depth of exploration (46,038 m overseas, 20,019 m in China)

● **25** exploration rights
Mining-related companies under CNMC at home and abroad by the end of 2019

1,336 km²
Total area

● **21** projects
Geological exploration projects carried out (16 overseas and 5 domestic projects)

● RMB **85.63** million
Total investment in geological exploration (RMB 67.08 million overseas, RMB 18.55 million in China)

● **42** mining rights
Owned by CNMC at home and abroad by the end of 2019

1,402 km²
Total area

Afterglow ---winner of the Staff Photography and Calligraphy Contest in Celebration of the 70th Anniversary of the PRC's Founding organized by CNMC Xincheng Construction Supervision & Consulting Co., Ltd.

CNMC NFC Africa Mining Plc.

The Chambishi Main Mine and the Chambishi West Mine of CNMC NFC Africa Mining Plc. bodies have completed upgrade and renovation, living up to standards and requirements for efficiency; the construction of the digital mine is being deepened.

CNMC Luanshya Copper Mines Ltd.

Hit new records in the output of copper; lead the industry in the qualification rate of Class A copper.

Chambishi Copper Smelter Liximited

Greatly save the costs of producing per ton of copper by increasing ore sourcing and strengthening cost management; innovate in the burden and cut energy consumption while increasing the output of sulfuric acid.

CNMC Hong Kong Holdings Co., Ltd.

Develop overseas mining resources, increase the overseas purchase of ores, and complete the production expansion and renovation of CNMC Huaxin Hydrometallurgy Co., Ltd.

Kambove Mining SAS

Cope with piled up tailings and slag, sign a supplementary agreement, and be prepared for construction.

Sino-Metals Leach Zambia Limited

Strengthen production organization and management, and break new record by yielding 10,000 tons of copper.

SOMIDEZ

Organize meticulously and manage scientifically to wear challenges and greatly shorten the construction period, putting the project into production successfully.

Lualaba Copper Smelter SAS

Be put into production smoothly; take advantage of the blankness in policy and win preferential policy support.

CNMC Nickel Co., Ltd.

Change the mindset and be proactive to safeguard the company's reasonable profits; complete the major overhaul of 1# electric furnace ahead of schedule, and effectively lower down production costs.

CNMC Daye Nonferrous Metals Group Holdings Co., Ltd.

Achieve steady growth in product output and launched the 400,000-ton high-purity cathode copper clean production project by building on competitive strengths in scale, technology, geographical location, and managerial expertise, and was enlisted into the first echelon of the domestic copper industry.

CNMC Albetter Copper Co., Ltd.

Adjust the product mix, concentrate strengths on S&T innovation, pace up addressing unresolved issues, and greatly improve the operational cash flow, turning losses into profits.

CNMC China Nonferrous Metals Mining (Group) Tianjin Special Material Co., Ltd.

Strengthen market development, target at mid- to high-end of the industrial chain, and adjust the product mix.

China Nonferrous Hong-TouShan Fushun Mining Goup Co., Ltd.

Spare no efforts in pushing ahead with the construction of seven systems, optimize the mineral dressing and production procedures, and achieve outstanding progress in the recovery rate of metals.

CNMC Congo Compagnie Miniere Sarl

Actively secure the supply of resources, give full play to existing equipment and capacity, and improve output.

China Nonferrous Metals Int'l Mining Co., Ltd.

Adopt a bunch of measures at the same time to optimize production conditions, actively organize production and strive to improve output

CNMC Ningxia Orient Group Co., Ltd.

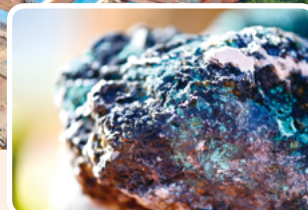
Drive high-quality growth through scientific innovation; improve the position of Northwest Rare Metal Materials Research Institute as China's only beryllium studies and processing base; Ningxia Orient Tantalum Industry's sodium reduced tantalum powders won championship in the National Fourth Batch of single champions in manufacturing.

Deziwa Copper-Cobalt Smelter Project delivers the first batch of cathode copper

Among all CNMC's overseas copper-cobalt resource development projects, Deziwa Project has drawn the largest amount of investment for a single project, and has the latest-developed operation model and strongest development momentum. The project combines open-pit mining and hydrometallurgy to produce cathode copper and cobalt salt, and has delivered the first batch of cathode copper products 180 days ahead of schedule. It has an annual output capacity of 80,000 tons cathode copper, and now possesses 4.27 million tons of copper and 410,000 tons of cobalt resources. The project is the latest outcome of CNMC in fostering coordinated growth, deepening Sino-Africa friendship, and contributing to international production capacity cooperation.



Full view of the Deziwa Project



High-grade raw copper-cobalt oxide ores at Deziwa Project

Undertaking More Projects

CNMC has undertaken a large number of engineering projects in China and its neighboring countries, as well as in West Asia, the Middle East, North Africa, and Central and Southern Africa. We run a wide spectrum of businesses, including smelting, mining, electric power, highway, house building, electromechanical installation, petrochemical, and city planning. We have developed two reputable brands, China Nonferrous Metal Industry's Foreign Engineering and Construction Co., Ltd. and China 15th Metallurgical Construction Group Co., Ltd., and now are transforming from a project constructor to a provider of integrated solutions.

China Nonferrous Metal Industry's Foreign Engineering and Construction Co., Ltd. signed three new contracting projects in 2019, with a total value of RMB 8.345 billion. Among the projects, the VCM vertical shaft project of KAZ Minerals Plc., with a contract value of RMB 549 million, is now under construction; the Guinea bauxite mine and auxiliary facilities project has a contract value of USD 1.1 billion, marking that CNMC has achieved preliminary progress in the business segment of international engineering projects.

China 15th Metallurgical Construction Group Co., Ltd. has completed over 400 medium and large-sized projects in 30 provinces (municipalities and autonomous regions) and more than 100 counties and cities in China. The record-breaking company has won China Construction Engineering Luban Prize and National Quality Engineering Award for multiple times.



The Southeast Ore Body Project of Chambishi Copper Mine of CNMC NFC Africa Mining Plc. has provided strong support for successfully building a model automated mine in Africa, and for enhancing the mine's competitiveness



The M2 Office Building of the China-Belarus Industrial Park undertaken by China 15th Metallurgical Construction Group Co., Ltd. No. 7 Company is granted China Construction Engineering Luban Prize by China Construction Industry Association and China's High-quality Nonferrous Metal Project

- Seize market opportunities like new urbanization, coordinated development of the Beijing-Tianjin-Hebei Region, development of the Yangtze River Economic Belt and Guangdong-Hong Kong-Macau Greater Bay Area, and the renovation of shanty towns; further develop well-performing traditional advantaged industries, such as the development of mines, smelters, highways, and electric power, as well as market areas that we are qualified to explore, such as house building, municipal administration service, petrochemical, and electromechanical engineering industries.
- Actively develop eco-friendly projects in emerging industries of strategic significance.



- Grasp strategic opportunities like the Belt and Road Initiative, Forum on China-Africa Cooperation, and international production capacity cooperation; scale up efforts in developing the international market.
- Consolidate our position in markets where we have already gained an edge, such as those of mine construction and smelting engineering, while vigorously exploring global mines and new markets in smelting.
- Pay attention to renewal and renovation opportunities in existing and mature markets; considering the overall scale, competition and other factors in different regional markets, prioritize the development of Asia, Africa, the Middle East, and South America markets relying on regions where we've already gained an edge.

Consolidating Trade and Relevant Services

CNMC has fully capitalized on its brand reputation. Based on our own nonferrous metal resources, supported by the global network, and relying on the platform formed by overseas institutions, the Group is vigorously building a global logistics network and supply & distribution network. It has achieved prominent outcomes in trade and services, and strengthened economic and trade ties between China and foreign countries. CNMC Xincheng Construction Supervision & Consulting Co., Ltd. Supervision gives full play to its market advantages, and pools strengths in qualification, branding, management, experience and service to work together with partners and implement projects with efficiency. Meanwhile, CNMC Xincheng Construction Supervision & Consulting Co., Ltd. Supervision provides investment control service to CNMC, helping the Group earn higher investment returns.

In 2019, CNMC witnessed steady growth in the scale of trade segment. Our operating benefits have been significantly improved, and the trade business more market-oriented and internationalized. Mid- to long-term strategic objectives of the segment have also been fulfilled one year ahead of the original timeline.

RMB **50** billion+
Average annual trade volume

USD **1** billion+
Average annual imports

more than **40**
countries and regions
Trade network

Be determined and confident in developing trade, and set up a development platform for the trade business.

Plan the procurement demand of mineral resources in all all-round manner, gain a say in procurement, and ensure the demand of smelting and production for resources is met.

Building on the domestic market's demand and our strengths in overseas resources, reach out to more high-quality sources of goods and customers, and trade staple mineral resources.



While focusing on the strategic business layout, establish a trade service network, and strive to remove bottlenecks that hinder logistics and transportation, warehousing and custom clearance in key countries.

Set up a centralized procurement platform and regulate purchase behaviors; disclose procurement information, and purchase staple commodities and services by category in a centralized manner.

Constantly improve the abilities of market analysis, customer acquisition, freight management, logistics integration, and capital operations; push the trade business to transform and become a value-creating business.

Becoming the largest Blister supplier among all Chinese smelters and achieving trade goals with high quality

As a core player in CNMC's trade and service segment, CNMC International Trading Co., Ltd. continues consolidating its trade business. It procured 115,000 tons of Blister in 2019, which took up 13% of the total Blister imports of China that year, thus becoming the largest Blister supplier among all Chinese smelters. The company sold over 20,000 tons of aluminum ingot for several months in 2019, with a YoY increase of over 100%. Newly-signed non-interested copper contracts involved 33,000 tons, marking a new breakthrough in the trade with Zambia, South African and European areas. It also imported 10 million zinc concentrate ores in the past year, changing the situation of zero imports of such ore. Throughout the year, the company achieved an operating income of RMB 24.554 billion, 40.12% higher on a YoY basis, and reached RMB 35.2 billion in trade volume, achieving trade goals with high quality.

Optimizing Capital Operations

The Group is improving capital operations and pacing up restructuring and consolidation. We have launched domestic and overseas resource integration projects, and effectively promoted the securitization of resource projects at home and abroad, thus building a stronger capacity in resource operation. We have developed a mining and metallurgical engineering technology platform to restructure and merge relevant companies within CNMC system. The reorganization of the financial company was also smoothly completed, pushing the Group's capital management to a higher level.

Comprehensively Deepening the Reform

Guided by the policy documents on SOE reform, CNMC sets clear goals and stays conscious in the reform in terms of thinking, political orientation and actions. The Group strives to shore up weaknesses, address inadequacies, boost vitality and secure sound implementation. By resolutely advancing the reform in a faster and all-round way, the Group has gone to great lengths to realize high-quality development.

CNMC Daye Nonferrous Metals Group Holdings Co., Ltd. successfully listed among the SASAC's "SOE Reform Double-hundred Action"

Through formulating plans on implementing the SOE Reform Double-hundred Action and continuously deepening the reform, CNMC Daye Nonferrous Metals Group Holdings Co., Ltd. has clearly determined 32 key reform projects under the Action, and 85 key tasks of 10 categories under the reform. It has also streamlined the organizational structure by removing and vitalizing ineffective and inefficient assets. Due to its outstanding performance, the company was successfully listed among the SASAC's "SOE Reform Double-hundred Action", becoming one of the pilot companies that promote the reform in a more in-depth, wider-coverage and vigorous manner and carry out a comprehensive reform.

Work on all fronts to cope with unresolved issues

Rectify and close loopholes identified in the SASAC's inspection and the National Audit Office's auditing review; hold those who break the rules in operation truly accountable; go to great lengths to deal with trade risks in financing, compliance risks of overseas businesses, and unresolved problems from the past.

Press ahead with three institutional reforms

Improve staffing of the Group, and put 98 officials at deputy director level or above back to their posts; launch open recruitment campaigns worldwide to find matches for 19 mid-level and senior managerial positions, attracting over 2,400 candidates; hold frontline work experience sharing salons; adjust the policies for remuneration and performance assessment, and develop a hierarchy of positions; mobilize subsidiaries to carry out staffing and salary distribution reforms.

Deepen reforms

Deepen a few reforms, including the "four batches of projects (a batch of technological innovation projects, a batch of projects that just kick off construction, a batch of completed projects, and a batch of docking projects)", the SASAC's "SOE Reform Double-hundred Action", the stripping off and transfer of the functions of water supply, electric power supply, heat supply and real estate management, and the reform of auxiliary plants of central SOEs, so as to fully unleash vitality for the development of systems and mechanisms, and provide endogenous power for the Group's high-quality development.

Prioritizing International Development

We earnestly practice President Xi Jinping's thought of "building a community of shared future for mankind", and align ourselves with the requirements of the UN Global Compact for sustainable development. Upholding the strategy of "prioritizing international business" and the idea of "building an internationalized CNMC", we optimize the regional business layout, build a stronger advantage in overseas business, and fuel international cooperation to improve the ability of allocating global resources and build influence in our industry on an ongoing basis.

Global Businesses

We put the allocation of global business resources in the first place. Following the principle of "developing production bases in an in-depth way, deploying regional businesses properly, and seeking orderly development", we place resources, construction projects and trade at the core of our operations, aiming to gradually form a competitive operation model and develop ideal solutions. Step by step, we strive to develop six mature infrastructure construction bases, namely the Middle East, Central Asia, South Asia, Southeast Asia, Northeast Asia, and Africa. Besides, we are vigorously exploring the European and South American markets, further internationalizing our domestic business lines and companies.

Overseas labs of CNMC International R&D Center founded

In April 2019, two overseas labs of CNMC International R&D Center were officially founded and started operation. This is an important move for CNMC to accelerate implementing the strategy of prioritizing international business, and support African development under the framework of the Belt and Road Initiative. The two labs will serve as new innovation engines for CNMC's overseas business, and lead the Group to "go global" steadily with high-quality outcomes.



Overseas labs of CNMC International R&D Center founded



48.13 %

Proportion of international business to the total assets

30.97 %

Proportion of international business to the total operating income

over RMB 1.163 billion

The cumulative tax paid on international business

80+ countries and regions

Business network

more than 30 countries and regions

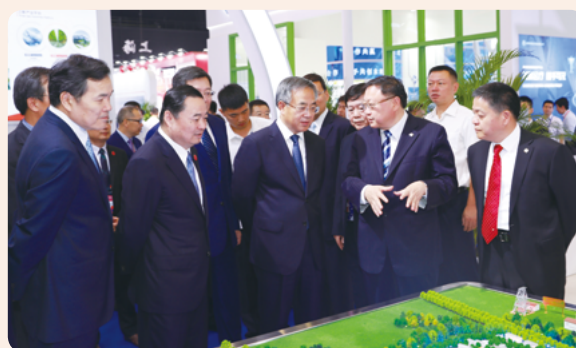
Countries and regions along the Belt and Road covered by our business network

International Cooperation

We have set up the International Business Department, which have underneath the offices in Zambia and Congo (K). We carry out international cooperation and exchanges with governments and companies in other countries. With an open mind, we proactively facilitate international production capacity cooperation, and foster mutual benefits. In 2019, in active response to the Zambian government's new act for rejuvenating the relatively sluggish railway transport sector, CNMC Luanshya Copper Mines Ltd. opened up new railway lines to diversify the modes of transport, injecting lasting momentum to the TAZARA Railway.

Participating in the First China-Africa Economic and Trade Expo to lift Sino-African economic cooperation to a higher level

On June 27, 2019, CNMC showed up at the First China-Africa Economic and Trade Expo. As one of the 12 central SOEs attending the expo, CNMC demonstrated to the audience the determination and accomplishments of the headquarters and its subsidiaries in supporting African development under the theme of "CNMC Practices to Promote Pragmatic Cooperation Between China and Africa". During the expo, CNMC signed cooperation agreements with counterparts in Africa with a total contract amount of over USD 1.3 billion, lifting Sino-African economic cooperation to a higher level and showing its sense of responsibility as a central SOE.



Sponsoring the Outreach Event for the Great Lakes Investment and Trade Conference

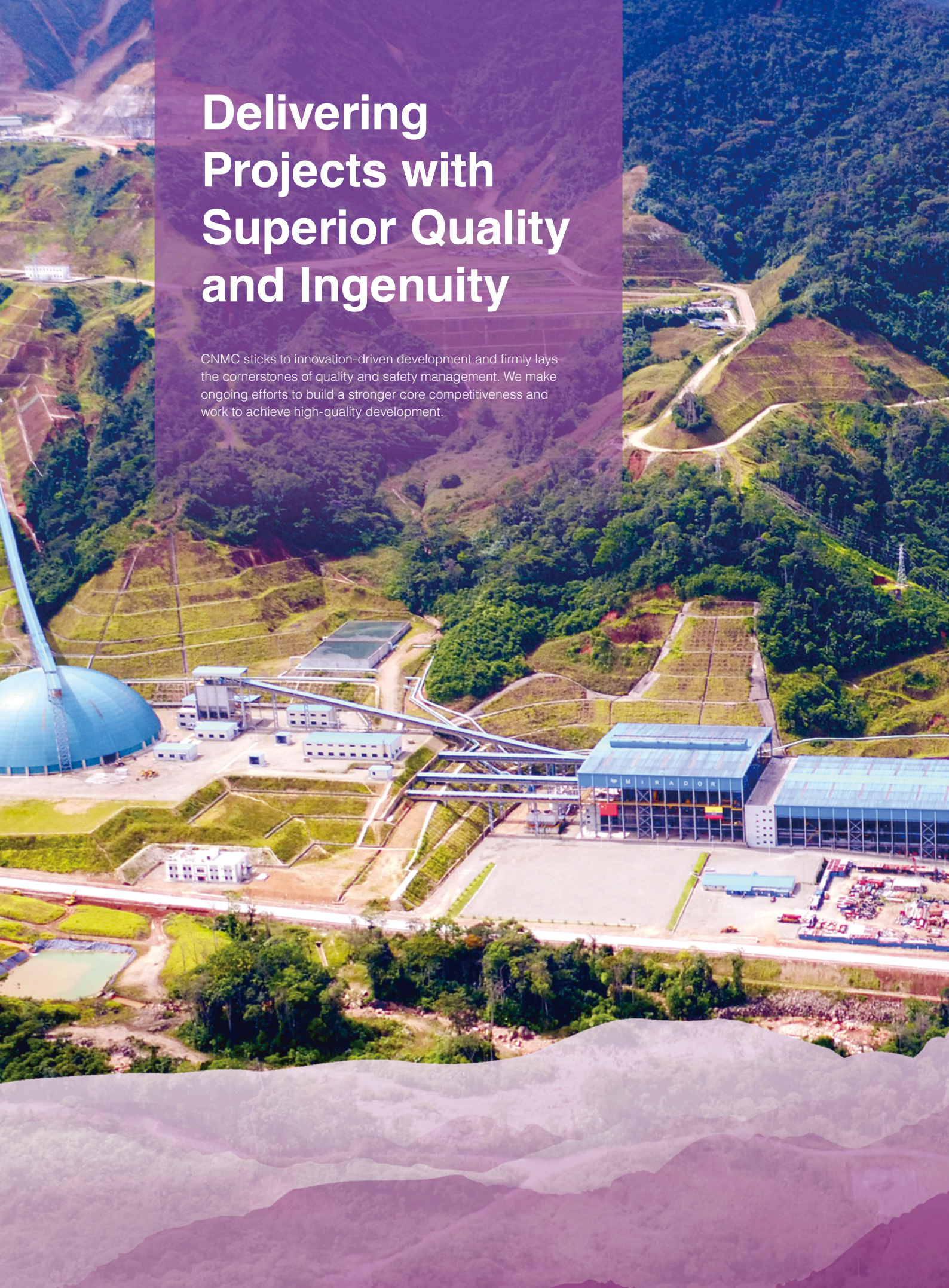
The Outreach Event for the Great Lakes Investment and Trade Conference (GLITC) in Beijing was held at CNMC headquarters on December 17, 2019. The event was organized by the Office of the United Nations Special Envoy for the Great Lakes Region, co-organized by China Chamber of International Commerce, and sponsored by CNMC. The meeting focused on cooperation issues in the Great Lakes region of Africa, and briefed the participants the business environment and investment policies in the region. It was organized to foster economic and trade cooperation between China and the Great Lakes region, increase Sino-African friendship, and boost further contributions to the friendly relations of "good friends, good partners, and good brothers" between the region and other countries.



The Outreach Event for the Great Lakes Investment and Trade Conference is held at CNMC headquarters



The Prime Minister of Mongolia is on an inspection visit to Tsairt Mineral Co., Ltd.



Delivering Projects with Superior Quality and Ingenuity

CNMC sticks to innovation-driven development and firmly lays the cornerstones of quality and safety management. We make ongoing efforts to build a stronger core competitiveness and work to achieve high-quality development.



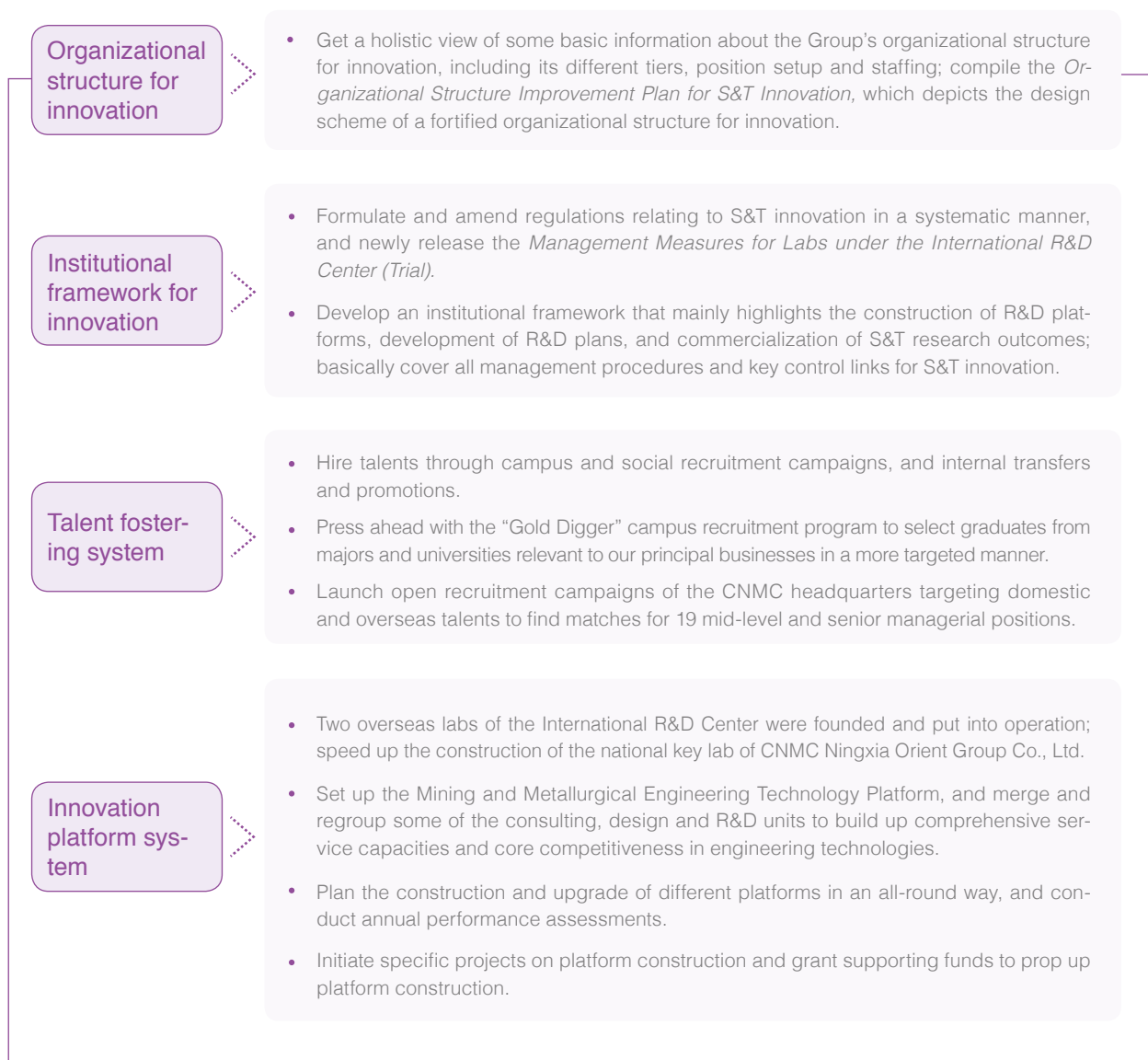
Mirador copper mine project in Ecuador

Pursuing Technology- and Innovation-driven Development

CNMC continuously reinforces innovation-driven growth. Building on our own edges and features, we develop and optimize a high-end industrial chain, and mobilize efforts across the Group to tackle key and core technical problems, so as to become a tech-backed company and let technology serve as a sustainable driving force for development. In 2019, the Group spent approximately RMB 1.902 billion on R&D.

Improved Innovation System

We accelerate the building of a technological innovation system, and have compiled the *Plan on Science and Technology Innovation*. We keep improving the organizational structure, institutional framework, talent fostering and innovation platform system that fully guarantees steady progress in S&T innovation and makes innovation effectively bolster the Group's strategic development.



Innovation platforms

7 research and design institutes

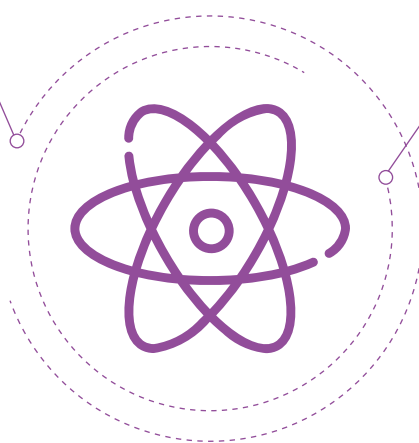
1 national key lab

3 national-level engineering technology research centers

2 CNAS-certified laboratories

3 state-accredited enterprise technology centers

31 provincial and industrial (nonferrous metal industry) innovation platforms



Innovative talents

1 academican of the Chinese Academy of Engineering

27 experts enjoy State Council Special Allowance

3 national candidates of the New Century Millions of Talents Project of China

2 national technical experts

CNMC NFC Africa Mining Plc. pools strengths to tackle technical problems and boost innovative development

Aiming at building a model digital mine in Africa, CNMC NFC Africa Mining Plc. takes the opportunity of renovating and upgrading the main and west ore bodies, and the digitization of the Southeast Ore Body, and continues improving the S&T innovation system, to blaze new trails in scientific advancement and technological innovation.

- Set up the special department in full charge of strategic planning and S&T innovation; establish the Expert Committee and expert groups for geological survies, mining, mineral dressing and mechanical-electric engineering; include professional and technical staff at different levels and from different sequences into the talent pool for scientific research and project studies.
- Formulate regulations such as the *Management Measures for Scientific Research Projects and Funds of CNMC NFC Africa Mining Plc.* to secure smooth progress in S&T innovation.
- In terms of the construction of IT-based, automated and smart mines, actively undertake and carry out projects for tackling key technical problems.



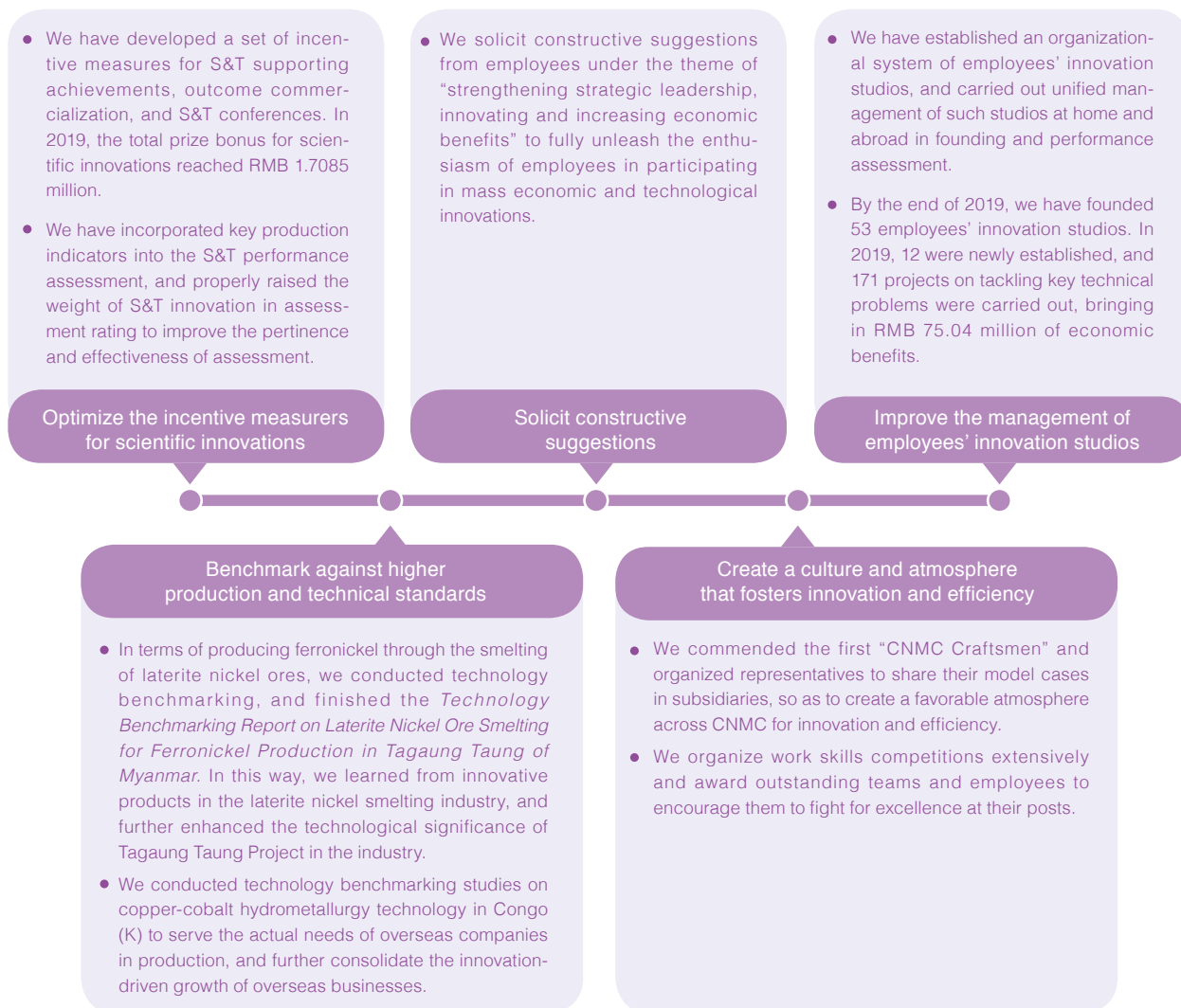
Staff at the International R&D Center is working hard to tackle key technical problems



The mineral dressing workshop of Southeast Ore Body of CNMC NFC Africa Mining Plc. adopts the most advanced techniques and equipment in the world

Innovative Practices

To boost innovation and improve efficiency in a more profound way, we encourage all employees to take part in public economic and technical innovation activities. The incentive mechanism for S&T innovation is being constantly bettered, and unique activities are organized to foster innovation and efficiency. In this way, we hope to unleash the vitality and potential of employees in improving efficiency and pursuing innovation in everyday practices, thus providing lasting momentum to the Group's reform and innovation.



Representatives of the first "CNMC Craftsmen" winners are sharing their model cases at Chifeng Da-JingZi Mining Co., Ltd.



Scan the QR code to watch the video of the first "CNMC Craftsmen" winners

Commercialization of Innovative Outcomes

CNMC greatly values major S&T projects and expedites solving key technical problems. We promote the market application of research outcomes, and forge ahead towards the front-end of the industrial chain and high-end of the value chain so that innovation drives the Group to build competitiveness and achieve sustainable development.

Promoting innovative R&D and outcome commercialization

To better commercialize and apply scientific outcomes, the Group evaluates existing outcomes and launches commercialization projects so as to effectively turn scientific research capacities into productivity, and thus improve the quality and efficiency of development, and corporate transformation. In 2019, CNMC got three national-level science and technology projects approved. Among them, the joint project between CNMC NFC Africa Mining Plc. and University of Science and Technology Beijing, "Research on New Mining Management and Control Models Based on Smart Devices and Systems", was selected into the Application Guidelines for the National Key Research and Development Program in 2019, and was approved.

Approve outcome commercialization projects	Actively evaluate and rate scientific outcomes	Promote model cases in the commercialization of scientific outcomes	Advance industry-university-research collaboration
Mobilize subsidiaries to carry out benchmarking studies and submit applications for annual scientific outcome commercialization projects; approve 3 commercialization projects, including the <i>Research on the Industrialization of High-performance Cu9Ni6Sn Alloy Strips</i> .	Upon assessments of China Nonferrous Metals Industry Association, 2 projects were rated as internationally advanced projects. They are "Metallogenic Regularity and Prospecting Prediction of Limu Tin Polymetallic Deposit in Guangxi" and "The Preparation Process of Mineral Fibers from Nickel-iron Smelting Slag of Laterite Nickel Ores and Its Application in the Construction and Maintenance of High-grade Highways".	Draw experience in commercializing scientific outcomes, and collect and compile model cases in this aspect, which were awarded by the SASAC as outstanding cases and promoted among central SOEs.	Establish stable partnerships with universities and research institutes relevant to our industry, including Central South University, University of Science and Technology Beijing, Kunming University of Science and Technology, and GRINM Group Corporation Limited, and cooperate in project development and tackling key technical problems, etc.

	Name of the award-winning Project	Main contributor
First prize	Metallogenic Regularity and Prospecting Prediction of Limu Tin Polymetallic Deposit in Guangxi	China Nonferrous Metals (Guilin) Geology And Mining Co., Ltd.
	Discrimination, Prevention and Control Methods in Response to Instable Rock Structure in Deep Metal Mine and the Methods' Engineering Applications	China Nonferrous HongTouShan Fushun Mining Goup Co., Ltd.
	Key Technologies and Applications for the Green Development of Polymetallic Associated Low-grade Refractory Tantalum, Niobium and Lithium Ores	China Nerin Engineering Co., Ltd.
	Key Technology and Engineering Application of High-performance ITO Targets for Flat Panel Display	Northwest Rare Metal Materials Research Institute Ningxia Co., Ltd.
	Key Technology and Equipment for Intelligent Processing of Electrolytic Copper Anode (Invention)	Jiangxi Nerin Equipment Co., Ltd.
	Nonferrous metal industry standard – <i>Methods for Chemical Analysis of Copper Ores and Tailings</i>	CNMC Daye Nonferrous Metals Group Holdings Co., Ltd.
Second prize	Nonferrous metal industry standard – <i>Copper Anode Mud</i>	CNMC Daye Nonferrous Metals Group Holdings Co., Ltd.
	Development and Application of Key Technologies for Rehabilitating Sites Contaminated by Nonferrous Metal Industry	China Nerin Engineering Co., Ltd.
	Ecological Dust Suppression and Control Technology for Open and Thick Dust in Haul Roads of Open-pit Mines (Invention)	CNMC Daye Nonferrous Metals Group Holdings Co., Ltd.
	New Techniques for Extracting and Recovering Metallic Zinc from the Wastewater of the Mineral Dressing Process of Zinc-rich Residue after Zinc Hydrometallurgy, and for Recycling of Mineral Dressing Wastewater	Chifeng NFC Zinc Co., Ltd.
Third prize	The Preparation Process of Mineral Fibers from Nickel-iron Smelting Slag of Laterite Nickel Ores and Its Application in the Construction and Maintenance of High-grade Highways	CNMC Shenyang Research Institute of Nonferrous Metals Co., Ltd.
	Development and Application of a New, Efficient and Green Collector for Copper-molybdenum Mixed Flotation	Tieling Flotation Reagents Co., Ltd.
	Digestion and Innovation of "Flash Smelting and Flash Converting" Processes for Copper Smelting	China Nerin Engineering Co., Ltd.
	GB/T15076-2017 Methods for Chemical Analysis of Tantalum and Niobium YS/T573-2015 Tantalum Powder	Ningxia Orient Tantalum Industry Co., Ltd.

Respecting and protecting IPR

We respect and protect intellectual property rights, carry out IPR management and raise employees' awareness of IPR protection. We have formulated IPR regulations in line with the *Patent Law of the People's Republic of China*, *Trademark Law of the People's Republic of China*, *Copyright Law of the People's Republic of China*, as well as other relevant laws and regulations, to promote the commercialization of technological outcomes and constantly inject vitality to S&T innovation.

- Reinforce the management of IPRs, including trademarks, patents and commercial secrets, through registration, filing and incentive measures
- Promote the importance of IPR protection across CNMC to enhance all employees' awareness of IPR protection
- Review the contracts of centralized procurement of copyrighted office software from a legal perspective, and cooperate with responsible business departments to troubleshoot loopholes caused by pirated software in subsidiaries

Enhancing Quality Management

Being quality-oriented, we comprehensively tighten up quality management, promote the effective operation of the quality system and make constant improvements. In 2019, our quality management regulations and procedures were further improved, resulting in obvious progress in quality supervision and the troubleshooting of safety hazards. All employees obtained an increasingly higher awareness of quality, which laid a solid foundation for delivering projects of prime quality.

Quality Management System

Following the compass of "high-quality management and low-cost competition", we endeavor to make our quality management more scientific and standardized. We have established and improved systematic quality management, and promoted quality governance in a holistic manner by integrating it into our Group's strategic plan. Through developing high-quality products, we will generate higher profits and press on with the quality reform.

By the end of 2019, we had

1,576 patents, including
671 for patents for inventions

In 2019, we newly obtained

187 patents, including
52 for patents for inventions

"A Method for Integrated On-site Manufacturing and Installation of Cylinder Blenders" won China Excellent Patent Award

In 2019,

36 projects won quality-related awards, including

2 winners of Excellent Engineering Design Award,

1 of China Excellent Patent Award, and

1 of China Construction Engineering Luban Award (Overseas Project).

7 of our subsidiaries won international, national, provincial or ministerial awards for superior quality.

77 Quality Control groups were set up,

27 of which won awards in the Central SOE Achievement Presentation Competition.

Comprehensively fulfill quality responsibility

We urge the subsidiaries to fulfill their responsibility and supervise the process of quality improvement. In line with objectives specified in the *Implementation Plan of the Quality Improvement Action*, we break down the objectives into clear targets, and implement the plan in strict accordance with the scheduled timeline. We hold personnel at all levels accountable, fulfill the supervision responsibility, and ensure the thorough implementation of the Quality Improvement Action.

Establish and improve the institution and system for quality management

We have properly reviewed and actively revised and improved the quality management system and workbook, and have built an all-round quality management system to enhance comprehensive management & control capacity. In the meantime, we work hard to ensure effective execution and publicity of relevant regulations. By the end of 2019, our secondary (and key tertiary) subsidiaries had implemented 110+ quality management regulations, over 70 of which were included in the annual revision plan.

Actively advance the standardized management of the quality system

We have been vigorously building and upgrading the quality management system. In 2019, 14 secondary subsidiaries passed the quality management system review in time, and almost 30 key tertiary subsidiaries were successfully certified by the new standard for the quality management system.

Full-Process Quality Management and Control

We consolidate full-process quality management and scale up efforts in the troubleshooting of quality hazards. By reinforcing PDCA (Plan-Do-Check-Act) and dynamic supervision, two key links of quality management, we are able to eliminate quality hazards and provide high-quality products. In 2019, the pass rate for product testing reached 96.81%, and the rate of yield was 96.3%. No major quality accident happened in the past year.

● Troubleshoot and rectify quality loopholes and hazards

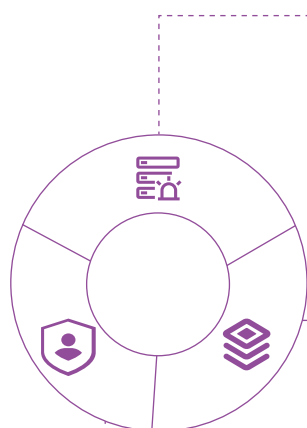
- Improve the quality supervision mechanism, set up working groups on quality issues in secondary subsidiaries, and follow up with the rectification progress for issues identified by internal and external audits; go over the work procedures of functional departments and point out weaknesses, and troubleshoot safety hazards in the work procedures of subsidiaries.
- Keep records of quality issues, and report the rectification progress on a monthly basis for the record of the Group Company.
- For issues that have not been rectified in time, conduct special inspections and spot checks every now and then to ensure all loopholes are properly closed.

● Strengthen the PDCA of quality management

- Production companies shall adopt the PDCA (Plan-Do-Check-Act) model, as advocated by ISO 9001, as a basic tool of quality management, and identify management elements and production processes in a systematic manner.
- Establish a normalized mechanism for evaluating processes, improve the discipline inspection mechanism for the use of techniques, and develop a sounder correction & prevention mechanism, to reinforce process management and control; standardize operations, regulate executions, and normalize improvements; drive the constant improvement of product quality.

● Reinforce dynamic supervision and management in quality control

- Report quality management & control statements on a monthly basis, instead of the quarterly basis in the past; refine each quality control indicator, and include 28 indicators in 4 categories, namely engineering, service and trade companies into the monthly management statements, to make the statistics more standardized and reasonable.



Industrial enterprises

Pass rate for product testing	%	96.81
Pass rate for equipment testing	%	100
Pass rate for material testing	%	100

Construction enterprises

Number of completed and accepted projects	/	62
Pass rate for equipment testing	%	100
Number of quality- or safety-related accidents	/	0

Universal Quality Awareness

During the “Quality Month”, we mobilize subsidiaries to provide quality education and training, with an aim to raise all employees’ quality awareness and improve our quality management level, thus effectively guaranteeing the quality of our projects.

Organize activities that equip employees with stronger quality control skills

Organize a wide range of activities on quality improvement and key problem solving, work skills competitions, and QC team building; vigorously promote advanced quality management measures, hold over 60 training sessions, and have received 115 constructive suggestions from employees.

Provide training on standards relating to the quality management system

Provide professional training to 1,000+ quality management staff throughout the year; over 50 employees obtained the qualification of internal auditor; equip internal auditors with higher capacity through training, which lays a solid foundation for implementing relevant standards with outstanding performance.



Hold knowledge contests on comprehensive quality management

Attract 6,000 participants across CNMC (due to internet problem, about 2,000 employees in Central and South African companies attended the offline contest), and effectively raise universal quality awareness.

Send employees to front-line team building training

Subsidiaries of CNMC sent 3,000+ employees, including front-line quality inspectors and team leaders, to a front-line teambuilding training, which interpreted and publicized regulations relating to assessment criteria for quality control teams, in the purpose of improving the capabilities of front-line teams and quality inspectors, and helping them better learn, apply and innovate in quality control tools.

Providing Prime Services

We keep polishing our products and services to meet the needs of customers and serve them better. False or misleading advertisements are strictly prohibited. In 2019, we scored 97.34% in customer satisfaction and solved 100% of complaints. No major customer complaint was received in the past year.

Develop a standard service management model

- **Product info promotion and training:** We promote and disseminate truthful product information to customers through WeChat, phone calls or customers visit. Clauses on product quality standards, packaging standards, measurement and objection handling are specified in the transaction contract, and the authenticity and accuracy of product info are ensured, which provides aftersales service guarantee for customers. For example, before CNMC International Trading Co., Ltd. sells its cathode copper products, it introduces detailed product information to customers, including the origin, brand, quality fluctuation range and usage.
- **Increasing customer satisfaction:** We compile customer satisfaction control procedures, and procedures manuals on coping with unsatisfying service and corrective measures, analyze reasons of unqualified service, and timely stop loss by taking rectification measures in time, such as active communication with customers, or remedial proposals; we also boost service quality through the standardized management model.
- **Customer information protection:** We never disclose customer information to any third party without the consent of customers. And we have taken proper measures to ensure website security, so as to continuously strengthen the protection of customers’ personal information.

Set up an active aftersales service system

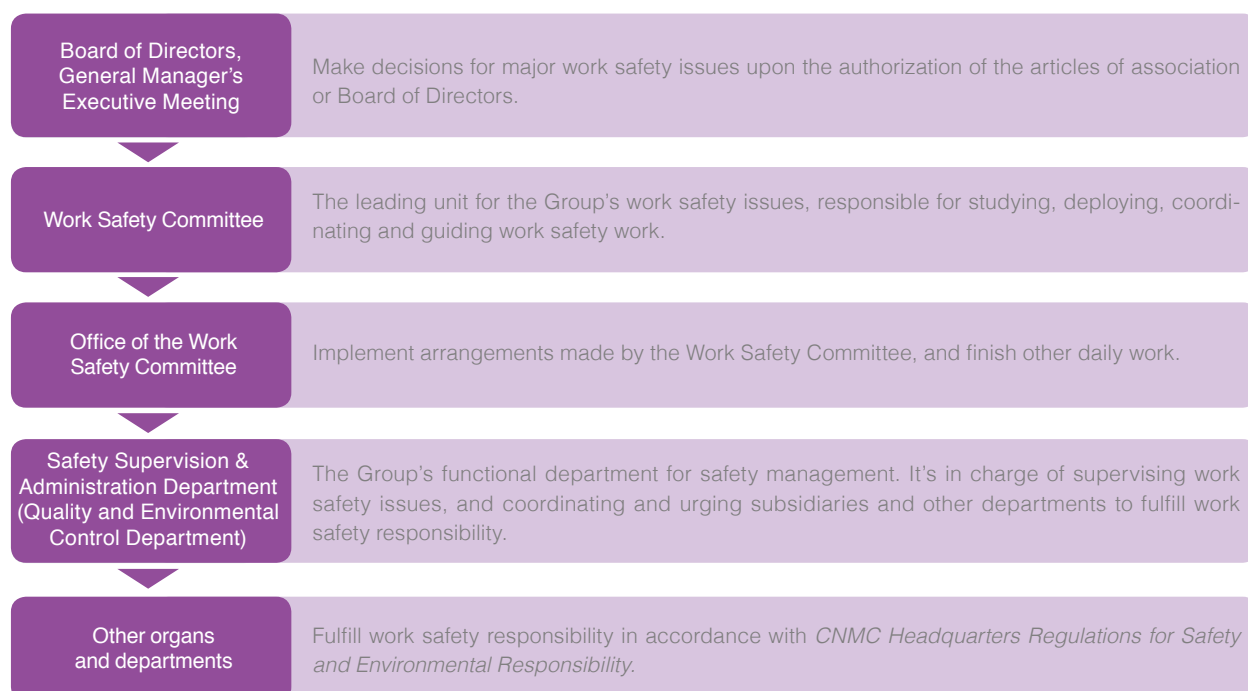
- **Proactively coping with customer complaints:** We set up a swift and efficient quality response mechanism to tackle customer complaints in no time.
- **Improving aftersales service:** We organize an active aftersales service team to provide on-site response to customers; formulate a set of management and performance assessment regulations for such service staff, and effectively manage the team; mail or send in person the *Service Quality Feedback Form* and *Project Feedback Form* to customers each year, to ask for customers’ opinions about the process and form of our service, and timely know customers’ demand.

Consolidating Safety Management and Control

Safety is the cornerstone for a company's healthy and sustainable development. CNMC has integrated the concept of work safety into every link of our operation and production. We safeguard the bottom-line of work safety, fulfill relevant responsibilities, and enhance the prevention of safety risks, so as to ensure the fulfillment of our development goals.

Safety Management System

The Group improves the organizational and institutional systems for safety management on a regular basis. A safety supervision and inspection mechanism has been established, and foundations of safety management further consolidated, thus ensuring work safety in full swing.



Organizational System for Safety Management



Prevention and Control of Safety Risks

We keep increasing investment in work safety and take concrete measures to manage and control safety risks. In the meantime, safety inspection & assessment and emergency management are also strengthened so as to lower down safety risks and ensure intrinsic safety.

We attach great importance to reflecting over emergencies in daily operation and making improvements. We look into accidents and hold people accountable. Through conducting internal investigation of work safety accidents, bringing misconducting personnel to account, and imposing administrative punishments, we analyze reasons of accidents carefully, and come up with rectification measures and improvement plans. In 2019, no major or serious work safety accident occurred, and the occurrence of common work safety accidents dropped by 50% year on year; the accident-related fatality rate per RMB 10 billion of industrial output was 0.64, the lowest in CNMC's history.

Improve the safety risk prevention system

- Formulate policies such as *Work Safety Production Assessment Methods and Regulations for Safety Accident Reporting, Investigation and Handling*; issue the *Dual Prevention System – Graded Management and Control of Work Safety Issues and Troubleshooting and Treating Safety Hazards*, to specify detailed requirements for the graded dynamic management & control of safety risks and normalized troubleshooting of safety hazards, thus improving the overall management of safety risks.

Strengthen safety inspections and supervision

- Sign *Letter of Safety and Environmental Responsibility* with 16 companies facing relatively higher safety risks, to set clear assessment indicators and key objectives for the companies throughout the year; keep records and strengthen supervision and guidance, while following up with implementation progress in a dynamic manner.
- Conscientiously implement precautions against safety risks at critical time periods, such as during holidays, the "Two Sessions", the flood season and the 70th founding anniversary of the PRC; make sure employees at key positions are on duty around the clock with officials taking charge, and related personnel conduct safety patrols, and make proper preparations for emergencies to guarantee work safety.
- Organize rectification campaigns in underground mines and construction enterprises, carry out work safety monitoring and inspections in 14 key producing companies at home and abroad, and conduct unannounced safety checks to keep all kinds of safety risks under effective control.

Enhance the capacity of emergency rescue

- Strengthen the building of emergency rescue teams for work safety; develop specific contingency plans, and improve employees' emergency handling ability.
- Carry out 460 emergency drills at various levels and in diverse forms, mainly drills for mine, construction and hazardous chemical accidents, with a total of over 19,000 participants, effectively improving employees' emergency rescue and accident handling capabilities.



Emergency drill for mine collapse at CNMC Nickel Co., Ltd.



The emergency drill for liquid ammonia leak at CNMC Albetter Copper Co., Ltd.



RMB **292** million

Investment in work safety in 2019

10,500+

Safety inspections at all levels organized

32,460+

Safety hazards troubleshot

32,184

Hazards rectified

99.1 %

Rectification rate of accident hazards

CNMC Daye Nonferrous Metals Group Holdings Co., Ltd. increases input in safety R&D and equipment to build the capacity of preventing safety risks

CNMC Daye Nonferrous Metals Group Holdings Co., Ltd. cooperates with scientific research institutes in tackling key technical problems in the development of mining methods. It promotes the application of safe and proper mining processes in Tonglushan Mine, such as sublevel drilling and ore removal, and subsequent filling in sublevel drilling process. The company mobilizes mines to adopt the smooth blasting technology for stope roof, and promotes the use of remotely controlled carry-scrappers, drilling rigs and other mechanical mining equipment, to effectively enhance productivity and build the capacity of preventing safety risks in the pit.

Safety Awareness of Employees

We also provide publicity and training on work safety. In a safety-conscious environment, we strive to raise employees' awareness of proactive safety. To escort steady development, we galvanize efforts to root the ideas of "proactive safety management" and "intrinsic safety" deep into every employee's mind and actions.

Publicity and education on work safety



- Set up a normalized mechanism for reporting information relating to work safety, make full use of WeChat groups, the OA system and other platforms to strengthen risk alerting, and popularize relevant knowledge and skills; over 2,400 messages on work safety have been sent by now.
- Carry out a series of activities in the "Work Safety Month" themed with "prevent risks, eliminate hazards, and avoid accidents"; publicize safety knowledge from various perspectives and in multiple forms, such as giving lectures on work safety, setting up bulletin boards and putting up safety slogans, and watching educational videos together, etc.

Work safety training



- Offer systematic training on laws and regulations relating to work safety, operating procedures, and safety skills by setting up a mentor system and opening evening classes. We provide various levels of trainings for 190,000 trainees, including nearly 100,000 employees from outsourced business units, thus continuously enhancing all employees' awareness of proactive safety.

CNMC training session for mid-level and senior managerial staff in charge of safety and environmental issues

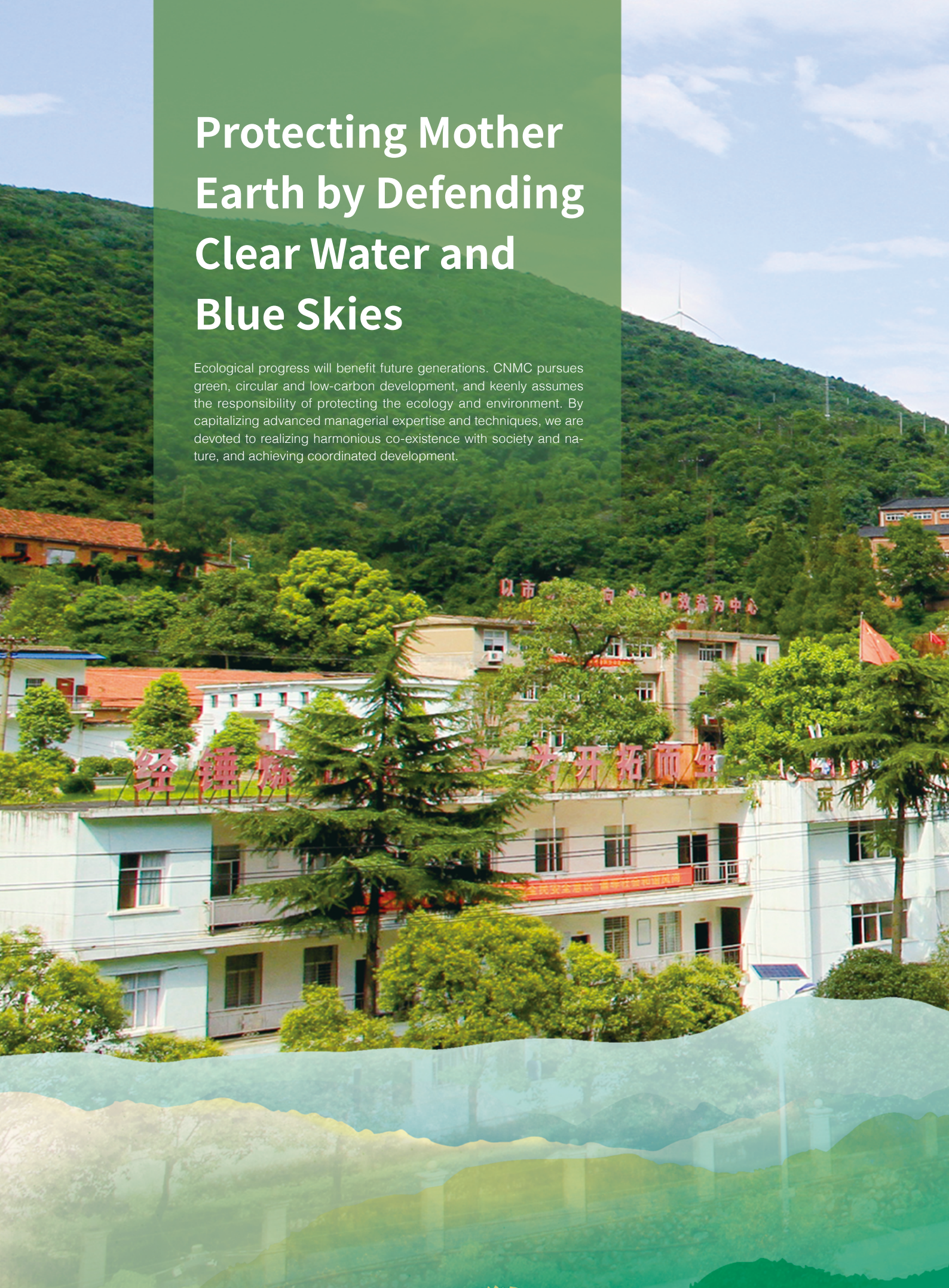
In October 2019, CNMC organized a three-day training session for mid-level and senior managerial staff in charge of safety and environmental issues. 57 registered safety engineers and more than 100 managerial staff in charge of safety and environmental issues from 15 subsidiaries attended the training. Experts were invited to give lectures on key issues of safety and environmental protection, such as the construction of a dual precaution system, the central government's environmental protection inspection, emergency management, and accident investigation. Through interpreting policies, sharing experience, analyzing cases and giving warning education, the training session effectively enhanced the safety awareness and professional capabilities of relevant managerial personnel in the Group.



CNMC 2019 Training Session for Mid-level and Senior Managerial Staff in Charge of Safety and Environmental Issues

Protecting Mother Earth by Defending Clear Water and Blue Skies

Ecological progress will benefit future generations. CNMC pursues green, circular and low-carbon development, and keenly assumes the responsibility of protecting the ecology and environment. By capitalizing advanced managerial expertise and techniques, we are devoted to realizing harmonious co-existence with society and nature, and achieving coordinated development.





Environmental Management

We have established a long-term mechanism for ecological conservation to constantly intensify the management of environmental impact, and lay a solid foundation for comprehensive and standardized environmental protection practices.

The Environmental Management System

We press on with the environmental management system on all fronts, improve the institutional structure and consolidate foundations for management. In compliance with the *Regulation on Central Inspection Work on Ecological Protection*, we have formulated *Measures and Work Plan for the Inspection Work on Ecological Protection*, which put forward all-round and systematic requirements for environmental protection, promoting the fulfillment of green responsibility level by level.

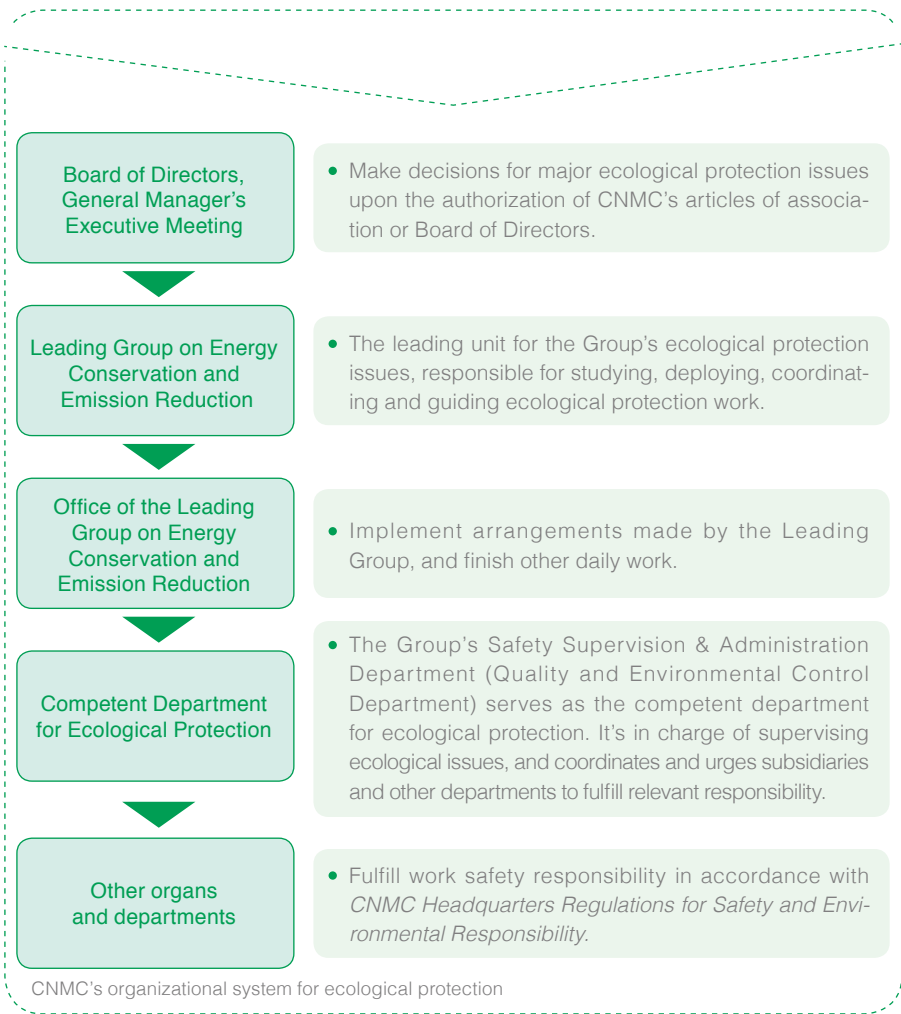
A better organizational system for environmental protection

We have developed a sound organizational system for ecological protection. Our Chairman plans, arranges and conducts environmental inspections by himself to ensure effective implementation. The system mainly involves the Board of Directors, General Manager's Executive Meeting, Leading Group and its Office on Energy Conservation and Emission Reduction, competent department for ecological protection, and other organs and departments.



Approximately
RMB **614** million
Invested in environmental
causes in 2019

15
of our subsidiaries were
newly certified by ISO
14001/ISO 24001 envi-
ronmental management
systems



A reinforced environmental emergency response mechanism

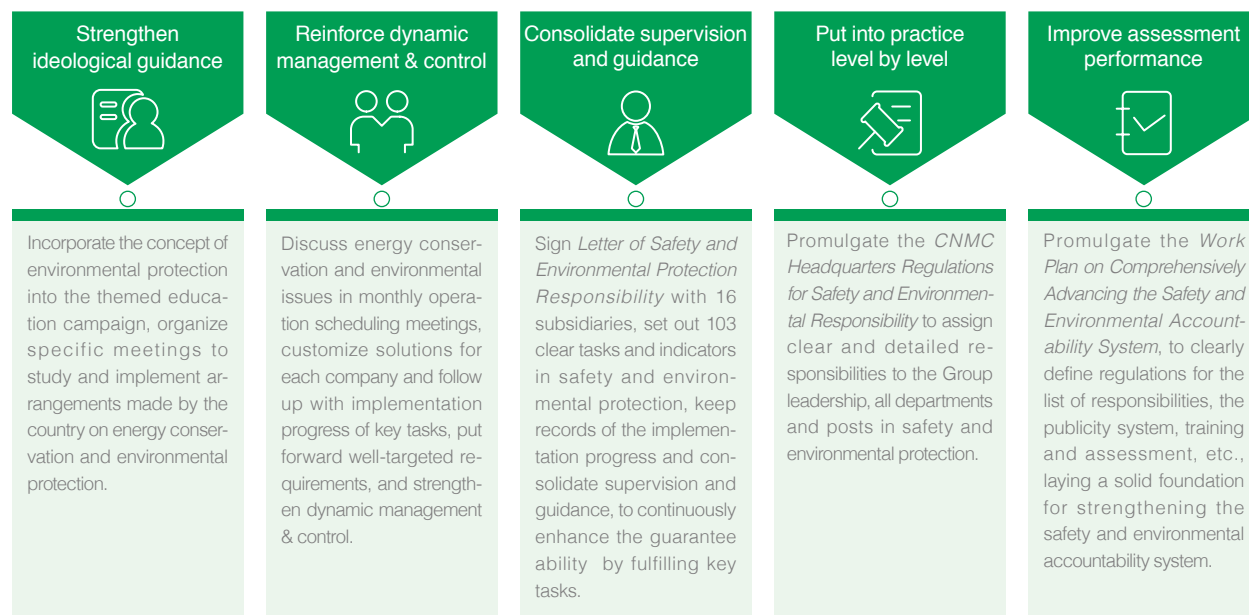
We have further consolidated the environmental emergency management system. The Working Group on Formulating Emergency Rescue Plans has been set up, and relevant duties and tasks clearly assigned. Emergency drills on environmental emergencies have also been organized to enhance our employees' ability of emergency management.

China Nonferrous Metal Industry's Foreign Engineering and Construction Co., Ltd. strengthens early warning and emergency management on environmental protection

China Nonferrous Metal Industry's Foreign Engineering and Construction Co., Ltd. pays attention to identifying, monitoring and evaluating potential environmental accidents or emergencies during operation. It also takes well-targeted measures against possible environmental impact. Through reinforcing risk identification, on-site and process management, and emergency management, it has comprehensively built up the ability of fending off and coping with risks. In 2019, China Nonferrous Metal Industry's Foreign Engineering and Construction Co., Ltd. conducted eight specific environmental inspections and identified 42 hazards. It launched specific activities to identify risks, and found 12 safety hazards. All responsible units eliminated 169 safety hazards, and a closed loop of early warning, precautions and emergency response for environmental risks was developed.

A well-implemented environmental management mechanism

The organizational and institutional systems for environmental management have been in place, which secure the organization, institution and resources we need in day-to-day environmental practices, and point out the direction for future efforts. We strictly comply with relevant requirements for better environmental performance.



We define different levels of environmental risks posed by transportation, and strengthen green transport

We are environment conscious in the process of transporting products or raw materials. First, as for products or raw materials with relatively low environmental risks during transport, we require the transporter to assume the responsibility, and consolidate the accountability system. Second, as for copper ore concentrates and general chemical raw materials with middle environmental risks, we require the materials to be kept in airtight containers and protected from dust with spot checks conducted, to ensure effective pollution control measures. Third, as for hazardous products and hazardous waste posing high environmental risks, we entrust qualified agencies to transport the materials, and supervise them. We have also set up an emergency response mechanism for potential environmental incidents during the transport process, to make sure the environmental risks are controllable.

Environmental Advocacy

Through related training and education, online courses and internal sharing salons, we have boosted employees' awareness of environmental protection. On occasions like World Environment Day and National Energy Conservation Publicity Week, we would initiate environmental volunteering campaigns and publicity activities to advocate green ideas and foster an energy-saving and low-carbon trend.

In 2019, we provided a workshop for mid-level and senior managerial staff in charge of environmental issues, involving more than 160 representatives from 15 subsidiaries. We also convened a training session on the information system for energy conservation and emission reduction, which faced over 150 managerial personnel across CNMC in the field. The training further standardized the statistical analysis and monitoring of energy saving and emission reduction.



CNMC Shenyang Mining Investment Co., Ltd. sets up bulletin boards to popularize knowledge about energy conservation and environmental protection



On March 12, 2019, employees from CNMC Daye Nonferrous Metals Group Holdings Co., Ltd. were planting trees in the Smelting Plant

Publicizing and implementing major decision and arrangements on ecological progress to raise the environmental awareness of all employees

On November 19, 2019, we convened the Special Seminar of the Central Group on Theoretical Learning (Enlarged), to study Xi Jinping Thought on Ecological Progress and major decisions and arrangements. Wang Tongzhou, Chairman of CNMC, addressed the seminar. And Dong Changqing, General Manager of CNMC, served as the chair. Relevant experts were invited to introduce the compliance of central SOEs' practices in ecological protection, and to address key points of the central environmental inspection. At the seminar, the idea and importance of ecological progress were successfully passed on to staff across the Group, aiming to strengthen the early warning of environmental risks in an all-round way and equip employees with knowledge and hands-on skills on ecological protection.

Green Office

We have integrated the idea of green development into our daily production, operation and management. For example, we keep intensifying the management of office consumables and energy consumption, promote paperless office and reduce the waste of paper. Sustainable lifestyles and consumption patterns, such as green travel, are encouraged to cut energy consumption reasonably. In 2019, we attended 73 video conferences, including 35 organized by the SASAC, and 38 hosted by ourselves.

Launch the "Beauty Factory" campaign

In order to further advocate green operation and green office, Chambishi Copper Smelter Limited formulated and issued the *Plan of CCS "Beautiful Factory"*, and carried out eight actions to achieve the goal of plant cleaning, greening, lighting and beautification, creating comfortable, and eco-friendly working environment.



New offices under construction

Energy Conservation and Emission Reduction

To address the impact of its operations on the environment, the Group actively carries out energy conservation management and adopts relevant technologies to enhance resource efficiency, reduce the emissions of greenhouse gases, sewage and waste, and minimize the impact of daily operations on nature.

Energy Conservation and Consumption Reduction

We explore ways to build clean mines and smelters. Based on independent innovation and solutions to key technical problems, we actively improve our technologies and equipment, and increase the recovery rate and comprehensive utilization rate of mineral resources, so as to develop a long-term mechanism for energy saving and efficient use of resources.

The total energy consumption of CNMC in 2019 was 782,800 tons of standard coal equivalent (tce). The comprehensive energy consumption was 646,500 tce, and the comprehensive energy consumption per RMB 10,000 of revenue (comparable price) was 0.0032 tce. The emissions of greenhouse gases were 2.1596 million tons, and the density of GHG emissions stayed at 0.36 tons of carbon dioxide equivalent per RMB 10,000 of revenue (comparable price).

Note 1: As the SASAC released the *Notice on Promulgating the Statistical Statements of Central SOEs on Energy Conservation and Ecological Protection* ([2019] No. 19), we are to implement the guiding principles of the document, and to further improve the statistical monitoring system for energy conservation and ecological protection. Since Q2 of 2019, we included companies at all levels in the consolidated financial statements into the statistical scope. And we made certain adjustments when measuring some of the indices, in line with the new requirement.

Note 2: Total energy consumption refers to the sum converted into standard coal of all kinds of energy actually consumed by companies (units) in the reporting period. Equation: Energy Consumption = \sum (Consumption of a certain kind of energy \times Standard coal conversion coefficient of the energy); Comprehensive energy consumption refers to the sum of all kinds of energy actually consumed in industrial production by companies (units) during the reporting period (excluding the repeated part such as energy processing & conversion and energy recycling).



The total energy consumption of CNMC in 2019 was

782,800 tce

The comprehensive energy consumption per RMB 10,000 of revenue (comparable price) was

0.0032 tce

The clean energy consumption of CNMC in 2019 was

372,997 tce

Recycling with high efficiency to enhance the utilization rate of resources

Chifeng China Nonferrous Kubo Hongye Zinc Industry Co., Ltd. (CNMC Zinc) extracts valuable metals from waste residue to enhance the utilization rate of resources. In 2019, the company recovered 921.75 tons of electrolytic copper, 413.65 tons of metallic cadmium, 83.67 tons of metallic cobalt, 1,709.98 tons of metallic zinc, 24,944.71 kg of metallic silver and 90.55 kg of metallic gold. In the meantime, unqualified zinc sheets, ingots and particles generated from the production process were recycled and made into zinc powder, and put into use in the liquid purifying workshop. In this way, the metal waste residue used to be regarded as useless was turned into valuable resources that could be utilized again. These practices contributed to the development and comprehensive utilization of metal mineral resources.



Exterior scene of leaching workshop of comprehensive recovery branch plant

Optimizing techniques and processes to save energy and cut consumption

To improve the quartz crushing techniques adopted by the smelting workshop, CNMC Daye Nonferrous Metals Group Holdings Co., Ltd. took measures to streamline the production process, shorten the production time and save costs. It renovated the short crushing 1# belt and feeding chute to effectively shorten the quartz crushing procedure and reduced processes like coarse, intermediate and fine crushing, and vibratory screening, thus dragging down the rate of equipment attrition and energy consumption. The workshop's annual electricity consumption, before the renovation, was 36,246 kWh, which reduced to 24,156 kWh afterwards. The electricity consumption of the quartz crushing process in 2019 dropped by about one third on a YoY basis.

Water Conservation

We constantly strengthen the management of water resources and improve the water conservation management regulation. By developing new technologies, techniques, equipment and materials, we push ahead with water conservation. We promote projects of recycling reclaimed water and mine water, and strive to become a water-saving enterprise. Besides, we work on improving the recycling and comprehensive use of wastewater, to turn waste into resource. In 2019, our total water consumption was 26.5212 million tons, and the comprehensive water consumption per RMB 10,000 of revenue (comparable price) was 44.47 tons.

- Chambishi Wet Smelting Company makes full use of the overflow of thickeners. It has invested USD 21,000 to build a 380m³ reservoir that recycles 46,000 tons of industrial wastewater more than before and saves USD 6,440 in water costs.
- CNMC China Nonferrous Metals Mining (Group) Tianjin Special Material Co., Ltd. takes an active part in protecting underground water resources. It cooperates with the local government to fill original deep wells in the plant area, effectively protecting underground water resources. Meanwhile, it tests water balance to monitor the water consumption and volume of recycled water at each water-consuming spot, so as to help formulate improvement plans and effectively reduce water waste.



Tianjin Municipal Water Management Bureau entrusts a professional agency to conduct water balance tests at the water pumping station of CNMC China Nonferrous Metals Mining (Group) Tianjin Special Material Co., Ltd.

In 2019,
our total water consumption was
26.5212 million tons

The comprehensive water consumption per RMB 10,000 of revenue (comparable price) was
44.47 tons

The output of hazardous waste was
331,200 tons
85.93%
of which had been treated

The output of nonhazardous waste was
141,100 tons
with a treatment ratio of
85.38%

Pollution Prevention and Treatment

We troubleshoot pollution risks and give special attention to the prevention, control, and treatment of air, water and soil pollution. We also recycle and reuse wastewater and barren rock, and have achieved outstanding results. In 2019, our sewage discharge volume was 13.7996 million tons, the density of sewage discharge was 2.33 tons per RMB 10,000 of revenue (comparable price), and the recycling and utilization rate of water resources reached 94.67%.

Water pollution prevention & control

- Comprehensively investigate the production, discharge and treatment of wastewater pollutants in companies, carry out water body risk assessment, and cope with hazards.
- Install online monitoring facilities for environmental indicators to ensure real-time monitoring of the discharge of water pollutants.
- Establish green tailings ponds and lay HDPE membrane at the bottom to effectively prevent water pollution caused by the treatment of tailings.

Solid waste management

- Conduct survey on waste residue treatment processes and the comprehensive disposal of smelting waste residue, to effectively cope with overdue and piled up slag.
- Plan to build a general solid waste stockyard aligned with environmental protection standards, to properly store produced iron powder and keep the solid waste safely.
- Entrust qualified third-party agencies to dispose of hazardous wastes such as lye and emulsion in compliance with regulations.

Air pollution prevention & control

- Improve processes that produce dust and install water bath facilities to greatly reduce the concentration of tantalum dust emission and lower down the risk of deflagration.
- Redesign and install the exhaust system to effectively treat scattered exhaust of beryllium-containing waste gas, and discharge waste gas after meeting relevant standards.
- Install a desulfurization and dust removal system in heating boilers, and renovate and upgrade old-fashioned boilers, to reduce the concentration of air pollutants in the emissions.

Discharged Pollutant (s)	2019	2018	2017
SO ₂ (Unit: Ton)	2,952.55	8,712.07	10,109.91
NO _x (Unit: Ton)	961.55	1,222.88	1,321.1
Chemical Oxygen Demand (COD) (Unit: Ton)	412.71	485.55	459.18
Nitrogen and Ammonia (Unit: Ton)	31.94	53.11	59.46

Adopting a mix of measures to further prevent and control the "three wastes"

CNMC Shenyang Mining Investment Co., Ltd. has straightened out a list of "three wastes" (wastewater, waste gas, waste residue) and formulated relevant monitoring plans. In line with requirements, it entrusts a professional third party to conduct regular monitoring of wastewater, waste gas, noise, soil and underground water, and reports monitoring results to the local environmental authority. In the meantime, it discloses relevant information online, totally open to social supervision.

In terms of waste gas treatment, it combines "electrostatic precipitation (dust removal) + flue gas acid-making through double transformation and double absorption + desulphurization of hydrogen peroxide" to live up to the discharge standards of SO₂. The company has newly installed a treatment system of flue gas, to collect and treat waste residue discharged from side blower, and flue gas from the blister port and converter altogether, so as to cope with the low-altitude pollution of smelting furnaces. Five sets of tail gas spray absorption devices have been installed to reduce unorganized odor emission and dust diffusion in the production process. As for wastewater treatment, the company entrusts a qualified company to monitor the PH value of and four heavy metals in the wastewater on a daily basis, and to monitor cobalt and nickel on a monthly basis. "Limestone neutralization + iron salt method" is adopted for treating the waste acid generated from the acid-making system, and the waste acid is treated by three steps. Concerning the waste residue, general solid wastes shall be stored and disposed of in strict accordance with the *Standard for Pollution Control on the Storage and Disposal Site for General Industrial Solid Wastes* (GB18599- 2001).



In 2019,
our SO₂ emissions decreased by
5,759.52 tons
on a YoY basis,

and NO_x emissions declined by
261.33 tons
year on year.

Ecological Protection

We incorporate green governance into the whole process of production and operation. By putting utilization and protection on parallel tracks, and giving equal attention to current and long-term development, we continue to advance ecological progress and explore the path of sustainable development.

Biodiversity

We value land and biodiversity management, and spare no efforts in protecting biodiversity and the ecological system. All our mines have carried out land management to minimize the impact of exposed and affected land on local environment and community.

Green design, green life

In the early stage of developing the Tagaung Taung Project, CNMC Nickel Co., Ltd. took full consideration of the impact on local biodiversity. It input over USD 3 million into infrastructure construction, and raised the height of transmission towers 20-40m higher than common ones, to avoid primitive forests along the 140km transmission lines from being chopped down, saving about 5 million square meters forests for Myanmar. Officials of the local Ministry of Electricity and Energy spoke highly of the green design, and regarded the project as a benchmark for other projects of Myanmar's power sector.



Transmission towers run across steep mountains

Green Mines

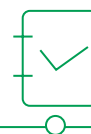
We strive to protect the ecological environment throughout the full life cycle from exploitation to utilization, and from exploration to reclamation. We vigorously carry out environmental impact assessment, and keep improving the project review and approval, as well as EIA approval for soil remediation projects in areas surrounding the mine lots. We strictly follow the engineering design to remediate soil, conserve water and soil, and monitor environmental impact. All projects are not allowed to start construction until passing environmental inspection and acceptance. We advance the construction of green mines. The *Work Plan on Green Mines Development* has been promulgated, which requires mining companies to formulate green mine development plans accordingly. In 2019, Sareke Copper Mine, Tongshankou Copper Mine and 6 other mines were included on the list of national-level green mines.



China Nonferrous HongTouShan Fushun Mining Goup Co., Ltd.: In compliance with the *Standards for the Green Mine Construction of the Nonferrous Metal Industry*, the company blocks off abandoned underground roadways of its copper-zinc mine, and conducts monitoring as required. It has also cut the slope of the waste-rock yard, cutting 24,000 m³ and afforesting 85,000 m³ in total.



CNMC Nickel Co., Ltd.: The company keeps reclamation while exploiting mines. It plants grass and greens 36,000 m³ of land on side slopes of four dumping sites and slag heaps. Moreover, it has planted over 6,600 trees over the past two years together with the Myanmar Mining Project Department of China 15th Metallurgical Construction Group Co., Ltd. Metallurgy and Exploration Company.



Chifeng NFC Baynnur Mineral Industry Co., Ltd.: The company has formulated *Green Mine Development Plan and Implementation Plan of CNMC Hong Kong*, and organized self- and third-party assessment of its green mine construction. Its achievements have been recognized by the Natural Resources Bureau of Bahrain Left Banner and Natural Resources Bureau of Chifeng City.



SOMIDEZ: The company reconditions side slopes of waste-rock yards and dump sites, and plants trees and grass to avoid dust. It takes a zero-tolerant stance against unplanned deforestation and guards against spreading fires in dry seasons.



Kambove Mining SAS: The company timely cleans up unstable crags and pumice stones on the edge of side slopes. To treat the dust problem, it adopts wet processes in areas that accumulate dust easily, and afforests such areas. It collects wastewater for centralized treatment, and meticulously organizes construction projects to effectively control the impact on the ecological environment of affected areas. Meanwhile, it presses ahead with green mine construction with high standards and strict requirements.



CNMC NFC Africa Mining Plc.: The company earnestly conducts environmental monitoring, and entrusts a third party to make constant monitoring of the subsidence, water table, noise, dust, and vibration of blasting. It has optimized the mine water circulation system to reduce water waste and pollution.



Bird's eye view of the Coral Mine of CNMC (Guangxi) Pigma Co., Ltd.

Green Transformation

We actively explore the green sector and engage ourselves in businesses that are closely relevant to environmental protection, such as water pollution treatment and resource recycling, so as to drive green and circular development of the economy and society.

CNMC Daye Nonferrous Metals Group Holdings Co., Ltd. takes advantage of third-party technologies to improve water environment governance

CNMC Daye Nonferrous Metals Group Holdings Co., Ltd. established Great Yangtze River Environmental Engineering Technology Co., Ltd. with the support of the professional edge of the Institute of Subtropical Agriculture, Chinese Academy of Sciences in the treatment of polluted water bodies. The company is mainly specialized in environmental treatment and consulting, such as water pollution treatment and restoration of water ecology, as well as the governance of industrial wastewater. Its Pilot Construction and Comprehensive Treatment Project of Agricultural Non-point Source Pollution in Shagang River Basin of Yueyang County (EPC) adopts a series of patented technologies to treat ecological water by using *Myriophyllum spicatum*. Based on existing reservoirs and watercourses, the project newly built an incoming water-retaining dam, renovated 30,000 square meters of ecological wetland, and newly built 600 small four-grid water purifying ponds. The water quality, after being processed, could reach Level IV according to the national environmental quality standards for surface water, effectively improving the living environment polluted by domestic wastewater in local neighborhoods. In the meantime, after being treated, the water bodies could be transformed into eco-landscape, a place local villagers can visit. In this way, the living environment and life quality of local residents could be greatly improved.



Myriophyllum spicatum in Shagang River Basin of Yueyang County

China Nonferrous Metals (Guilin) Geology And Mining Co., Ltd. actively develops its green businesses and rehabilitates the mined land



The rehabilitated soil is used for growing rice

The Investigation and Rehabilitation Project for Heavy Metal Pollution of Farmland Soils in Moditang Village, Gongcheng County is a key demonstration project of the Ministry of Ecology and Environment in treating and restoring polluted farmland soils, and a key project within the central environmental inspection scheme. The time frame of the project is from April 2019 to December 2020. Located in Moditang village, Xiling township of Gongcheng county, the project plans to restore 90 mu of farmland polluted due to exploitation of the local zinc-lead orebody. It will take targeted measures to improve farmland soils that suffer from different degrees of pollution. After treatment, the farmland will meet standards required for agricultural practices.



Joining Hands for Openness and Win-win Outcomes

CNMC improves supply chain management on an ongoing basis. It sticks to responsible procurement and keeps strengthening the assessment of suppliers. Joining hand in hand with upstream and downstream companies along the supply chain, the Group is devoted to developing an open, transparent, and responsible supply chain system that boosts friendly cooperation and win-win outcomes. We take the initiative to organize and participate in the development of international, national and industrial standards. And we continue to strengthen the R&D of new products and technologies, driving the high-quality and sustainable development of our industry.



Deziwa Open-pit Mine

A Responsible Supply Chain

We improve supply chain management from various aspects, such as bidding, subcontracting and procurement. In the meantime, we have innovated in the work pattern, striving to develop an open and transparent, efficient and responsible supply chain system.

Supply Chain Management

We keep improving the *Suppliers Management Measures* and comprehensively regulate the supplier access and exit mechanisms, to set out clear criteria for the access, rating and supervision of suppliers. A dynamic and regular assessment system is also being implemented. Through clearly defining responsibilities in the contract, we require suppliers to pledge their commitment to social responsibility, pushing them to improve the capacity of managing environmental and social risks.

In 2019

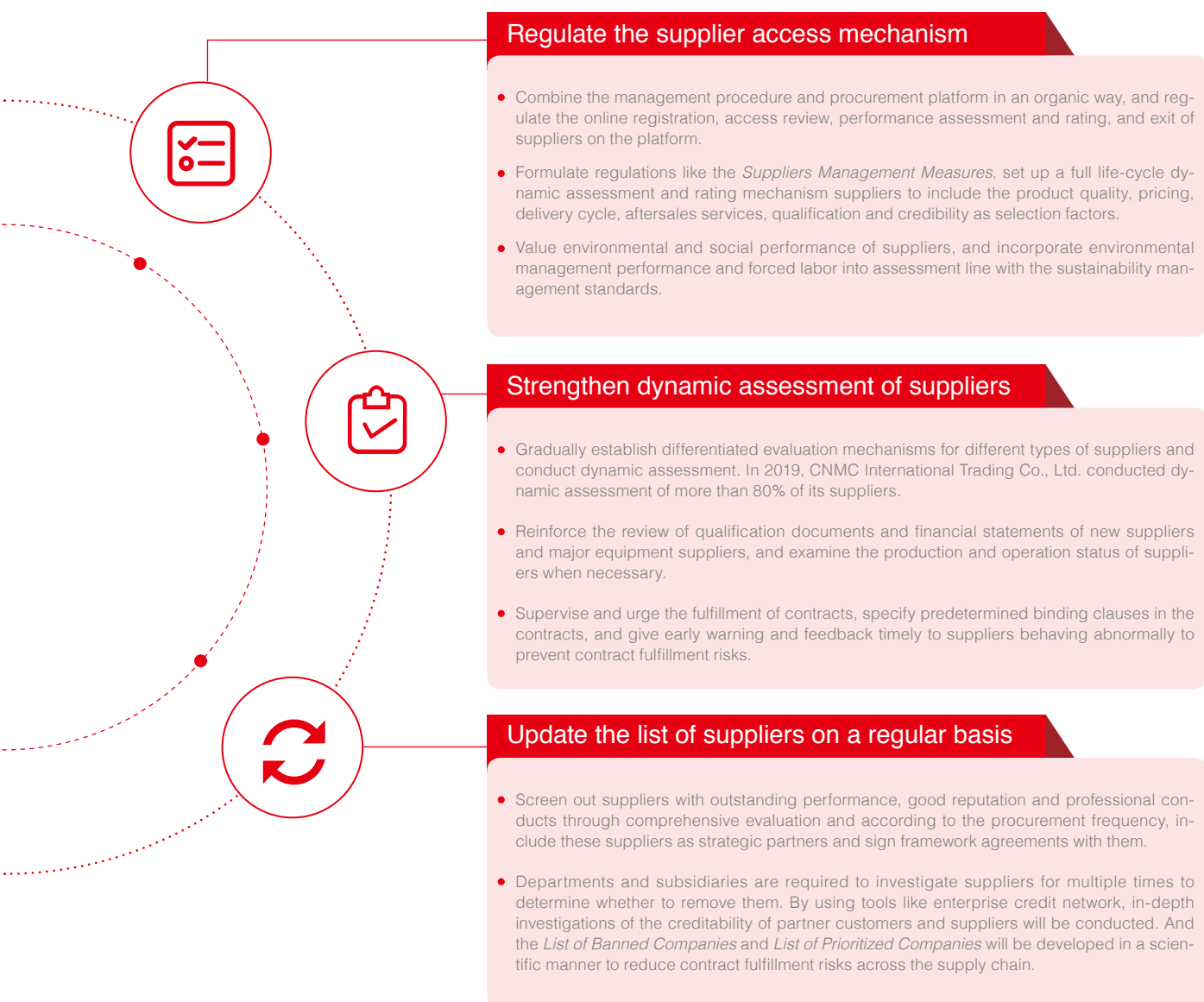
The domestic contract fulfillment rate of suppliers reached

99.57 %

The total number of suppliers

was **9,232** and

74 were knocked out due to CSR non-compliance.





Contract Fulfillment of Suppliers

We actively promote CSR fulfillment along the supply chain and provide trainings to suppliers. In terms of supply chain management, we strictly comply with standardized procurement process and green procurement policies. We also proactively explore ways to build a green supply chain, so as to realize integrated growth and win-win cooperation, and to foster the coordinated development between economy and nature. In 2019, the domestic business provided 31 supplier training sessions and attracted 558 participants.

Organizing supplier training to improve CSR fulfillment along the supply chain

CNMC Daye Nonferrous Metals Group Holdings Co., Ltd. sends *Letter to Suppliers* and holds supplier training now and then to effectively guide suppliers to grasp relevant regulations and laws, and improve their ability of CSR fulfillment.



Supplier Training

Responsible Sourcing

We actively improve procurement management. By formulating five relevant regulations, namely *Management Measures for Procurement*, *Management Measures for Bidding*, *Management Measures for Non-bidding Procurement*, *Suppliers Management Measures*, and *Management Measures for Bid Evaluation Experts and the Expert Pool*, we have established a set of unified regulations, and set up a centralized management system for level-to-level management and authorized sourcing, so that companies at all levels under CNMC could be well regulated in procurement.

Launching the E-commerce platform for procurement and bidding to further regulate procurement practices

On August 15, 2019, CNMC E-commerce Platform for Procurement and Bidding went online, marking the official start of the "overall transformation" of the Group's procurement management. All kinds of sourcing practices will be more open, IT-based and standardized, providing strong impetus to the Group in improving the value creation capacity of its supply chain, and facilitating a tech-based, well-managed and quality-oriented world-class mining group with global competitiveness. By the end of 2019, six pilot companies had published 903 procurement projects through the platform, and the platform had attracted 2,873 registered suppliers and 666 registered bid evaluation experts. The total deal reached RMB 280 million by then.



CNMC E-commerce Platform for Procurement and Bidding launched

Contributions to Industrial Prosperity

We take the initiative to organize and participate in the development of international, national and industrial standards. And we continue to strengthen the R&D of new products and technologies, driving the high-quality and sustainable development of our industry. In 2019, we led the formulation and amendment of one international, five national, seven industrial, and four national defense standards.

Co-building the Industry

Building on our professional edge, we vigorously carry out studies of industrial policies and managerial practices for nonferrous metals, such as copper and cobalt. While strengthening our leadership in the industry, we provide trustworthy research outcomes to back up the industrial planning and intensified management of government agencies, thus fostering industrial progress.

Deepening strategic cooperation

We always dedicate ourselves to growing along with industry peers. We create favorable, fair and transparent market relationships together, foster close cooperation by drawing on complementary advantages, and develop the industry hand in hand for regional prosperity and growth.

Cooperation with the government

We closely align our own development needs with those of the region, and continue deepening cooperation with the government to drive local economic growth. For example, we enhance our partnership with Hubei Provincial People's Government and the People's Government of Huangshi City on promoting the development of the Yangtze River Economic Belt. We also have in-depth and pragmatic cooperation with Suining Municipal Government of Sichuan Province in the raw materials of nonferrous metals, lithium-ion batteries, and new materials, etc. We have signed cooperation agreements with Huangshi Municipal Government of Hubei Province, Suining Municipal Government of Sichuan Province, and Guilin Municipal Government of Guangxi Province, to expand the cooperation scope to cover local governments.

Cooperation with enterprises

We have formed strategic partnerships with leading enterprises in diverse fields for co-development and win-win results. Examples include: We have in-depth cooperation with China General Nuclear Power Corporation (CGN) and China Shipbuilding Industry Corporation in overseas resource development, electric power, environmental governance, and automation, and we share, integrate and complement each other's resources. In addition, we work with China Gold Group to explore and develop mineral resources, logistics and trade, and project construction, lifting the businesses up to a new level, and achieving new progress.

Cooperation with the financial sector

We invite funds and banks to our financial roadshows to win support from financial institutions for major projects of our Group. In the meantime, we strive to establish partnerships with financial platforms like China Reform Fund, China-Africa Development Fund, and China-Africa Production Capacity Cooperation Fund, to earn financial guarantee for major projects. We also have strategic cooperation with Huaxia Insurance to provide more high-quality insurance service to companies operating. The strategic cooperation at various levels and in all respects enable us relieve operating and financial risks.

Cooperation with universities and research institutes

We have stable cooperation with universities and research institutes relevant to our industry, such as Central South University, University of Science and Technology Beijing, Kunming University of Science and Technology, and Grimm Group Corporation Limited. Relying on geological and technical advantages, we select universities and research institutes to carry out project cooperation, jointly tackle key technical problems, and do the industry-university-research integration in mining, mineral dressing, metallurgical engineering and material science, etc.

The 400,000-ton High-purity Cathode Copper Clean Production Project kicks off as a model PPP project

On October 21, 2019, the 400,000-ton High-purity Cathode Copper Clean Production Project of CNMC Daye Nonferrous Metals Group Holdings Co., Ltd. kicked off in Huangshi city of Hubei province. The project is positioned to respond to the "SOE and Central SOE Reform Action" of the SASAC, and to consolidate the leadership of Hubei province in the nonferrous metal industry, as a holder of assets worth over RMB 100 billion. It is also a key project for implementing CNMC's "321 strategy", for fueling the development of five cities in Huangshi through five major transformations, and for CNMC Daye Nonferrous Metals Group Holdings Co., Ltd. to start a business once again. The project is planned to occupy 1,500 mu. By introducing "flash smelting and flash converting", two advanced techniques in the world, it will be able to process 1.6 million tons of copper ore concentrates and produce 400,000 tons of cathode copper and 1.5 million tons of sulfuric acid each year after completion. By then, CNMC Daye Nonferrous Metals Group Holdings Co., Ltd. will be equipped with a million-ton level capacity, making it among the first echelon of the domestic copper industry. Therefore, the project is a significant, landmark project that facilitates win-win cooperation between a central SOE and the local government.

CNMC shows great support for CNMC Daye Nonferrous Metals Group Holdings Co., Ltd. to take the project as an opportunity to optimize and upgrade the smelting system, construct green mines, build municipal demonstration mineral bases, and develop circular economy. With Huangshi city at the center, riverside solid waste treatment bases will be established to drive green and smart development, and make new contributions to the well-coordinated environmental conservation in the Yangtze River Basin.

Developing industrial standards

We take an active part in organizing or participating in the development of international, national and industrial standards, to stimulate innovation across the industry, and to contribute our share to regulating the development direction for the industry.

Promoting Industrial Communication

Promoting experience sharing and communication in the industry is one of our concerns. Based on multi-channels, namely, creating an international exchange and cooperation platform, or organizing or attending large-scale industrial cooperation & communication conferences and leaders forums held at home and abroad, such as China Top 500 Enterprises Summit, the "Air Silk Road" International Forum, CEO Roundtable, CESCO Week, and the Belt and Road Forum for International Cooperation, we actively promote experience sharing across the industry.

Sharing experience in safe and green development at the National Safe Development Forum for the Non-Coal Mine and Gold Industries

On May 6 and 7, 2019, the National Safe Development Forum for the Non-Coal Mine and Gold Industries was organized by China Occupational Safety and Health Association and China Gold Association in Sanmenxia city of Henan province. Yan Diyong, Vice General Manager and Chief Safety Officer of CNMC, made a keynote speech themed Consolidating Intrinsic Safety, Realizing Safe Development, and Providing Strong Support for Building a World-class Mining Corporation. Yan introduced the development history of CNMC to the audience, and shared the Group's best practices in safe and green development.

In 2019

CNMC led the formulation or amendment of

1 international standards

5 national standards

4 national defense standards

and **7** industrial standards

CNMC participated in the formulation or amendment of

7 national standards

and **3** industrial standards

The Second CNMC Trade Promotion Forum and Procurement Signing Ceremony

On November 7, 2019, CNMC held the Second Trade Promotion Forum and Procurement Signing Ceremony. The event aimed to thoroughly implement requirements of cooperation between Chinese and foreign companies, promote CNMC's development in its trade business, and reinforce international cooperation. The guests watched a publicity video of CNMC, and witnessed the signing of procurement agreements between CNMC (including the Group, CNMC Daye Nonferrous Metals Group Holdings Co., Ltd., CNMC International Trading Co., Ltd. and China Nonferrous Metal Industry's Foreign Engineering and Construction Co., Ltd.) and 21 renowned enterprises in the world. The event fully demonstrated CNMC's determination of deepening international business and trade cooperation by enhancing cooperation, and showed the Group's concrete actions in expanding fields of trade, enriching product varieties, and improving the trade quality.





Fulfilling CSR Overseas

We actively practice the Belt and Road Initiative, promote localized operations and employment, and improve the life of residents in countries and regions along the Belt and Road.

Localized Procurement

Through purchasing various categories of products or services from local companies, such as coal, cement, rolled steel, oil products and chemical agents, we have effectively driven the rapid growth of these companies, and thus boosted local resource and economic development. We also cooperate with local suppliers in purchasing and transporting production materials, such as burnt clay bricks and food, to fuel the lasting and rapid growth of local SMEs and economy. In 2019, our international business took up 48.13% of the total assets and generated 30.97% of the total revenue. Total taxes paid exceeded RMB 1.163 billion.

Bolstering the development of local SMEs through localized procurement

Since construction materials are of great demand during the project period of infrastructure construction, Kambove Mining SAS, while considering factors like procurement costs and the guarantee of delivery, purchases cement, aggregate, rolled steel, hollow bricks and other materials from the local area. The action strongly drives the growth of local upstream and downstream suppliers, and fosters local economic prosperity.



Purchasing local materials

Localized Employment

We have raised the ratio of local employees in overseas companies by prioritizing local workforce in recruitment and promotion, so as to create more jobs for local people and improve their family income. We vigorously implement the talent globalization and localization strategy, develop a fair and reasonable talent management system, and improve the salary and benefits of local employees, thus attracting more local people to be engaged in our Group's development course.



The "Family Open Day for Outstanding Employees" of CNMC NFC Africa Mining Plc

Create local jobs

We cooperate with Générale des Carrières et Mines (GCM) of Congo (K) and Kambove Mining SAS (KM) under CNMC to operate the GCM STL Plant Operation and Maintenance Project and Kambove Project in Congo (K). The STL Project's successful operations have allowed more than 300 local people to be re-employed, relieving local employment pressure to a certain extent. The KM Project has created nearly 50 permanent jobs and a large number of temporary ones for the local community.

Improve the ratio of localized employment

China 15th Metallurgical Construction Group Co., Ltd. is dedicated to improving the ratio of local employees. Among 8,423 of its overseas workforce, 76% are foreigners. The percentage of locally hired employees of the Myanmar Mining Project Department of China 15th Metallurgical Construction Group Co., Ltd. Metallurgy and Exploration Company has reached 87%, and manufacturing workers of mining equipment are 100% local. The "Family Open Day for Outstanding Employees" helps family members know more about and recognize the work at CNMC NFC Africa Mining Plc. and enhances employees' recognition for their work value.

Hone the skills of local staff

CNMC Congo Compagnie Minière Sarl pays great attention to improving the comprehensive abilities and skills of employees. It gives all-round training on skill improvement to staff at different posts, and hires local training agencies to continuously improve the professional background and safety awareness of all employees. CNMC NFC Africa Mining Plc. selects and sends children of outstanding local employees to "study in China", and encourages those students to come back to Zambia and contribute to their country's development after finishing studies. The company contributes to the local economy and society by cultivating a reserve talent pool.



Translator of China 15th Metallurgical Construction Group Co., Ltd. Congo (K)'s Pombi Project is introducing regulations and requirements to local employees

Chambishi Copper Smelter Limited sends out a team of Zambian employees to provide technical services in Congo (K)

Over the past 10 years, Chambishi Copper Smelter Limited (CCS) has cultivated a large number of Zambian technical talents in smelting, machine maintenance and other expertise fields through theoretical training, hands-on practices, peer tutorship, learning and exchange activities as well as cooperation with vocational schools and domestic companies. The company has realized 100% staff localization of several posts. In 2019, invited by Lualaba Copper Smelter SAS in Congo (K), CCS sent out the first professional pyrometallurgical smelting team in Zambia to Congo (K) for two months of electric furnace building and training. The team not only provided technical services but also helped local employees to improve professional skills comprehensively.



Founding Sino-Zam Vocational College of Science and Technology to equip local employees with work-related skills



In August 2019, we successfully held the opening ceremony of Sino-Zam Vocational College of Science and Technology in Luanshya, Zambia, which is the higher vocational institute established by overseas. The college focuses on technical training, and it also teaches Chinese used in industrial practices. The college will equip local employees of CNMC overseas companies with techniques and career skills, and strengthen cross-cultural management, providing strong support for the high-quality development of overseas companies.

Improving Cultural Recognition

Only when diverse cultures perfectly blend can employees from different cultural backgrounds fully collaborate and respect each other under the same management structure, and the value of talents can be maximized. Therefore, we actively learn about and blend into the local community. We respect local traditions and lifestyles, while promoting Chinese culture at the same time. We also join hands with training agencies to provide training on Chinese culture for local staff, helping them know Chinese culture and CNMC culture better.



Corporate Culture Manual of the Somidez Project officially published



China 15th Metallurgical Construction Group Co., Ltd. carries out a Sino-Congolese cultural exchange activity

China Nonferrous Metal Industry's Foreign Engineering and Construction Co., Ltd. PT Dairi Prima Mineral organizes the first China trip for Indonesian employees to increase cultural exchange and recognition

To strengthen cultural ties between China and countries along the Belt and Road, from November 8 to 27, 2019, China Nonferrous Metal Industry's Foreign Engineering and Construction Co., Ltd. PT Dairi Prima Mineral cooperated with China Nonferrous Metal Industry Talent Center in organizing the first China trip for Indonesian employees. The travel aimed to further blend Chinese and Indonesian culture in PT Dairi Prima Mineral, and to help Indonesian employees know more about Chinese culture, economy and social progress. Indonesian employees were guided to visit places and receive training. They not only attended customized courses on UAV photogrammetry, smart manufacturing and VR to improve professional skills, but also experienced colorful traditional Chinese culture, such as calligraphy, martial arts and traditional etiquette. Through visiting the Exhibition Hall of China Nonferrous Metal Industry's Foreign Engineering and Construction Co., Ltd. they also gained a deeper understanding of Chinese culture, China's development, and China Nonferrous Metal Industry's Foreign Engineering and Construction Co., Ltd.'s corporate culture.



Indonesian employees learn Chinese calligraphy

Living Our Dream and Sharing Happiness

CNMC offers a superior development platform for employees, and contributes its share to poverty alleviation and social welfare undertakings. We work together with employees and society for common progress, and create and share happiness hand in hand.





Networking Event on Dragon Boat Festival for Chinese and Belarusian employees in the Belarus Project Department of China 15th Metallurgical Construction Group Co., Ltd. No. 7 Company

Creating a Happy Workplace

We always put people first, and respect and safeguard legitimate rights and interests of employees. Staff career development and capacity building are of prime importance to us. We care employees in work and life, and strive to create a remarkable, healthy and positive career development platform for them, so as to integrate staff value with corporate value.

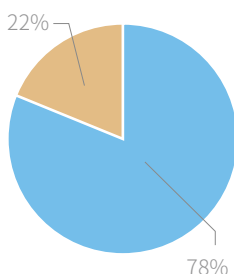
Employee Rights and Interests

We are in strict compliance with various laws and regulations, and internationally recognized standards for human rights. Fundamental rights and interests of employees are something we never neglect. And we always endeavor to create an equal, diverse and harmonious workplace.

Fair employment

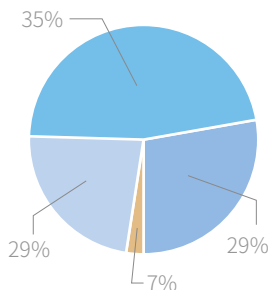
We strictly abide by the *Labor Law* and *Labor Contract Law*, as well as laws and regulations in countries and regions where our overseas projects are operated. Fair employment is one of our priorities, and we never differentiate between employees due to their nationality, gender, age, religion, and cultural background, etc. We forbid child labor and forced labor. We always work hard to provide employees with equal opportunities in employment and competition, and have effectively improved the diversity and inclusion of our Group. In 2019, we signed labor contracts with all employees. No child labor, forced labor and discrimination ever occurred.

Gender breakdown



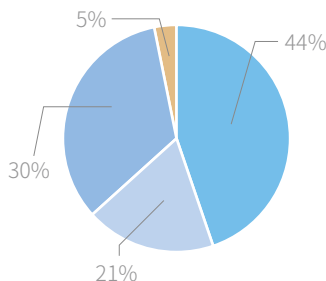
■ Male
■ Female

Age breakdown



■ Age 35 and below
■ Age 36-45
■ Age 46-55
■ Age 56 and above

Educational background



■ Master's degree or higher
■ Bachelor's degree
■ Junior college graduate
■ Technical secondary school graduate or lower

Remuneration and benefits

We respect every employee's dedication, enforce equal pay for equal work. A sound remuneration system has been established and constantly improved, the salary increase mechanism bettered and the types of benefits enriched. We develop remuneration & benefits systems in accordance with the laws, regulations, and customs of project areas. We hope to offer both incentive and competitive remuneration packages to our employees, bringing them decent work and quality life.



52,715 employees
Total workforce

671 employees
Newly hired

100%
Social insurance coverage

10 days
Per capita number of paid leave

Improve the remuneration system

- Revise regulations such as the *Management Measures for Performance Assessment of CNMC Headquarters*, and *Management Measures for the Salary Package of CNMC Headquarters Employees*, optimize the remuneration assessment and management methods, adjust the salary structure at the headquarters, and strengthen the incentive and restraint functions of performance bonus.
- Revise the *Management Measures for the Income of Persons in Charge of CNMC Subsidiaries* to regulate the income management of relevant personnel, improve incentive and restraint mechanisms.

Enrich the types of benefits

- Offer five insurances and two funds.
- Formulate the *Enterprise Annuity Plan* and actively promote the enterprise annuity program.
- Provide a number of paid leaves, including annual leave, maternity leave, and marriage leave.
- Send greetings and birthday cakes to employees on their birthdays.
- Provide holiday gifts.

Democratic management

We work on improving the democratic management system, such as the Workers' Congress and Trade Union. The unblocked democratic management channels safeguard employees' rights to know, participate, express and supervise. We are always there to help employees solve problems, listen to them and mobilize them, and constantly enhance the democratic management across the Group at home and abroad. In 2019, 100% of employees at CNMC headquarters joined the Trade Union.

We convened the Fourth Meeting of the Second Session of the Workers' Congress and the Third Plenary Session of the Second Trade Union Committee in 2019. The General Manager continued to be required to report on the work of the Group to the Workers' Congress, and the performance of leaders and officials of the Group was reviewed in a democratic manner. We solidly advanced the institutionalization and standardization of democratic management, and took a bunch of measures, such as selecting representative from overseas subsidiaries to join the Workers' Congress and soliciting proposals from them, to realize full coverage of democratic management.



Chairman of the Zambia Trade Union, Encluer Xishmba, leads a delegation to visit CNMC

Occupational health

We attach great importance to the occupational health of every employee. A corporate occupational health and safety management system has been set up and improved to take care of employees' physical and psychological health. We take multiple measures to ensure employees enjoy work and life with a healthy body and full vitality.

We care for employees' mental wellbeing and effectively ensure their occupational health

To safeguard the physical and mental health of employees and provide them an inclusive and healthy work environment, our Trade Union cooperates with Beijing Horizon Sports Medicine Clinic in building a team of experts with professional qualification and rich practical experience in psychology counseling. The team has set up a database and tested communication tools to get ready for opening an online counseling channel and providing psychological assistance to 10 subsidiaries in Zambia, Congo (K), and other regions. Through all-round mental support, counseling and communication, the team helps overseas staff cope with psychological pressure.

100 %

Employee physical exam coverage

In 2019,

we had 9 new cases of occupational diseases,

and 58 in total

Improve health and safety regulations

- Compile and implement occupational health and safety related policies and emergency plans such as *Regulations for Work Safety and Emergency Management*, *Management Measures for Labor Protection Supplies* and *Management Measures for Physical Examination of Employees*.

Promote health and safety knowledge

- Carry out publicity campaigns such as the Publicity Week of the *Occupational Disease Prevention and Control Law* to raise employees' awareness of occupational health and self protection.
- Set up bulletin boards on safety risks, and put up warning signs of major safety risks, hand out notification cards of safety risks for different positions, strengthen monitoring and early warning of hazard sources, and inform and warn safety risks properly.

Provide basic guarantee for safety and health

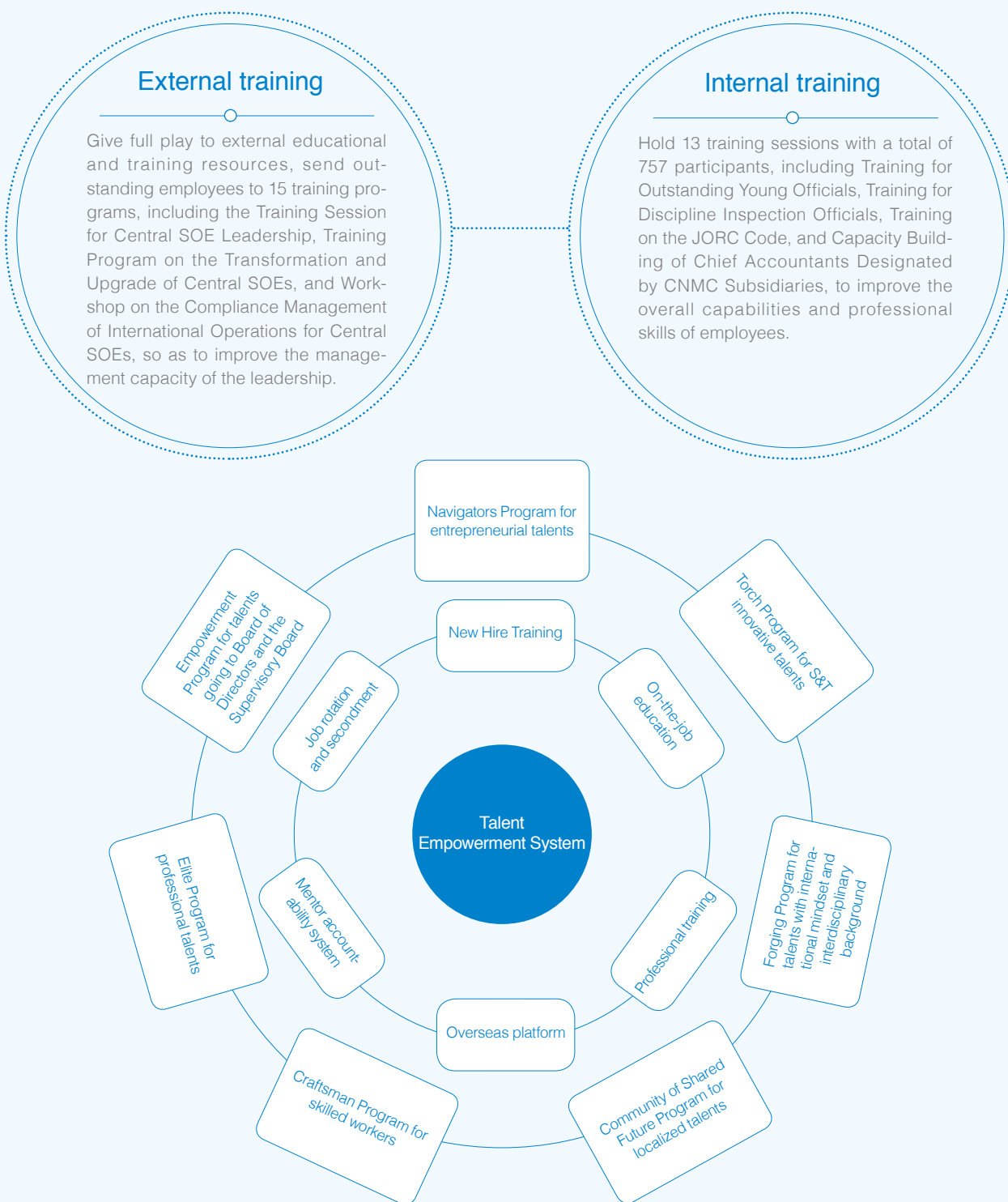
- Purchase social insurance and medical insurance for employees, organize physical examinations, keep health records, and evaluate occupational disease risks regularly.
- Equip employees with proper personal protective equipment (PPR) according to their working environment, and check the status of PPE regularly.
- Set up a clinic to provide health counseling to employees, meeting their needs for physical and mental health.

Employee Development

Employees are the most precious treasure of the Group. We highly value employees' career development, and support domestic and overseas staff through vocational training and promotion. Besides, we provide employees with opportunities of hands-on practices, and constantly broaden career development channels for them, so as to unleash their enthusiasm and creativity to the greatest extent.

A sound cultivation system

We have formulated the *Talent Development Plan*. Besides, systematic training schemes have been formulated for different talent pipelines, and diverse staff training activities are carried out through multiple channels. We aim to build a strong talent pool for business growth, and create a broad, outstanding stage for employees to show their talent.





CNMC Ningxia Orient Group Co., Ltd. and Ningxia Junhong Vocational Skills Training School co-organize the Training Program for the Electrician (Medium Level) Professional Qualification Examination



China 15th Metallurgical Construction Group Co., Ltd. Deziwa Mining Project Department is carrying out a training on standardized sampling operations

4,459

Training sessions

35,678

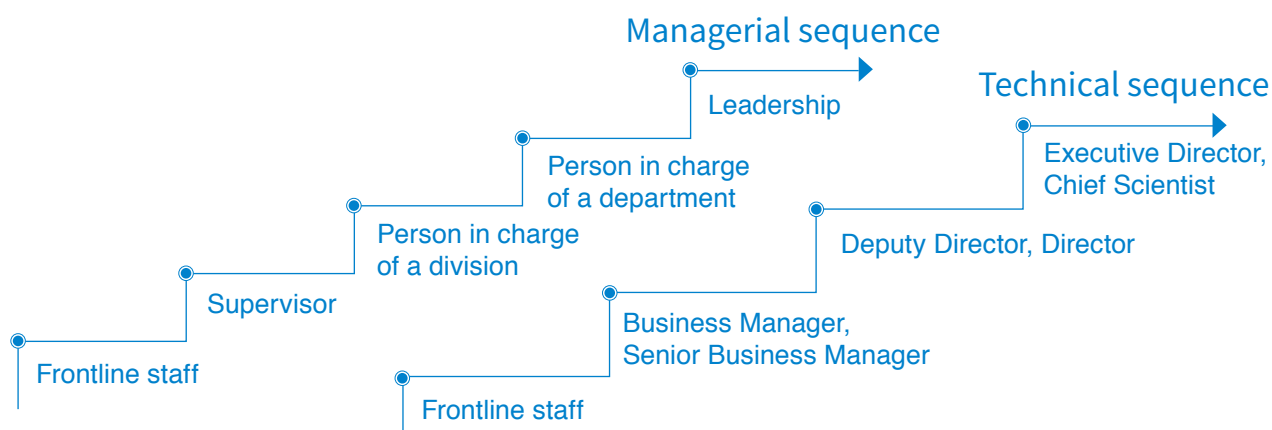
Training hours

90%

CNMC headquarters training coverage

Smooth development channels

We adopt a dual career path system that allows upward mobility for either managerial or technical talents. The system creates greater development space for employees in a way that they can make flexible choices over their own circumstances, make the full of their talents at suitable positions, and maximize self-worth.



Employee Care

We care for employees by creating a cozy, harmonious workplace and organizing diverse cultural and leisure activities. In particular, we listen to the needs of female and retired employees, as well as those in need, striving to boost employees' happiness.

Enrich cultural and leisure life

- Build basketball courts and football fields as sports facilities for employees.
- Organize colorful cultural and sports activities, such as "Brisk Walking for 100 Days", Fun Sports Meeting, and Art Gala, to increase communication between Chinese and foreign employees, and strengthen team cohesion.

Care for female employees

- Provide general health checks and physical examinations to female employees regularly.
- On Women's Day, we organize special cultural & sports events, hold seminars of representative female employees, and send gifts and greetings.

Support employees in need

- Visit five employees in need and provide RMB 17,500 of subsidies; support four employees suffering from major diseases (including direct relatives of employees), and grant them RMB 45,000, sending warmth and care to them.
- Grant educational subsidies to children of employees in need to make sure they can go to school smoothly.

Care for retirees

- Set up an activity room for retirees, hold 2019 Spring Festival Gala for Retirees, and organize them to the World Horticultural Exposition in Beijing, so as to provide them with a platform for daily activities and communication, and meet their emotional needs.
- Pay regular visits to retirees and organize physical examinations for them, paying attention to their physical and mental health on an ongoing basis.

A variety of Christmas activities to enhance mutual trust

Chambishi Copper Smelter Limited attaches great importance to the care of employees. During the Christmas season, various forms of Sino-Zambia and Sino-Congo employee Christmas fellowship activities such as tug-of-war, marathon and football match are held to enrich the recreational life of employees, deepen the friendship between employees, thus effectively enhancing the integration and mutual trust between employees.



Group photo of friendly football match



The National Day Gala of CNMC Shenyang Mining Investment Co., Ltd.



CNMC Ningxia Orient Group Co., Ltd.'s Fun Sports Meeting on Women's Day

Jointly Contributing to Community Development

CNMC makes friends with project areas, and supports these areas during hard times. We put in place a community communication and engagement mechanism, and have formulated the *Donation Plans and Management Measures of China Nonferrous Metal Mining (Group) Co., Ltd.*, to manage external donation activities in a standardized way. We take an active part in public welfare undertakings and community building of project countries and regions, and deliver care to thousands of local households.

Volunteering Services

To pass on the volunteering spirit, namely dedication, friendship, mutual assistance, and progress, we encourage and support employees to engage in volunteer services. For example, the "520" Volunteer Service Team of CNMC Daye Nonferrous Metals Group Holdings Co., Ltd. has launched more than 1,800 volunteer activities over the past five years, attracting about 9,000 participants. Through donating materials and money, sending greetings to elderly persons living alone and organizing post-disaster rescue actions, we hope to address social issues and increase people's wellbeing on an ongoing basis. In 2019, we donated RMB 21.1141 million to society.



During the Spring Festival Holiday, CNMC Daye Nonferrous Metals Group Holdings Co., Ltd. organized a series of "520 Volunteers" sub-team for volunteer services

China 15th Metallurgical Construction Group Co., Ltd. mobilizes volunteers to join the rescue initiated by Guixi Municipal Committee of the Communist Youth League

On March 21, 2019, Guixi city of Jiangxi province was hit by an uncommon storm and hail. Some of the local houses, greenhouses and other structures were damaged, and some trees toppled over. Hearing the news, China 15th Metallurgical Construction Group Co., Ltd. reached out to the local Communist Youth League Committee at once. In response to the Committee's call, China 15th Metallurgical Construction Group Co., Ltd. organized employees to participate in the rescue, to clean up broken branches on the ground and remove unsteady piles on the roofs, helping local elderly people get back to normal life as soon as possible.

Overseas Public Welfare Efforts

We make full use of overseas resources and proactively fulfill social responsibility in overseas projects. Through investing in community development and running public welfare projects, we help overseas communities achieve sustainable growth, and improve the living standards of local people, contributing our share to a community of shared future for mankind.



Contribute to education

We contribute to children's learning and healthy growth by improving educational facilities and enriching educational resources. Sino-Metals Leach Zambia Limited donated about ZMK 830,000 to build three new teaching areas with supporting facilities for Chishilano Primary School to accommodate about 258 primary school students. Kambov Mining SAS donated a batch of stationery and sports supplies worth USD 7,276 to Kambov Town Primary School in Congo (K).



Support healthcare undertakings

We improve the local medical level and protect the health of residents by donating money, building hospitals and improving healthcare facilities, etc. CNMIM Parut Company purchased medical equipment for hospitals and social assistance institutions in Tajikistan. CNMC NFC Africa Mining Plc. donated an ambulance worth USD 92,000 to the Karurusi Parliament and donated an X-ray machine worth ZMK 95,000 to the General Hospital. Sinozam Friendship Hospital became the infectious disease monitoring station of China's General Administration of Customs, and provided free clinic to conduct detailed physical examinations and disease screening for 65 local orphans, to boost the health and harmonious development of Chinese and Zambian people.



Improve infrastructure construction

We improve people's living standards through repairing roads, drilling wells and building power supply facilities. By the end of 2019, CNMC Nickel Co., Ltd. had spent about RMB 550,000 on drilling wells for local residents in Myanmar, and about RMB 855,000 on laying power supply lines and providing free electricity. In 2019, CNMC Congo Compagnie Minière Sarl invested USD 1.4 million in paving asphalt pavement in Punta town to facilitate people's travel.



Chambishi Copper Smelter Limited donates urgently-needed daily necessities and school supplies to Bushfire Children's Home



The infectious disease monitoring station of Zambia is unveiled by Deputy Director Zhang Jiwen of China's General Administration of Customs



CNMC Nickel Co., Ltd. sets up a stage and sprinkling devices to celebrate the Songkran Festival together with Myanmar people, and sends greetings to nearly 700 local monks and elderly residents

Helping Win the Tough Battle Against Poverty

In line with the well-targeted strategies, we continuously improve the management system for targeted poverty relief and adopt a bunch of measures to contribute to the tough battle against poverty.

Improve the organizational structure

- Integrate the duties of fixed-point poverty alleviation and CSR into the Corporate Culture Department, and rename the Leading Group on Fixed-point Poverty Alleviation as Leading Group on Fixed-point Poverty Alleviation and Social Responsibility, with Chairman Wang Tongzhou serving as the group leader. Members of the Office of the Leading Group cover all headquarters departments to further galvanize efforts for poverty alleviation.

Select and assign officials to be engaged in poverty alleviation

- Send a working group to carry out special audit and inspection of the fixed-point poverty alleviation work in Lianghe county in 2019, including the compilation of work systems and plans, review, approval and decision-making records for poverty relief projects and the use of funds, as well as the performance of CNMC officials, and then develop auditing and inspection reports accordingly.

Strengthen supervision and guidance

- In the process of survey and investigation, organize meetings with CNMC officials stationed in the county, listen to their work reports, and get to know their thoughts and living circumstances.
- Include the work expenditure of the First Secretary stationed in the village into the annual poverty alleviation work plan in 2019.

CNMC takes into consideration the practical conditions of Lianghe county of Yunnan province, the fixed-point poverty relief target of the Group. Through educational support, industrial development, job creation, relocation, and driving consumption, etc., the Group advances targeted poverty alleviation by fitting measures into local circumstances, and has successfully pulled Lianghe county out of poverty as scheduled. In 2019, CNMC convened the Poverty Alleviation and CSR Conference, to conclude poverty relief efforts in 2018, and pointed out the new trends, new missions and new requirements for poverty alleviation and social responsibility work. We firmly grasped the direction and goals for winning the battle against poverty, and would contribute our share to building a moderately prosperous society in all respects.



3,030

registered impoverished people
Helped to shake off poverty

518

frontline officials
Trained by CNMC

144

technical personnel
Trained by CNMC

RMB 8.02 million

Invested and tunneled for
poverty relief



CNMC plays an active role in a CCTV-7 TV Programme on Poverty Alleviation and Public Welfare, *Hand in Hand in the Battle Against Poverty*, *Central SOEs Are on the Move*, a CCTV-7 TV Programme on Poverty Alleviation

Promote industrial growth	<ul style="list-style-type: none"> • Push ahead with the construction of Datang Zhongse (Lianghe) Call Center Project make full use of local workforce, land and resources to support the development of local modern service industry. • Support the construction of the local PV station project, a key project in Lianghe county on poverty alleviation through industrial growth; drive steady growth in the collective economic income of relevant villages. • Improve the development quality of tourism industry on health and elderly care, take advantage of the abundant geothermal resources in Lianghe county and the Group's business strength to carry out the Geothermal Hot Spring Exploration Project in Lianghe County.
Drive consumption	<ul style="list-style-type: none"> • Through driving consumption, support 4 local leading companies and co-ops in Lianghe county, which are specialized in agricultural development, foodgrain and oilseed production, food manufacturing, and tea production; pull 370 farmers producing relevant raw materials out of poverty. • Expand sales channels for distinctive agricultural products with local features through multiple measures, such as attending a CCTV-7 TV Programme on Poverty Alleviation, <i>Hand in Hand in the Battle Against Poverty</i>, <i>Central SOEs Are on the Move</i>, and holding the Trade Fair of Agricultural Products and Local Specialties of Lianghe county themed "Staying True to the Founding Mission and Overcoming Difficulties to Promote Poverty Relief", etc. • Purchase local agricultural products worth RMB 773,300, and help local people sell agricultural products worth RMB 735,600.
Improve employment	<ul style="list-style-type: none"> • Datang Zhongse (Lianghe) Service Outsourcing Co., Ltd., a call center industry project launched to support the development of Lianghe county, was officially put into operation. The company opened up a recruitment channel exclusively for registered impoverished households in Lianghe county, and the number of employees from local registered poor households account for 23% of the total employees of the company.
Relocate impoverished populations	<ul style="list-style-type: none"> • Support relocation projects for poverty relief, and help install high-altitude barricades and fences in the relocation spot and Zhaobi Mountain resettlement spot; help impoverished households move from areas prone to frequent geological disasters to areas with better living conditions, medical care, education and employment.
Support education	<ul style="list-style-type: none"> • Grant subsidies to impoverished college students every year; assist in the building of Menglian Primary School's canteen, which greatly improves the dining of students and teachers, effectively promotes the Nutrition Plus Plan in the school, and helps stop intergenerational transmission of poverty by addressing the root cause.
Nurture rural entrepreneurial leaders	<ul style="list-style-type: none"> • Organize training programs on playing the <i>Hulusi</i> (cucurbit flute), which have involved 50 rural entrepreneurial leaders, <i>Hulusi</i> artists, and full-time and part-time <i>Hulusi</i> music teachers from local secondary and primary schools; strive to cultivate a batch of <i>Hulusi</i> talents in Lianghe county, to inherit, carry forward and promote the development of local <i>Hulusi</i> art and culture.



2019 Ceremony of Granting Subsidies to Impoverished College Students in Lianghe County



High-altitude barricades and fences in the relocation spot

2020 Outlook

Time goes on and on, and so do our dreams. We will maintain the continuity of operation and development, hold the strategic focus, prioritize international business, and take the initiative to launch an overall reform. Meanwhile, we will pace up efforts in internationalization, marketization, specialization, materialization, and capitalization to embark on a new journey of high-quality development.

Achieving high-quality growth. We will always stick to the “321 strategy”, to build CNMC as a tech-based, well-managed and quality-oriented world-class mining corporation with global competitiveness. By starting an overall reform, we will grow into a stronger, better and bigger state-owned enterprise, thus reinforcing the competitiveness, innovation capacity, control, influence, and risk resistance of the state-owned economy, and driving the high-quality development of itself.

Sticking to innovation-driven development. With focuses on sustainability and innovation-empowered growth, we will find new drivers for sustainable development. We will work harder to tackle key technical problems, pace up the exploration of domestic alternatives, and march towards the high-end of the industrial and value chains. By improving the construction and operation of R&D platforms, we aim to further optimize and integrate technology resources, commercialize and apply scientific outcomes, and build an all-round innovation capacity.

Incorporating safety and quality management into all processes. We will consolidate delicacy management and enhance safety & quality management capacity. We will look back on major accidents, hold people accountable and adopt targeted improvement measures. With the support of smart construction, we will expand applications of core technologies in key areas, such as work safety and quality management.

Practicing green development. We will work in full swing to protect the environment throughout the operation process, and strictly fulfill our responsibility in this realm. We will improve the assessment criteria for environmental management performance, vigorously promote energy conservation & emission reduction, green production and green office, and build ourselves into a green brand. Meanwhile, we will build green mines in an all-round manner, and conduct internal environmental protection inspection, to win the battle against pollution with determination.

Achieving win-win outcomes together with partners. For win-win cooperation and coordinated development, we will consolidate fruits of cooperation in all respects and expand the space for cooperation. Upholding a global mindset, we will continue to prioritize international business when allocating resources. We will go hand in hand with governments and companies in countries along the Belt and Road, and even around the whole globe, to build a development landscape highlighting win-win cooperation.

Building a harmonious homeland. We pursue a win-win industrial chain and endeavor to create an inclusive and equal workplace. Our employees are able to grow along with ourselves, since we provide them with superior development space and incorporate their pursuit of value into our development vision. And we will take an active part in community dedication, promote community development, and share fruits of development with local areas. We will scale up efforts in targeted poverty alleviation, and galvanize forces to win the battle against poverty.



CSR Honors

Honor/Award	Issuer
38th among China's Top 100 Multinational Corporations in 2019 168th among 2019 Fortune China 500	China Enterprise Confederation, China Enterprise Directors Association
Multinational Company with Outstanding Contributions over the Past 70 Years since the Founding of the PRC	China International Council for the Promotion of Multinational Corporations
China-Africa Friendship Award – the Top 10 Chinese Enterprises	The African-Chinese People's Friendship Association
National Labor Day Certificate	All-China Federation of Trade Unions
Overseas Resources Development Strategy Meritorious Enterprise in China's Nonferrous Metals Industry	China Nonferrous Metals Industry Association
China Spectrum Award in 2019 China Brand Festival One of 70 Outstanding Chinese Brands in Celebration of the 70th Founding Anniversary of the PRC	The 13th China Brand Festival
Gao Lei, a CNMC employee, won the honorary title of National Technical Expert	Skilled Talent Commendation Office of the Ministry of Human Resources and Social Security
GoldenBee Excellent CSR Report 2019 · Leading Enterprise	China Sustainability Tribune, China Business Council for Sustainable Development Hosts and the Center for Corporate Social Responsibility of the Embassy of Sweden in Beijing (Co-host)
China Nonferrous Metal Industry's Foreign Engineering and Construction Co., Ltd. subsidiary of CNMC, ranked the 86th among Top 250 International Contractors	Engineering News-Record, the US
CNMC NFC Africa Mining Plc. won the award of 2019 Outstanding Collective of Central SOEs	Ministry of Human Resources and Social Security, SASAC



Key Performance

Dimension	Indicator	2019	2018	2017
Economic and governance	Revenue (RMB billion)	131.520	111.365	123.779
	Total profits (RMB billion)	1.727	2.071	1.799
	Total assets (RMB billion)	121.228	120.620	120.157
	Total taxes (RMB billion)	4.666	2.838	3.090
	Asset liability ratio(%)	67.87	70.29	68.92
	Output of nonferrous Metal Products (ton)	1,703,600	1,699,600	1,763,200
	Total contract amount of newly signed projects (RMB billion)	13.251	7.786	10.796
Environmental	Investment in environmental protection (RMB million)	614	334	247
	Total energy consumption (10,000 tce)	78.28	145.27	138.52
	Energy consumption density (tce / RMB 10,000 of revenue (comparable price))	0.0032	0.0153	0.0150
	Proportion of non-fossil energy consumption(%)	90.15	88.80	88.53
	Clean energy consumption (tce)	372,997	356,420	367,114
	SO ₂ emissions (ton)	2,952.55	8,712.07	10,109.91
	NO _x emissions (ton)	961.55	1,222.88	1,321.1
	COD emissions (ton)	412.71	485.55	459.18
	NH ₃ -N emissions (ton)	31.94	53.11	59.46
	Greenhouse gas emissions (ton)	2,159,576	2,209,262	2,130,568
Social	Greenhouse gas emission density (ton CO ₂ emission equivalent / RMB 10,000 of revenue (comparable price))	0.36	4.36	4.33
	R & D investment (RMB billion)	1.902	1.49	1.888
	New authorized patents	187	242	213
	Pass rate for product testing(%)	96.81	94.73	89.51
	Percentage of qualified product to raw material(%)	96.3	78.7	71.63
	Customer satisfaction(%)	97.34	96.39	92.23

Dimension	Indicator	2019	2018	2017
Social	Complaint resolution rate (%)	100	100	97.59
	Total number of suppliers	9,232	8,706	7,561
	Economic contract performance rate of domestic suppliers (%)	99.57	99.41	99.82
	Number of suppliers reviewed during the reporting period	9,232	8,706	7,561
	Number of potential suppliers rejected due to CSR non-compliance	74	76	27
	Sessions of supplier training	31	38	40
	Supplier training participants	558	69	74
	Investment in work safety (RMB million)	292	243	174
	Emergency drills launched	460	320	564
	Number of participants in work safety training	194,582	60,000	83,377
	Total number of employees	52,715	52,044	51,729
	Staff turnover rate (%)	4	3	10
	Employee labor contract rate (%)	100	100	100
	Social insurance coverage (%)	100	100	100
	Per capita number of paid leave (day)	10	10	10
	Per capita salary (RMB/year)	68,819	63,524	60,419
	Proportion of foreign employees in overseas companies of CNMC (%)	83.24	86.88	89.93
	Employee training sessions	4,459	2,373	1,171
	Total training time (hour)	35,678	26,165	12,752
	Employee training coverage (%) (for headquarters staff)	90	83	70
	Total donations (RMB million)	21.1141	23.7001	16.7578
	Number of people out of poverty	3,030	3,310	4,539
	Poverty alleviation funds (RMB million)	7	5.9302	4.3424

Note: The statistical scope of supplier performance data is only for domestic enterprises of CNMC.

CNMC and SDGs



- We continuously improve the management system for targeted poverty relief. To support poverty alleviation, we step up efforts through educational support, industrial development, relocation, and driving consumption, etc.
- We take into consideration the practical conditions of Lianghe county of Yunnan province. Through educational support, industrial development, improving employment, infrastructure construction, and driving consumption, etc., we advance targeted poverty alleviation by fitting measures into local circumstances, and have successfully pulled Lianghe county out of poverty as scheduled.



- We improve supply chain management on an ongoing basis. We stick to responsible procurement and keep strengthening the assessment of suppliers. Hand in hand with upstream and downstream companies along the supply chain, we are devoted to developing an open, transparent, and responsible supply chain system that boosts friendly cooperation and mutual benefits.
- We give training to suppliers, and strictly comply with standardized procurement process and green procurement policies. We also proactively explore ways to build a green supply chain, so as to realize integrated growth and win-win cooperation.



- We value land and biodiversity management, and spare no efforts in protecting biodiversity and the ecological system. All our mines have carried out land management to minimize the impact of exposed and affected land on local environment and community.
- We have advanced the construction of green mines in an all-round way, and the *Work Plan on Green Mines Development* has been promulgated, which requires mining companies to formulate green mine development plans accordingly.



- We actively carry out energy conservation management and adopt relevant technologies to enhance resource efficiency, reduce the emissions of greenhouse gases, sewage and waste, and minimize the impact of daily operations on nature.



- We improve the organizational and institutional systems for safety management on a regular basis. A safety supervision and inspection mechanism has been established, and foundations of safety management further consolidated, to ensure work safety in full swing.
- We have established and improved systematic quality management, promote quality governance in a holistic manner by integrating it into our Group's strategic plan, fulfill responsibility and consolidate the foundation for management.



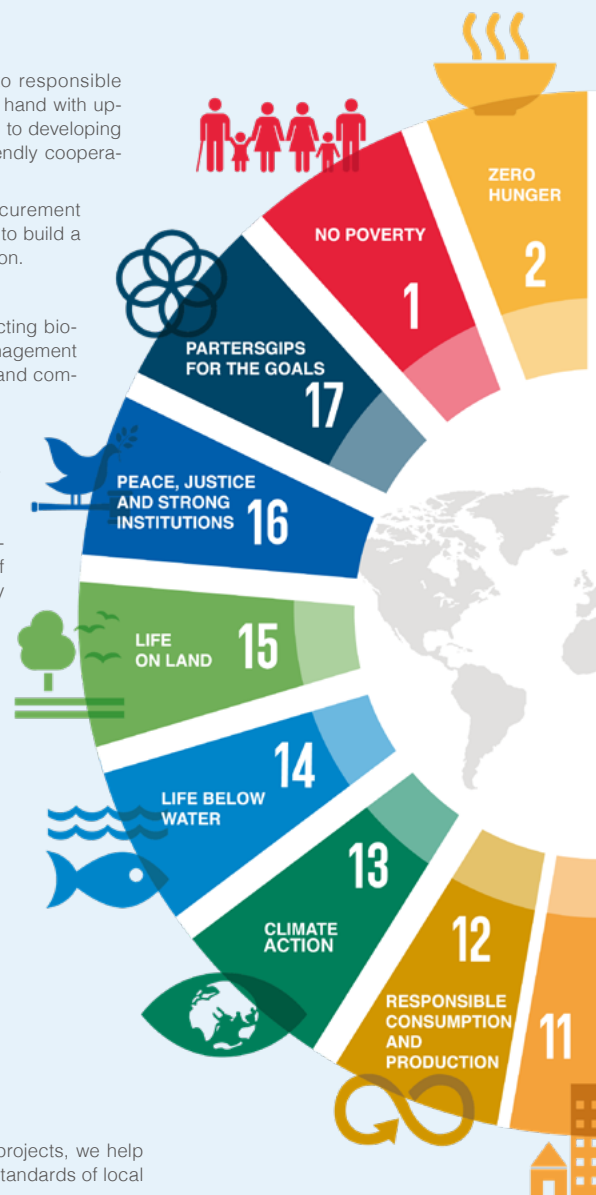
- We support relocation projects for poverty relief, and help install high-altitude barricades and fences in the relocation spot and Zhaobi Mountain resettlement spot. Through relocation, we help impoverished households move from areas prone to frequent geological disasters to areas with better living conditions, medical care, education and employment.

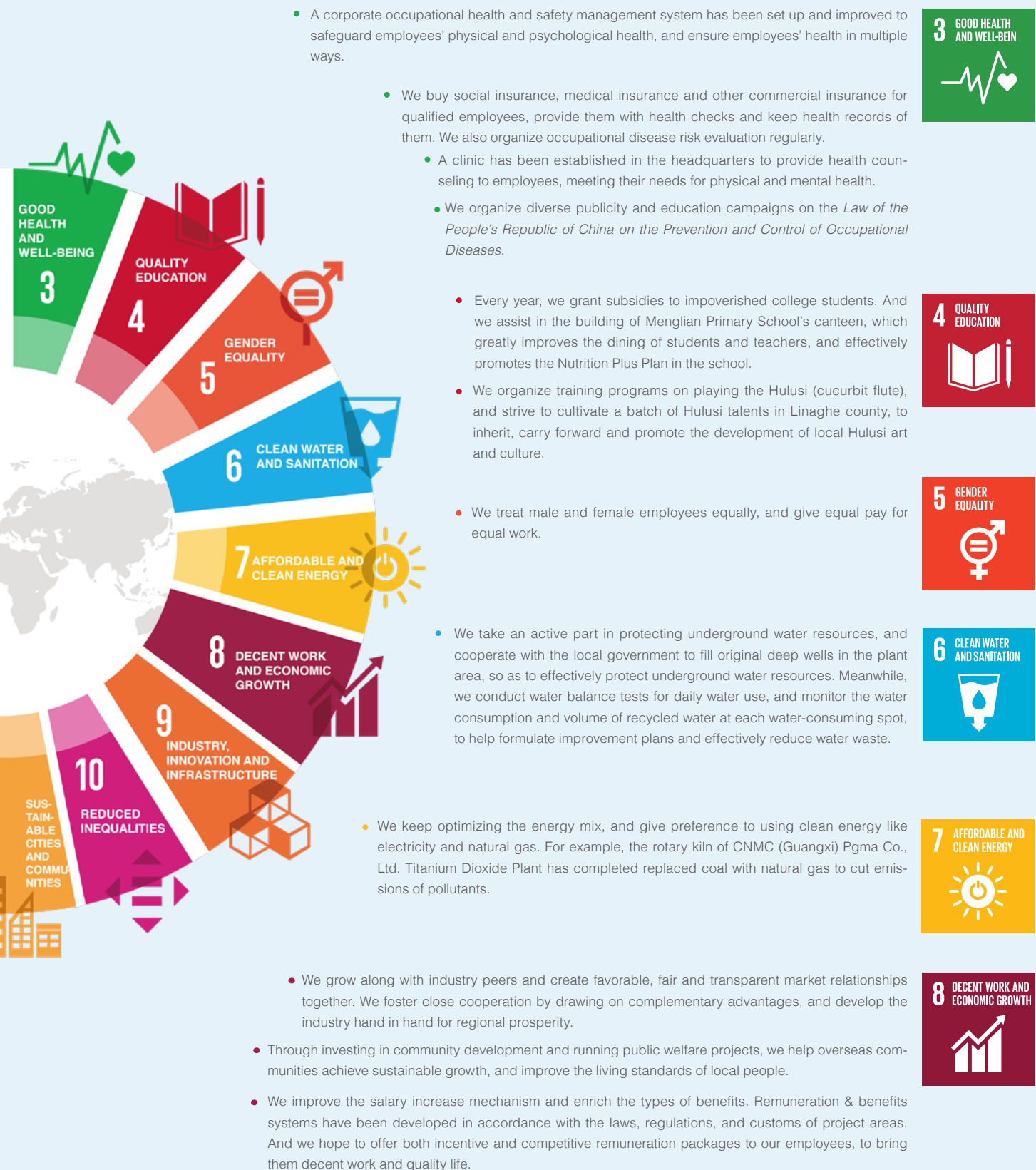


- Through investing in community development and running public welfare projects, we help overseas communities achieve sustainable growth, and improve the living standards of local people, contributing our share to a community of shared future for mankind.
- To contribute to winning the tough battle against poverty, we step up efforts through educational support, industrial development, relocation, and driving consumption, etc.



- We actively develop lead-zinc, nickel and cobalt, and prudentially develop tungsten, gold, silver and lithium, and have delivered multiple product mixes. We also plan to build new smelting capacity and improve the business layout in an all-round manner, and accelerate transforming the deep processing business.
- We have undertaken a large number of engineering projects in China and surrounding countries, as well as in West Asia, the Middle East, North Africa, and South Central Africa, totally involving over 30 countries and regions. We run a wide spectrum of businesses, including smelting, mining, electric power, highway, house building, electromechanical installation, petrochemical, and city planning.
- On an ongoing basis, we improve the organizational structure, institutional framework and talent fostering system for greater innovation outcomes. Furthermore, we have built an innovation platform system and work on all fronts to tackle key technical problems, and promote the market applications of scientific outcomes.





- A corporate occupational health and safety management system has been set up and improved to safeguard employees' physical and psychological health, and ensure employees' health in multiple ways.
- We buy social insurance, medical insurance and other commercial insurance for qualified employees, provide them with health checks and keep health records of them. We also organize occupational disease risk evaluation regularly.
 - A clinic has been established in the headquarters to provide health counseling to employees, meeting their needs for physical and mental health.
 - We organize diverse publicity and education campaigns on the *Law of the People's Republic of China on the Prevention and Control of Occupational Diseases*.
- Every year, we grant subsidies to impoverished college students. And we assist in the building of Menglian Primary School's canteen, which greatly improves the dining of students and teachers, and effectively promotes the Nutrition Plus Plan in the school.
- We organize training programs on playing the Hulusi (cucurbit flute), and strive to cultivate a batch of Hulusi talents in Linaghe county, to inherit, carry forward and promote the development of local Hulusi art and culture.
- We treat male and female employees equally, and give equal pay for equal work.
- We take an active part in protecting underground water resources, and cooperate with the local government to fill original deep wells in the plant area, so as to effectively protect underground water resources. Meanwhile, we conduct water balance tests for daily water use, and monitor the water consumption and volume of recycled water at each water-consuming spot, to help formulate improvement plans and effectively reduce water waste.
- We keep optimizing the energy mix, and give preference to using clean energy like electricity and natural gas. For example, the rotary kiln of CNMC (Guangxi) Pgma Co., Ltd. Titanium Dioxide Plant has completed replaced coal with natural gas to cut emissions of pollutants.
- We grow along with industry peers and create favorable, fair and transparent market relationships together. We foster close cooperation by drawing on complementary advantages, and develop the industry hand in hand for regional prosperity.
- Through investing in community development and running public welfare projects, we help overseas communities achieve sustainable growth, and improve the living standards of local people.
- We improve the salary increase mechanism and enrich the types of benefits. Remuneration & benefits systems have been developed in accordance with the laws, regulations, and customs of project areas. And we hope to offer both incentive and competitive remuneration packages to our employees, to bring them decent work and quality life.

Expert Opinion

Han Bin, Deputy Director of Employer Work Department, China Enterprise Confederation

CNMC has released its sustainability reports for eight years in a row. This year, I see greater ingenuity and inclusiveness, and feel the Group's sense of responsibility in becoming a more internationalized company. The report, themed "Chasing Dreams in the New Era, Creating a Better Life Together", inherits and upgrades the main thread of the latest report, namely "New Era, New Strategy, New Contributions". The new theme also shows CNMC's determination of active CSR fulfillment.

The report catches up with latest hot topics in the two CSR features. In Feature 1, the Group responds to the 70th anniversary of the PRC's founding, and showcases its history and highlights in sustainable development over the past decades. This section perfectly concludes actions and accomplishments of CNMC in serving the country. The Feature 2 focuses on COVID-19 outbreak, a series public health crisis since early 2020. The report elaborates on the Group's affirmative and responsible actions in the battle against COVID-19.

In the main part, the report depicts the Group's practices in five chapters, namely pursuing long-term value, delivering projects with superior quality and ingenuity, protecting mother earth by defending clear water and blue skies, joining hands for openness and win-win outcomes, and living our dream and sharing happiness. The report, while actively responding to needs of various parties, introduces responsible practices of CNMC at home and abroad in a vivid and detailed manner, proving that the Group shoulders its responsibility as an internationalized enterprise. The five chapters also echo with the subject matters of the year, showing prominent uniformity and creativity.

In a nutshell, the report presents the Group's actions and achievements in integrating resources, pooling strengths and actively exploring ways of achieving sustainability. It also reveals CNMC's expectations of sharing development value and wellbeing together with its subsidiaries, partners, customers, employees, and other stakeholders.

Yu Zhihong, Editor-in -Chief of China Sustainability Tribune

This is the ninth sustainability report released by CNMC. The report comprehensively shows the Group's highlights and performances in CSR management and practices in the past year. It inherits previous reports and makes innovation. It perfectly visualizes CNMC's prominent progress in striving to become a tech-based, well-managed and quality-oriented world-class mining corporation with global competitiveness. We are safe to say the report is marked by rich content, clear focuses, and distinctive CNMC features.

Themed with "Chasing Dreams in the New Era, Creating a Better Life Together", the report shows CNMC's concrete actions in five chapters and from seven main perspectives, namely corporate governance, quality pursuit, innovative growth, environmental protection, employee cultivation, win-win cooperation with partners, and community engagement. It also adds two features to summarize, in a vivid and systematic manner, the Group's milestones over the past 30 years, as well as responsible actions and new accomplishments in the new era.

The report attaches great importance to the identification of material topics. Through citing a large number of cases and figures, it discloses in detail the Group's performance concerning the material topics. And the report is highly interactive in multiple ways. It actively responds to expectations and demands of stakeholders. With a clear-cut and well-organized structure, the report gives a comprehensive picture about latest CSR progress of CNMC, and highlights the Group's characteristics in CSR practices. It uses plain language and vibrant design to include colorful content, detailed cases and remarkable stakeholders' comments, so that readers feel closer to the Group.

As CNMC is about to set on a new journey in the new era, we sincerely hope it could firmly uphold the philosophy of sustainability, further incorporate sustainability into its development strategies and operations, and continue to create comprehensive value while becoming a world-class mining corporation with global competitiveness, so as to grow together with stakeholders, achieve win-win results and share a better life.



Report Rating

Rating Report of CNMC Sustainability Report 2019



Entrusted by China Nonferrous Metal Mining (Group) Co., Ltd., the Chinese Expert Committee on CSR Report Rating selected experts to form a rating group to evaluate the CNMC Sustainability Report 2019 (hereinafter referred to "the Report").

I Rating basis

Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises (CASS-CSR 4.0) issued by Research Center for Corporate Social Responsibility of the Chinese Academy of Social Sciences, and *Rating Criteria of CSR Reporting in China (2020)* issued by Chinese Expert Committee on CSR Report Rating.

II Rating process

- 1.The rating group examined and confirmed the *Confirmation Letter of Procedural Materials of the CSR Report* submitted by the reporting preparation group and the relevant supporting materials;
- 2.The rating group evaluated the preparation process and content of the Report and drew up the rating report;
- 3.The Vice-Chairman of the Rating Expert Committee, the head of the rating group and the expert of the rating group jointly signed and reviewed the Rating Report.

III Rating conclusion

Process (★★★★★)

The Group has set up the Leading Group on Fixed-point Poverty Alleviation and Social Responsibility, with Chairman serving as the group leader to control the overall direction and important content of the Report. The Corporate Culture Department takes the lead in setting up a report preparation group, and the General Manager's Executive Meeting is responsible for the final review of the Report. The Report is positioned as an important tool to respond to the concerns and expectations of stakeholders and to demonstrate CNMC's CSR practice and achievement. The functional value orientation of the Report is clear. The material topics are identified according to national policies, major corporate events, international and domestic social responsibility standards, industry benchmarking analysis, stakeholder surveys, etc. The company actively promotes its subordinate companies to issue social responsibility reports and thus deepens the vertical management of social responsibility work. The Group plans to release the Report through its official website, and will present the Report in the form of electronic and printed version in Chinese, English and French as well as one picture to show all contents. Thus, the Report has excellent performance in process.

Materiality (★★★★★)

The Report systematically discloses the key issues of nonferrous metals industry, such as product quality management, scientific and technological innovation, occupational health management, work safety, R&D of environmental protection technology and equipment, energy conservation, reduction of "three wastes", hazardous chemicals management, and environmental treatment around the plant area, etc. It describes the contents in details and has excellent materiality.

Completeness (★★★★★)

The main content of the Report systematically discloses 91.41% of the core indicators of the nonferrous metals industry from the perspectives of "Pursuing Long-term Value in Full Swing", "Delivering Projects with Superior Quality and Ingenuity", "Joining Hands for Openness and Win-win Outcomes" and "Living Our Dream and Sharing Happiness". The Report indicates excellent completeness.

Balance (★★★★☆)



The Report discloses negative data such as “staff turnover rate”, “accident-related fatality rate per RMB 10 billion of industrial output”, “major or serious work safety accident” and “new cases of occupational diseases”, showing outstanding balance.

Comparability (★★★★★)

The Report discloses the comparative data of 49 indicators such as “revenue”, “total profits”, “investment in environmental protection”, “SO₂ emissions”, “R & D investment”, and “pass rate for product testing” for more than three consecutive years. “The 38th among China’s Top 100 Multinational Corporations”, and “the 69th among Top 500 Manufactures in China” are also compared. The Report also indicates excellent comparability.

Readability (★★★★★)

The Report is themed with “Chasing Dreams in the New Era, Creating a Better Life Together”. The framework structure is clear, and the chapter style is consistent. The Report systematically shows the CSR concept, practice and achievement on key issues, fully responds to the expectations and demands of stakeholders, and interprets CNMC’s deep understanding of corporate social responsibility. The double-page chapter uses panoramic real picture to show the main business elements of the company, which is vivid and atmospheric, and enhances the appeal and readability of the Report. The QR code is embedded to extend the report content, which strengthens the communication value of the report; the interpretation of terms enhances the readability of the Report. To sum up, the Report shows excellent readability.

Innovativeness (★★★★☆)

At the beginning of the Report, two CSR features, “Living up to New Expectations of the New Era and Shouldering New Responsibilities” and “CNMC in Action in the Outbreak of the COVID-19 Pandemic” focus on the actions and contributions of the company in implementing macro policies and helping fight COVID-19, highlighting the responsibility of central SOEs. At the end of the Report, the section “CNMC and SDGs” is set up to comprehensively respond to the Sustainable Development Goals of the United Nations, highlighting the industrial leading role of CNMC and the company’s response to the times. Thus, the Report is in a leading position in terms of innovativeness.

Overall rating (★★★★★)

According to the evaluation of rating group, CNMC Sustainability Report 2019 is a five-star report, an excellent CSR report.

IV Suggestions for Improvement

CNMC is suggested to enhance the detailed disclosure of CSR fulfillment and improve the balance of the Report.

Vice chairman of the rating expert committee

Leader of the rating team

Expert of the rating team

Process Evaluator Ren Jiaojiao

Issuing date: July 31, 2020



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Feedback Form

Dear readers,

Thank you for taking time to read the CNMC Sustainability Report 2019. Please leave your opinions and suggestions in the following Feedback Form and send them to us, so that we can make improvements for the report.

Which stakeholder of CNMC do you belong to?

- ☐ The government and supervision authorities
 ☐ Shareholders/Investors
 ☐ Partners
 ☐ Community residents
 ☐ Customers
☐ Scientific research colleges and universities
 ☐ Media
 ☐ Social organizations
 ☐ Peers
 ☐ Employees
 ☐ Financial institutions

1.Are you satisfied with the report?

- ☐ Very good
 ☐ good
 ☐ Average
 ☐ Poor
 ☐ Very poor

2.Do you think the information disclosed in the report is accurate, explicit and complete?

- ☐ Very good
 ☐ good
 ☐ Average
 ☐ Poor
 ☐ Very poor

3.How is the structure of the report for manifesting our features?

- ☐ Very good
 ☐ good
 ☐ Average
 ☐ Poor
 ☐ Very poor

4.How is the design and layout of the report?

- ☐ Very good
 ☐ good
 ☐ Average
 ☐ Poor
 ☐ Very poor

5.How is your concerns reflected in the report?

- ☐ Very good
 ☐ good
 ☐ Average
 ☐ Poor
 ☐ Very poor

If no, please specify what else information should be disclosed in the report.

6.What do you think of our performance in sustainable development?

- ☐ Very good
 ☐ good
 ☐ Average
 ☐ Poor
 ☐ Very poor

7.What are your suggestions on the CNMC sustainability reports in future?

8.What are your suggestions on sustainability management and practices of CNMC in future?

Thank you for your support. Please mail the feedback to the Corporate Culture Department, China Nonferrous Metal Mining (Group) Co., Ltd.

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