



New Vision, **New** Plan, **New** Journey



2020

Sustainable Development Report

About this report

Time span

This report covers the period from January 1 to December 31, 2020. Part of the content can date back to previous years or be extended to 2021.

Report scope

This report covers the sustainable development management practices and performance of China Nonferrous Metal Mining (Group) Co., Ltd. and its affiliated companies.

Basis of compilation

This report is prepared in accordance with the *GRI Sustainability Reporting Standards* by Global Sustainability Standards Board (GSSB) as well as *Supplementary Guidelines for Mining*; Ten Principles of the UN Global Compact; International Organization for Standardization's *Guidance on social responsibility* (ISO 26000:2010) and GB/T 36001 *Guideline on the Compilation of Corporate Social Responsibility Report; Guidelines on the Social Responsibility for Industries of China* (2015 Edition) by China Federation of Industrial Economics, and other standards.

Release cycle

This report is an annual report and is the 10th report on sustainable development issued consecutively by China Nonferrous Metal Mining (Group) Co., Ltd.

Sources of data

The data cited herein are all from official documents, statistical reports and website of the China Nonferrous Metal Mining (Group) Co., Ltd. The currency for the data involved in the report is renminbi by default, and other currencies are indicated under special circumstances.

Description of reference

For the sake of presentation, "CNMC", "the company" and "we" in the report refer to China Nonferrous Metal Mining (Group) Co., Ltd.

Commitment

China Nonferrous Metal Mining (Group) Co., Ltd. promises that the content of this report is free from any false records, misleading statements or significant omissions, and is responsible for the authenticity, accuracy and completeness of its content.

Access to report

You can download the electronic version of this report on the website of CNMC

Website: <http://www.cnmc.com.cn/>

If you want to have the paper version of the report or have suggestions and comments on this report, please contact Corporate Culture Department.

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Message by Chairman

We had an extraordinary year in 2020. CNMC carried out response to the epidemic, and enterprise reform and development in a coordinated manner. CNMC had made steady progress in project development, improved management capabilities, realized record economic benefits, put in actions for sustainable development, and scaled new heights in terms of the quality and efficiency of enterprise development, and contributed to the security of national important resources.

First, resolutely pressed ahead with the reforms, and scaled new heights in terms of economic benefits. In 2020, when the price of non-ferrous metals remained low and then rose, copper prices rose slightly, and prices of zinc, nickel, etc. dropped throughout the year, we focused on improving financial management and implemented the three-year action plan for the reform of state-owned enterprise to improve corporate governance, upheld the list-based management and hierarchical authorization for the powers of the board of directors, realized the coordination of various governance entities, and modernized the corporate governance system and governance capabilities. CNMC promoted "staggered development"; we went all out to scale up production capacity for overseas new production projects such as Somidez and Lualaba; domestic companies such as CNMC Hongtoushan quickly resumed work and production, with a view to improving economic benefits. CNMC "tightened the screws"; the progress of key construction projects such as CNMC Africa Mining's Southeast Ore Body Project and Daye's 400,000-metric ton project picked up speed, key scientific and technological projects reached the evaluation targets, and the yield rate of CNFC Orient's beryllium copper alloy sheet and strip increased by 13 percentage points compared with the annual average. CNMC promoted "technology leadership"; it established international R&D centers and overseas laboratories, set up expert technical committee, undertaken five projects under the "1025 program", and won one second prize at the National Prize for Progress in Science and Technology. The company's total profit and net profit, and the output of non-ferrous metal products hit record highs, and the asset-liability ratio fell below 65% for the first time.

Second, focused on the fulfillment of responsibilities and promoted sustainable development. We attach great importance to work safety and ensure the health and safety of employees. The mortality rate per 10 billion yuan of industrial output and the rate of injury per 1,000 people hit record lows. We set great store by environmental protection, and work to build digital mines and environmentally friendly mines. Six mines were included in the list of national environmentally friendly mines, the comprehensive energy consumption per 10,000 yuan of output value was the same year-on-year, and the sulfur dioxide emissions fell by 23.5% year-on-year. CNMC contributed to the people's well-being. During the 13th Five-Year Plan period, it accumulatively donated over 82.2518 million yuan for paired-up poverty alleviation. It invested 30 million yuan in the Central Enterprise Industrial Poverty Alleviation Fund, which helped lift over 30,000 poor people in designated poverty-stricken counties out of poverty. The first secretary in residence sent by the group company was awarded the national advanced individual for poverty alleviation. CNMC donated 13 million yuan in funds and materials to Hubei Province and Huangshi City for the fight against the COVID-19 epidemic. CNMC continuously improves the quality of products and services, cements ties with partners, and strengthens supplier access, evaluation and management. The yield rate of its products reached 96.34%, and customer satisfaction rate was 96.11%.

Remain true to our original aspiration and advance our cause. 2021 is the first year of the 14th Five-Year Plan period and the first year of building a modern socialist country in all respects. Focusing on high-quality development, CNMC never wavers in its efforts to "go global", endeavors to "become stronger and produce excellent products", and "contributes to the country with resources". Driven by innovation, CNMC endeavors to become stronger and excellent in terms of resources, new materials, engineering, and trade, move faster to become a world-class mining enterprise with global competitiveness, and strive to meet the needs of the people for a better life!

Chairman of CNMC

About CNMC

Company Profile

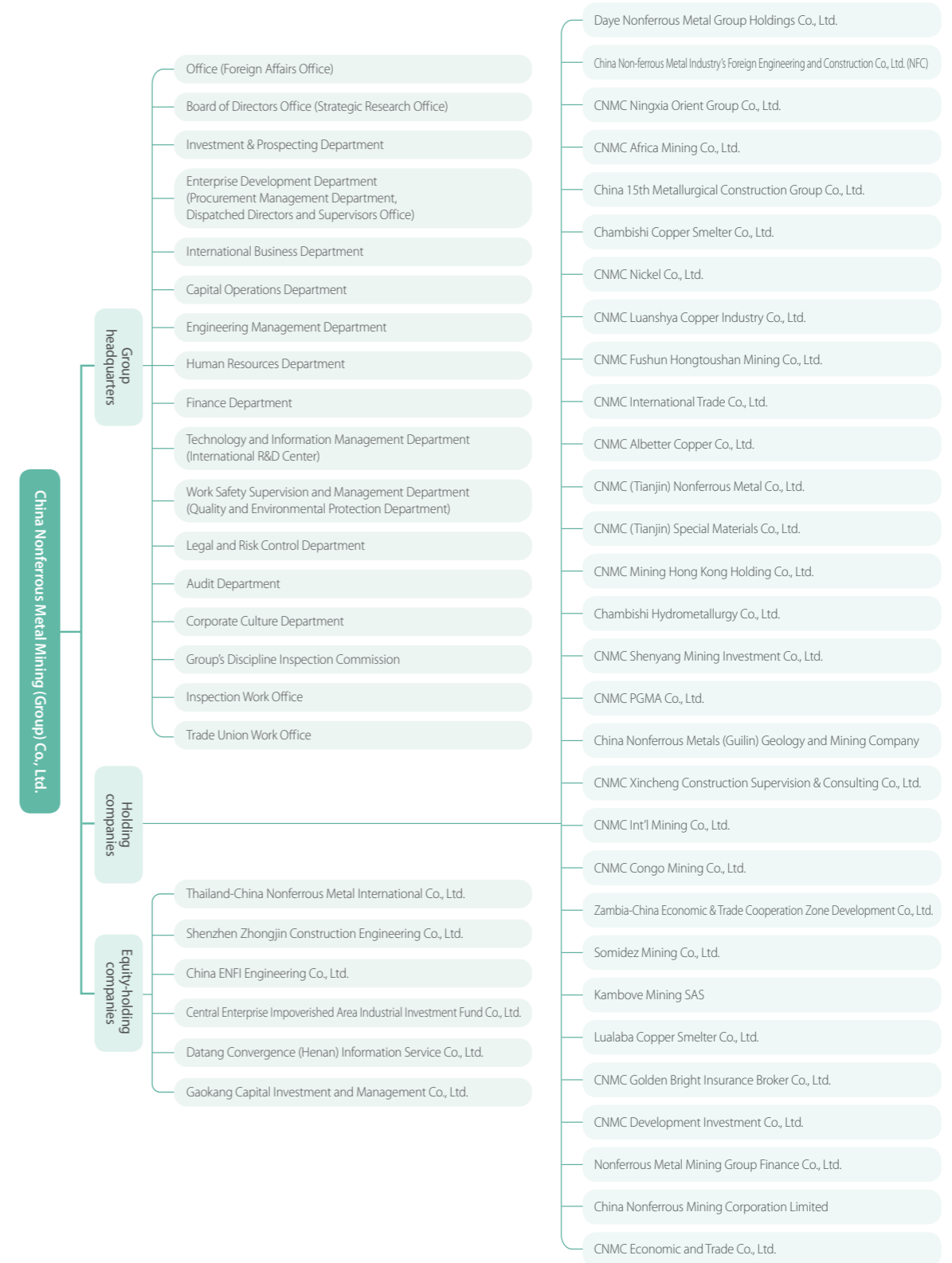
China Nonferrous Metal Mining (Group) Co., Ltd. (CNMC) is founded in 1983. Its main business includes the development of non-ferrous metal and mineral resources, new materials, construction projects, and related trade and services.

Shouldering the mission of "ensuring the security of national important resources", CNMC is one of China's first non-ferrous metals company to implement the "going global" strategy and one of the most successful companies to foster international cooperation. It has operations in over 30 countries, involving more than 40 varieties of non-ferrous metals. CNMC owns 19.07 million metric tons of heavy non-ferrous metal resources at home and abroad, and is a Chinese company that develops copper resources overseas for the longest time, has the best industrial chain, and the largest number of projects. CNMC has 27 second-level companies and five domestic and overseas listed companies. CNMC ranks 18th among the "Top 50 Chinese Enterprises for Globalization", 39th among the "Top 100 Chinese Multinational Companies", and 62nd among the "China's Top 500 Manufacturing Companies". CNMC was awarded the titles such as China Band "Huapu Award", the "70 Chinese Brands on the 70th Anniversary of the Founding of the People's Republic", and the Meritorious Enterprise for Strategy of China's Non-ferrous Metals Industry for Overseas Resource Development.

Corporate culture



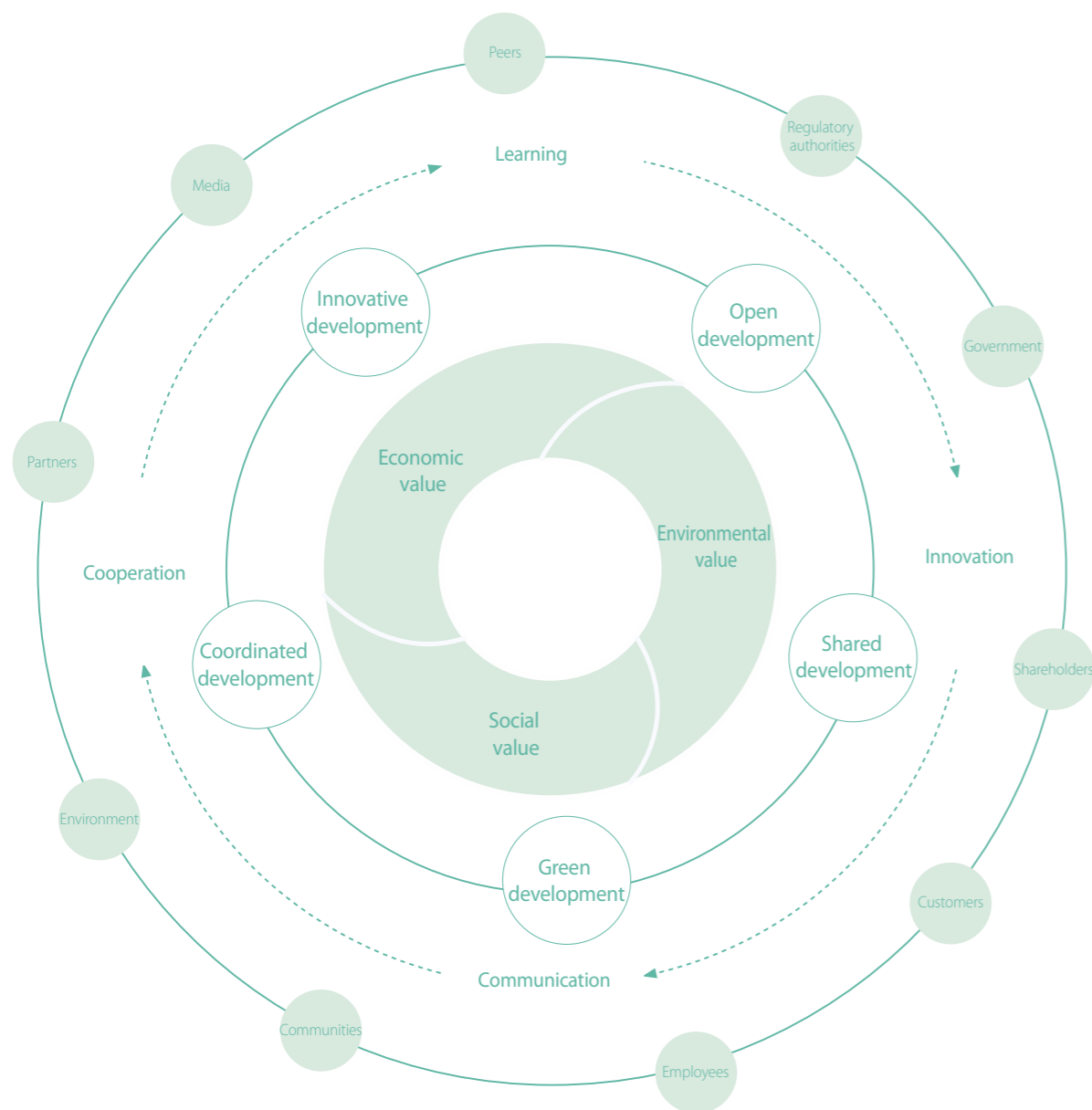
Organization structure



Sustainability Management

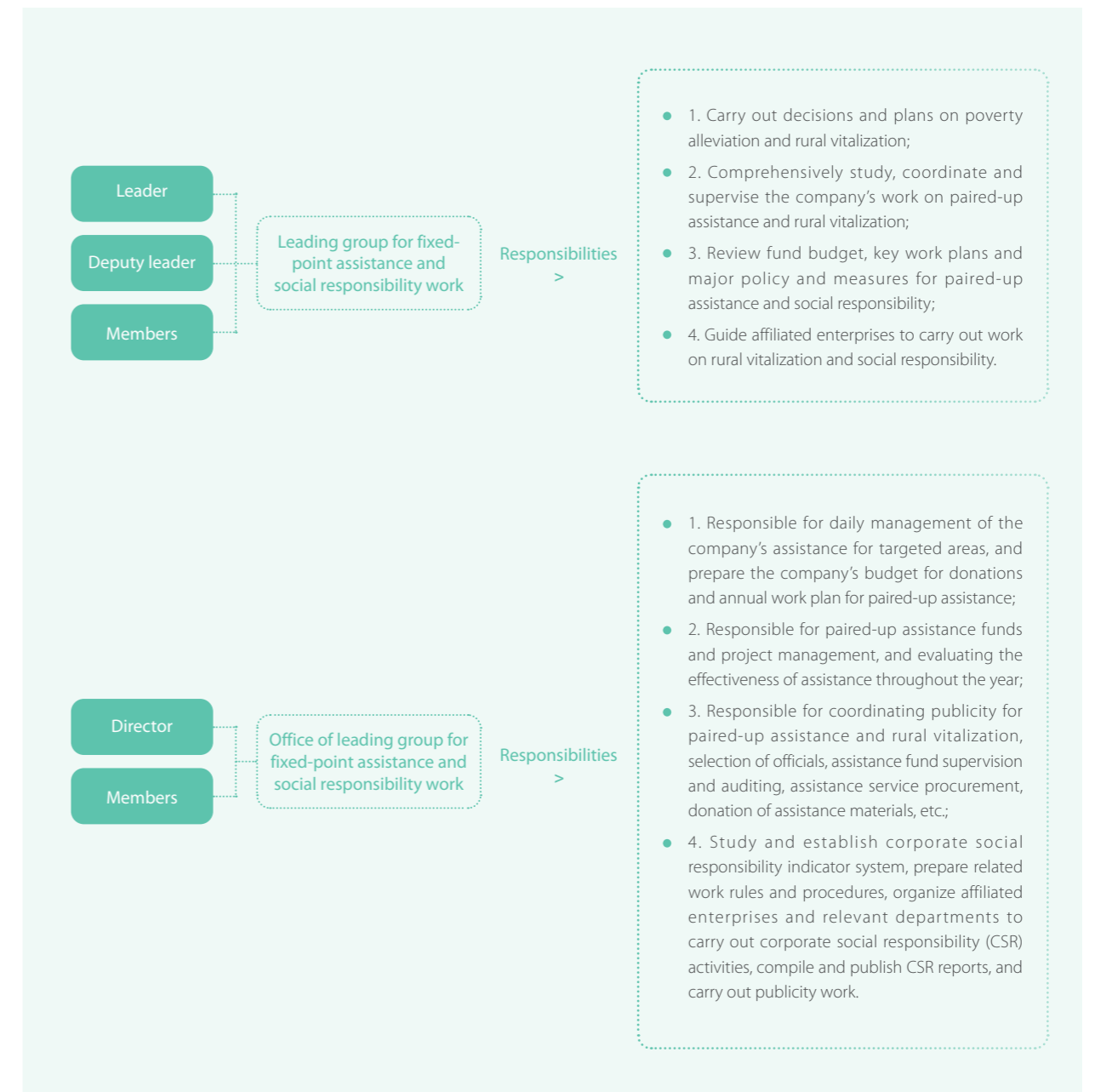
Idea model

CNMC has always kept to responsible operations, and conducted resource development and utilization under the premise of the sustainable resources and environment. By promoting the coordinated development of three major sectors including resource development, construction engineering, and trade and related services, CNMC makes every endeavor to create economic, environmental and social value, and contribute to a harmonious society.



Management structure

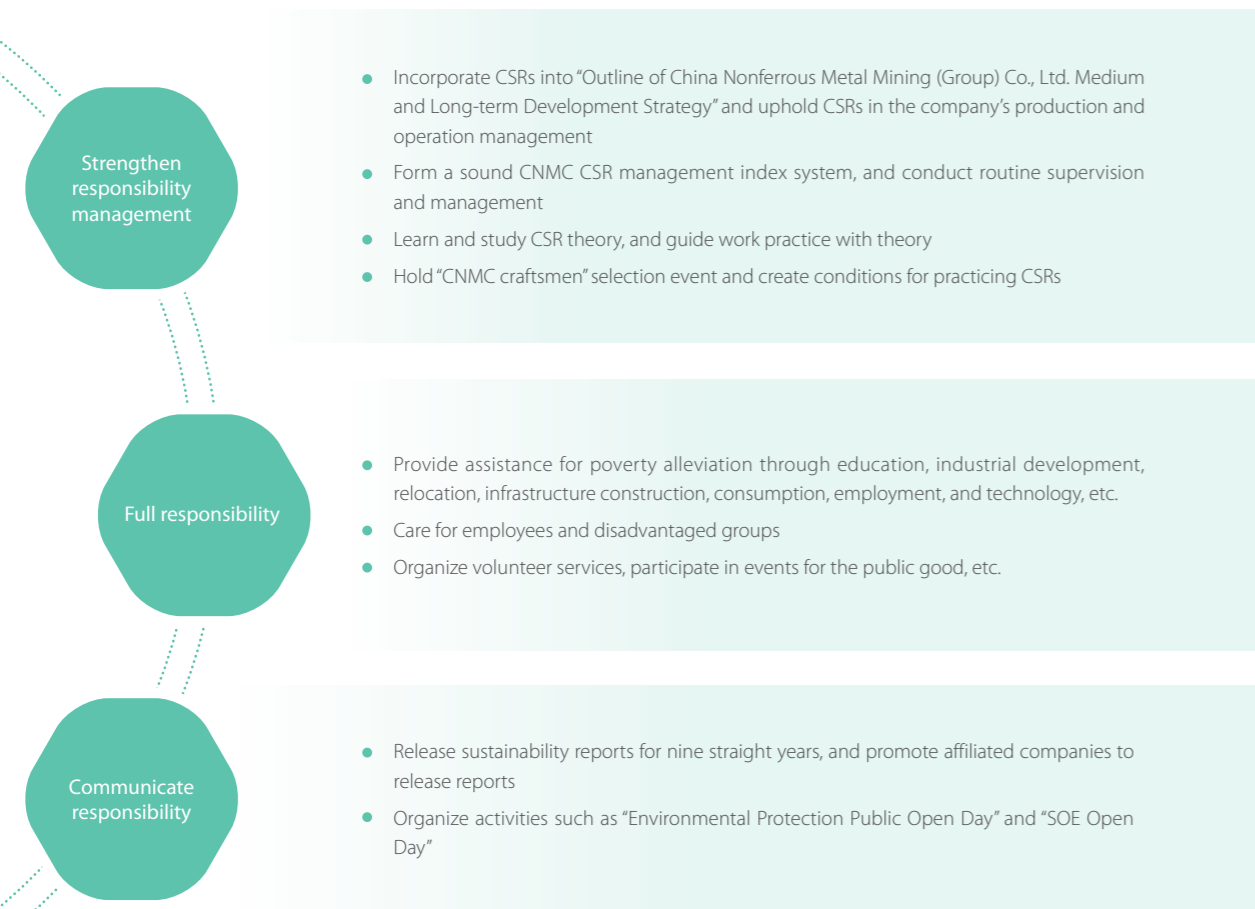
CNMC attaches great importance to sustainable development. It has established a leading group for paired-up assistance and social responsibility work. Headed by the chairman, the leading group guides the work of the company and affiliated enterprises on social responsibility. The leading group has an office. The members of the office are the heads of departments of the corporate headquarters. Each affiliated company designates a liaison person for social responsibility to promote the implementation of work related to social responsibility.



Organizational chart for the company's paired-up assistance and CSR work

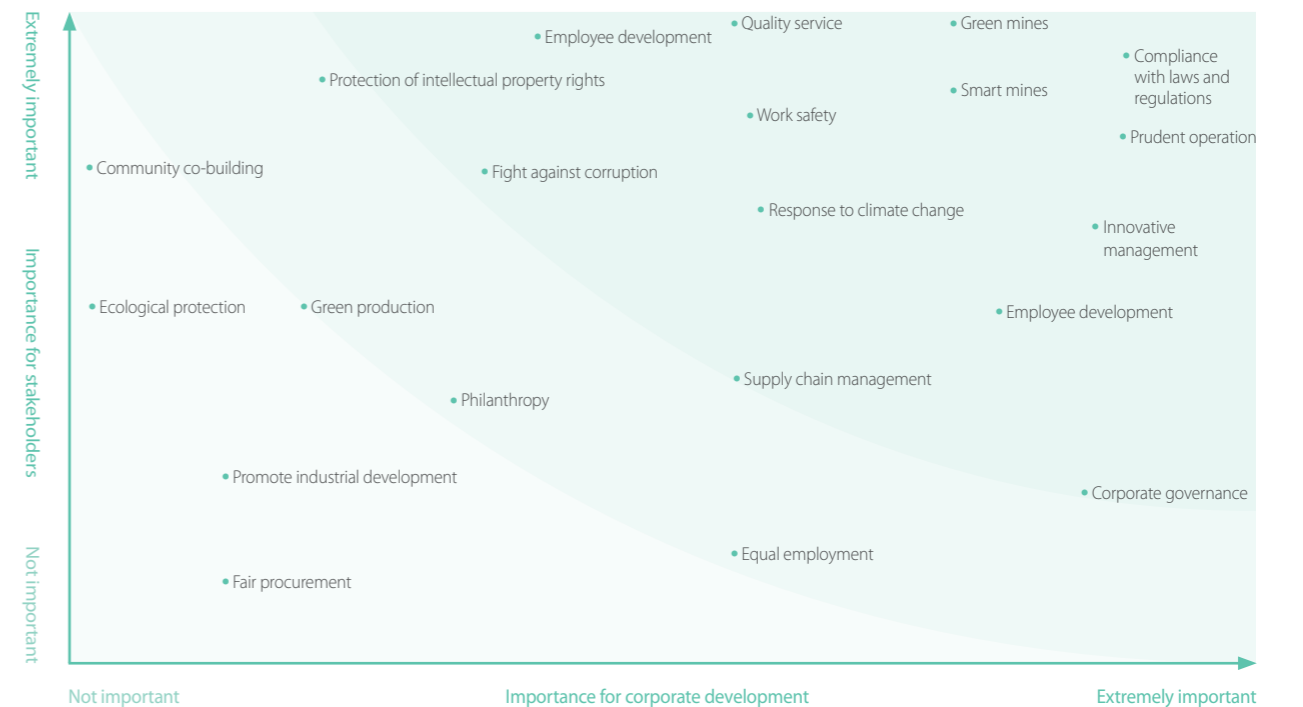
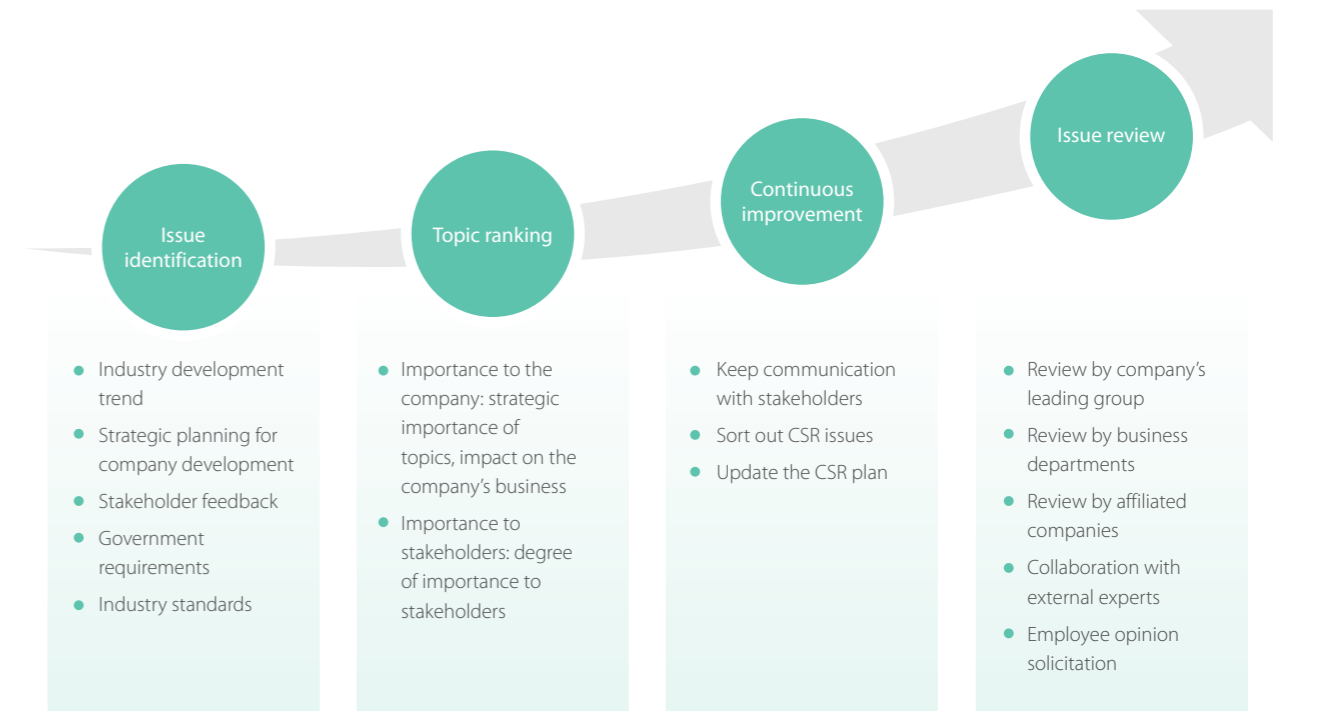
Management promotion

Upholding the values of “integrity first, pragmatism and innovation, resource-based contribution to society, and win-win cooperation”, the company presses ahead with social responsibility management and practice, and has formed a CSR culture with company characteristics. The company actively promotes research and exchanges in respect of CSR, and continues to publish sustainable development reports in the forms such as electronic version, publication, and a single picture in Chinese, English, and French to bring into play the role the report for communication and dissemination, and communicate with stakeholders.






Analysis of substantive issues

According to the needs of sustainable development and the company’s strategic priorities, CNMC analyzes and evaluates the external environment, its strategies and capabilities for sustainable development, identifies the expectations and demands of stakeholders, analyzes the substantive issues, and seeks progress in sustainable development.



Stakeholder communication and response

	 Government and regulatory agencies	 Shareholders	 Customers	 Environment		 Employees	 Partners	 Competitors	 Community	 Media
Stakeholders' expectations	<ul style="list-style-type: none"> Compliance with laws and regulations Promote economic development and transformation Pay taxes in accordance with law 	<ul style="list-style-type: none"> Maintain and increase the value of state-owned assets International operations Move towards a world-class mining company 	<ul style="list-style-type: none"> High-quality products and satisfactory service Unimpeded communication channels 	<ul style="list-style-type: none"> Sustainable resource development Energy saving and emission reduction Ecological protection Climate change 		<ul style="list-style-type: none"> Respect and protect basic rights and interests Competitive salary system Unimpeded career advance channels Comfortable and safe working environment 	<ul style="list-style-type: none"> Compliance operations Integrity and mutual benefit Win-win cooperation Common development 	<ul style="list-style-type: none"> Fair competition Maintained the industry development environment 	<ul style="list-style-type: none"> Focus on community development Created local jobs Participated in activities for the public good 	<ul style="list-style-type: none"> Open and transparent information
Communication and response	<ul style="list-style-type: none"> Compliant operations Uphold integrity in operations Serve Belt and Road Initiative, national important resource security strategy, etc. Generated an economic benefit of 130 million yuan Promoted the development of local featured industries 	<ul style="list-style-type: none"> Total profit of 3.173 billion yuan The debt-to-asset ratio fell by 3.41% compared to 2019 Ranked 39th in "China's Top 100 Multinational Companies" 	<ul style="list-style-type: none"> The results of three QC groups won the award of the results publication competition for central enterprises Carried out evaluation of scientific and technological achievements in 9 projects, applied for 15 scientific and technological awards in the non-ferrous sector, and reviewed 125 scientific and technological supporting awards of the company Customer satisfaction of 96.11% Zero major quality accident and major customer complaint 	<ul style="list-style-type: none"> The comprehensive energy consumption per 10,000 yuan of output value remained the same year-on-year, sulfur dioxide emissions fell by 23.54% year-on-year, and there was no environmental emergencies. A total of 25 units passed the SO14001/GB/T 24001 environmental management system certification 6 mines were included on the list of national environmentally friendly mines Improved the recovery rate and comprehensive utilization of mineral resources Carried out targeted prevention and treatment of the environment such as air, water and soil pollution 		<ul style="list-style-type: none"> Consistently improve the democratic management system based on the congress of workers and staff and trade union The rate of labor contracts signed by employees reached 100%, and there was no child labor, forced labor, or discrimination in all aspects. Social insurance coverage reached 100% Formulated the Talent Development Plan and implemented the "eight talent programs" There was no work safety accidents of a major nature or above, and work-related accidents decreased by 46% year-on-year Had 49,873 employees 	<ul style="list-style-type: none"> Formulated Measures on Supplier Management Actively explored the establishment of a green supply chain to achieve integrated development and mutual benefit 	<ul style="list-style-type: none"> Worked with industry partners to grow together and forge a good, fair and transparent market relationship Accumulatively presided over the formulation of 548 pieces of international, national and industry technical standards Innovated products and services to provide reference for the industry 	<ul style="list-style-type: none"> Conducted charitable work and implemented emergency relief The company donated money and materials worth over 32.7639 million yuan Supported the fight against the COVID-19 epidemic Helped poor counties get rid of poverty Input and introduced assistance funds of 9.3622 million yuan 	<ul style="list-style-type: none"> Company website Media interview Organized activities such as "Environmental Protection Public Open Day" and "State-owned Enterprise Open Day"
Corresponding SDG				 		  	 		  	

Do well in resource development business and create the pillar of a great power

Serve the national strategy

CNMC unswervingly pursue the mission of "serving the country through resources", leverage the first-mover advantage and take multiple measures to ensure the supply of important non-ferrous metal mineral resources which are in short supply in China. Relying on the domestic and international markets as well as resources, we actively foster cooperation in development of non-ferrous metal resources at home and abroad, and ensure better development of resources.

The company boasts 19.07 million metric tons of heavy non-ferrous metal resources, and 11.92 million metric tons of copper resources at home and abroad. Through domestic production and transport of overseas products back to China, the company contributes about 1 million metric tons of copper to the national economy every year, which account for 8.33% of the apparent consumption of copper (output + net imports, about 12 million metric tons per year). The company has obvious competitive advantages in the main non-ferrous metal varieties such as copper, nickel, lead, zinc, tungsten, and tin, and has formed a copper-based "whole industrial chain" for the development of non-ferrous metal resources. The company is committed to becoming the pillar force in ensuring the security of national important resources.

Ensure innovation leadership and improve the quality of development

Since the "Thirteenth Five-Year Plan" period, we become problem-oriented, and have comprehensively put right legacy problems. The quality of development steadily improves. In 2020, the company's assets reached 109.412 billion yuan, and the output of non-ferrous metal products reached 1.8566 million metric tons.

Operating income in 2016-2020
(100 million yuan)

2016	1409.54
2017	1237.79
2018	1113.65
2019	1315.2
2020	1361.64

Total profit in 2016-2020
(100 million yuan)

2016	6.76
2017	17.99
2018	20.71
2019	17.27
2020	31.73

Output of non-ferrous metal products
in 2016-2020 (10,000 metric tons)

2016	161.42
2017	176.32
2018	167.37
2019	170.36
2020	185.66

We regard innovation as the primary driving force, focus on technological innovation, and optimize the high-end sector of the industrial chain.

By the end of 2020, the company had:

2
academicians of the Chinese Academy of Engineering

18
provincial R&D platforms

1,822
valid patents

13 pieces of international standards
535 pieces of national and industry standards

5
research and design institutes

3
academician workstations

50
national science and technology awards

Ranked among the "National Innovative Enterprises"

4
national R&D platforms

5
post-doctoral research workstations

587
provincial and ministerial-level science and technology awards



We attach great importance to work safety and environmental protection. We continuously improve the safety management system and environmental management system, step up investment in work safety and environmental protection, raise the awareness and ability of all employees in work safety and environmental protection, and ensue zero major safety accidents and environmental pollution events.

Investment in work safety in 2016-2020
(100 million yuan)

2016	3.58
2017	1.74
2018	2.43
2019	2.92
2020	4.05

Total energy consumption in 2016-2020
(10,000 metric tons of standard coal)

2016	171.05
2017	138.52
2018	145.27
2019	78.28
2020	74.64

Sulfur dioxide emissions in 2016-2020
(metric tons)

2016	11545.24
2017	10109.91
2018	8712.07
2019	2952.55
2020	2257.53

Nitrogen oxide emissions in 2016-2020
(metric tons)

2016	1444.54
2017	1321.1
2018	1222.88
2019	961.55
2020	658.87

COD emissions in 2016-2020
(metric tons)

2016	453.04
2017	459.18
2018	485.55
2019	412.71
2020	423.81



Chambishi Hydrometallurgy Co., Ltd. was established in Zambia in 2004, the first overseas project that applies China's hydrometallurgy technology.

Have an international perspective and become the "first" in many respects

We shoulder the mission of "ensuring the security of national important resources". We are one of the earliest and most successful companies in China's non-ferrous metal industry to "go global" and conduct international investment and cooperation, and has served as a bridge of friendly exchanges between China and foreign countries. Many projects are covered by intergovernmental framework cooperation and become a model of friendly cooperation between China and foreign countries. We have undertaken projects worth over 130 billion yuan in more than 30 countries along the Belt and Road, involving more than 40 varieties of non-ferrous metals. It ranks second among central enterprises in terms of transnational index.

CNMC is one of the largest importers of blister copper in China, and the first enterprise to ship copper products overseas back to China. The blister copper shipped back to China every year accounts for nearly a quarter of China's total imports. CNMC one of the world's top three companies in the tantalum industry and has China's only beryllium material research and production base. CNMC has invested in and developed 9 copper mines, 9 copper smelting plants, one gold mine, one nickel mine, and one zinc mine, including China's first overseas copper mine, the first copper hydrometallurgical process smelter, the first copper pyrogenic processing smelter, the first overseas cooperation zone, the first Sino-Mongolian joint venture zinc mine, and the first Sino-Myanmar joint venture nickel mine.



In 2009, the Chambishi Copper Smelter in Zambia was put into production, with an annual blister copper output of 250,000 metric tons. It is one of China's first overseas construction projects that won "Luban Prize". It has ISASMELT furnace that is the first furnace self-designed and constructed by China and that has the longest furnace life in the world, and is the first in the world to use "cobalt matte-magnetic separation" technique for industrial comprehensive recovery of metallic cobalt. It is the first large-scale pyrometallurgical plant invested by a Chinese company overseas.



In 2007, CNMC invested and built the Zambia-China Economic & Trade Cooperation Zone (ZCCZ). This is the first overseas economic and trade cooperation zone established by China in Africa and the first multi-functional economic zone announced by the Zambian government.



In 2012, the Tagaung Taung Nickel Mine in Myanmar invested and built by CNMC was the first cooperation project in mining between the Chinese and Myanmar governments and the largest mining investment project in ASEAN countries during the "Eleventh Five-Year Plan" period by the Chinese government.

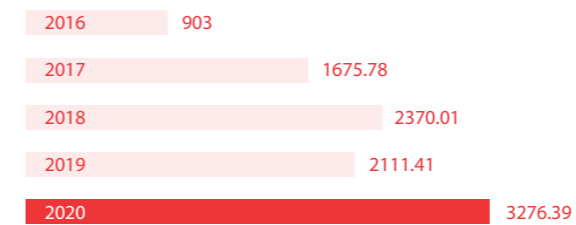


In 2005, the Tumurtin-Ovoo Zinc Mine invested and developed by CNMC in Mongolia was put into operation. It is the first Sino-Mongolian joint venture zinc mine, and was rated a "Model of Sino-Mongolian Cooperation" by the governments of China and Mongolia, becoming a model for Chinese companies "going global".

Keep to responsibilities and work to improve people's well-being

We make earnest efforts to work for the public good and fulfill our social responsibilities. In China, during the "Thirteenth Five-Year Plan" period, we donated money and materials worth 82,251,800 yuan for targeted impoverished areas; invested 30 million yuan in the Central Enterprise Industrial Poverty Alleviation Fund; helped Lianghe County raise more than 11 million yuan in poverty alleviation funds, which helped over 30,000 poor people get rid of poverty, and contributed to securing a decisive victory in building a moderately prosperous society in all respects. We paid taxes in excess of USD 800 million abroad and donated more than USD 50 million. The China-Zambia Friendship Hospital we invested in is the most advanced international hospital in Zambia. We organized the Bright Eye Event in Zambia, under which 109 impoverished cataract patients underwent the eyesight rehabilitation operations.

External donations of funds and materials in 2016-2020 (10,000 yuan)



Number of people lifted out of poverty in 2016-2020 (persons)



The teaching building of the second elementary school in Mangdong Town, Lianghe County, Yunnan Province, a project for relocation from inhospitable areas built by CNMC

Embark on a new journey for becoming a world-class mining company

The year 2020 is a year of milestone significance. It is a key year for building a moderately prosperous society in all respects and fully building a modern socialist China. It is also an important year for CNMC to shoulder a new mission, embark on a new journey, and make new contributions at a new starting point.

Overall and new plan

In the new stage of development, CNMC implements the new vision of development, and makes new plans. With the theme of promoting high-quality development, CNMC conducts reforms and innovation and supports state capital in becoming stronger, doing better, and growing bigger. Bearing in mind the strategic positioning of "being the pillar force to ensure the security of national important resources and new non-ferrous metal materials", CNMC focuses on the main responsibilities and main businesses, and moves faster to become a world-class mining company with global competitiveness.

CNMC's ideas of development and overall plan during the 14th Five-Year Plan period

Mission and vision

Serve the country with resources, develop through innovation, give back to society, and help employees succeed
To become a world-class mining company with global competitiveness

Development principles

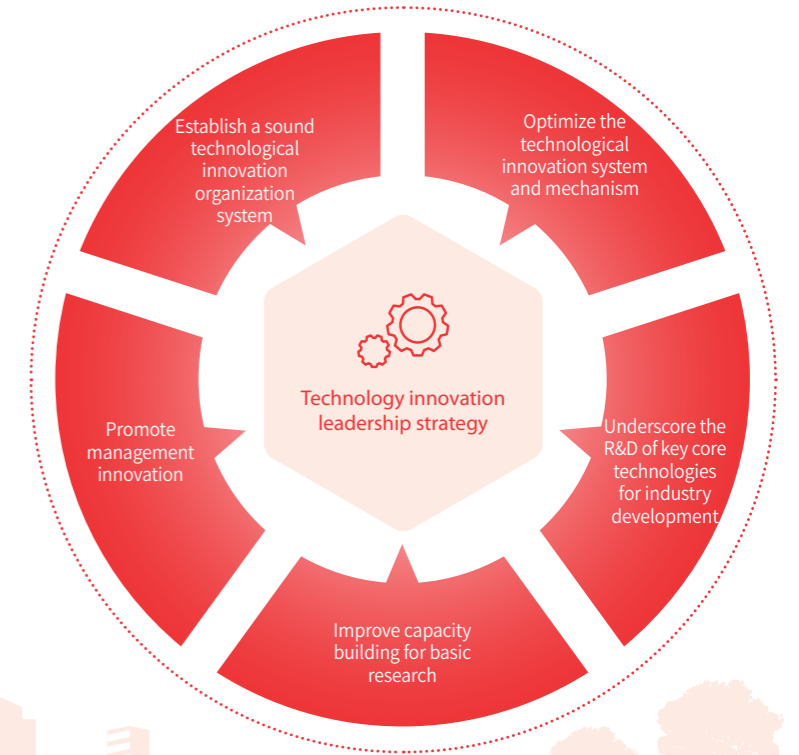
High-quality development, dual-circulation development, systematic development, focused development, safe and green development

"1+4" development strategy

Innovation leadership
Scale up resources, produce quality materials, improve engineering capability, and seek high-quality trade

Innovation leads new development

Centering on the vision of building a world-class mining enterprise, CNMC puts innovation in the center of the overall work, and ensures that innovation plays a role in leading and supporting the main business. CNMC steps up efforts for innovation in technology and management, promotes the integration of the industrial chain, technology chain, and support chain, and continuously gives prominence to technology and management strengths in the development of the main business.



Development path

Implement the "two-step" development strategy

"Intensify efforts in six respects" in key areas

Carry out "four-batch" major tasks

- It is the management improvement period from 2021 to 2022, and the main task is to "lay a solid foundation and optimize results"
- It is a period of rapid development from 2023 to 2025. The main task is to "increase increment, expand the aggregate, and improve quality"

- Strengthen basic management
- Ensure resource support
- Promote technological innovation
- Strengthen talent cultivation
- Facilitate capital operation

- Implement a batch of special projects
- Promote the implementation of reforms
- Obtain high-quality mineral resources
- Create Little Giant high-tech enterprises

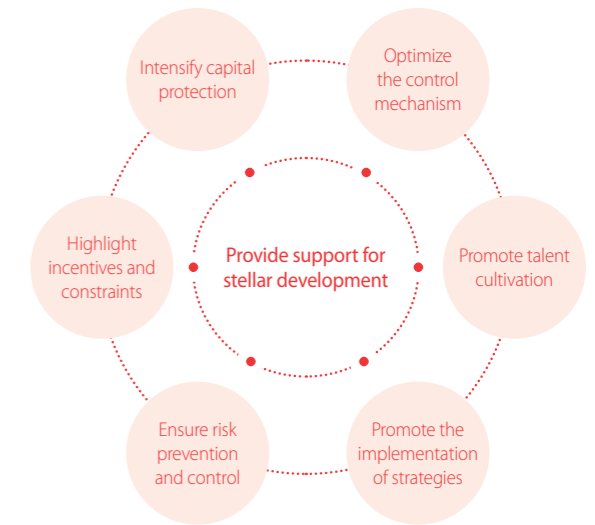
Build a new pattern for business

Bearing in mind that China has entered a new stage of development, CNMC earnestly implements the new vision of development, coordinates the relationship between "management and development", and between "becoming stronger, doing better, and growing bigger", sets science-based development speed, and pursues a new pattern. In terms of development strategy, CNMC pursues high-quality development, regards innovation as the primary driving force, and makes every effort to become stronger and better in four business sectors: resource development, new materials, engineering contracting, and trade and related services.



Fully support the new journey

CNMC uphold the concept of mutual benefit, and common development, CNMC joins hands with all sectors of society to respond to changes and blaze a trail, regards international advanced mining companies as a benchmark, promotes a dual-cycle development pattern relying on both domestic and international economic cycles, and enhances its competitiveness, innovation capability, control force, influence and risk-resistance capabilities. It aims to become a main force to ensure the security of China's important resources and the supply of new non-ferrous materials and an important player in the security of the global non-ferrous metal supply chain.



Resource development business

Rely on "domestic and international markets as well as resources", and implement the overall resource development strategy of "orientation to one goal, 5 ways to use resources, and optimization in 6 respects":

Oriented to the goal of scaling up resources

Locate resources through minerals, conduct engineering projects for swap of resources, seek resources via trade, upgrade resources through technology, save resources via deep processing, etc. in order to acquire resources

Improve the quality of resource development business through optimized industrial layout, better operation management, industrial upgrading, better talent structure, sound capital operation, internal coordination, etc.

New materials business

Oriented to continuous improvement, focus on key areas, and create new growth areas.

Meet the state demand of key materials

Develop and commercialize key new materials faster

Nurture Little Giant high-tech enterprises faster

Engineering contracting business

During the "14th Five-Year Plan" period, the overall idea for the company's engineering business can be summarized as "1-2-3":

"1" refers to meeting the strategic goal of "improving project quality and building CNMC building brand"

"2" refers to centering on basic management and market development

"3" refers to improvement in capabilities for core business, market development, and risk prevention and control

Trading and related service business

Center on strict risk control and value creation, play the role of trade for "discovering market, controlling resources, and stabilizing supply"; improve capabilities in risk prevention and control, price risk control, market development, economic management, etc.; promote the implementation of key tasks such as integrating trade resources, optimizing trade product structure and trade market plan, supporting trade service, improving market-oriented operation capabilities, innovating trade models, and controlling trade risks.

The Group reaches a new height in management and control

CNMC serves the national strategy, gains an in-depth understanding of the new development stage, and pursues a new development pattern. With the theme of high-quality development, CNMC consistently improves the company's management and control system, and focuses on "efficiency, benefits, and value creation" to help the group company become a world-class mining enterprise.

01



CHAMBISHI COPPER SMELTER LIMITED
THIS SCULPTURE COMMEMORATES
THE OFFICIAL OPENING OF THE
CHAMBISHI COPPER SMELTER LIMITED
THE OPENING CEREMONY WAS OFFICIATED
BY HIS EXCELLENCY
PRESIDENT OF THE REPUBLIC OF ZAMBIA
MR. RUIPIAH BWEZANI BANDA
ON 18TH OCTOBER 2009

Comprehensively improve group governance

CNMC keeps improving the corporate governance capabilities of central government enterprises, so that the board of directors sets strategies, makes decisions, prevents risks, and the management develops operations, ensures implementation, and tightens management*. Greater efforts are made to adopt a market-oriented and law-based management and control model and put in place a more mature management and control system for the Group.

Strengthen corporate governance

CNMC makes continuous efforts to improve the coordination and operation mechanism of corporate governance, upholds the list-based management and hierarchical authorization for the powers of the board of directors, optimizes the decision-making or authorized execution reporting mechanism, improves the running mechanism of communication meetings for external directors and theory discussion meetings, and realizes the synergy of various governance entities. In 2020, CNMC held 16 board meetings and 11 special committee meetings, formulated and issued *China Nonferrous Metal Mining (Group) Co., Ltd. Management Measures for Dispatched Directors (Trial)*, and organized special training for full-time directors to improve the abilities of full-time directors to perform duties.

Strengthen risk control

CNMC strengthens risk management and control as a law-based state-owned enterprise, tightens internal audit and supervision, regulates information disclosure, and resolves major risks.



Daily risk control	Specific risk control	Targeted strengthening of risk control
<ul style="list-style-type: none"> Establish a working system. The Chairman and General Manager serve as the leaders of the leading group for risk prevention & control and internal control system establishment, and implement duties as the first person responsible for the supervision of internal control system. Put up "three lines of defense" for risk control and fulfil internal control management responsibilities. Strengthen institutional building. Integrate rules for risk control compliance management, draw up measures for risk management and internal control management, and standardize 123 business items in terms of procedures, and set the basis for compliance operations for risk control. Strengthen the tracking and monitoring of major risks. Arrange 7 departments and 28 affiliated companies to inspect their own risks and implement risk control measures every quarter. Identified 239 risk hazards and 16 risk events. 	<ul style="list-style-type: none"> Leverage the role of the 513 Leading Group Office, prepare the 513 work plan, and make clear the 513 work mechanism and work requirements. Establish the 513 long-term work mechanism, operate supervision-based checklist system, and investigate risks monthly. Operate the weekly report system for the mechanism work, and supervise relevant enterprises in meeting higher-level requirements. 	<ul style="list-style-type: none"> Intensify efforts to prevent overseas risks, and respond to public opinion risks. Guide the prevention of international operation risks of affiliated enterprises, clarify the main responsibilities of risk control and the implementing parties, organize monthly foreign-related risk investigations, and classify risks into high, medium, and low level risks. Prevent corporate governance risks. Operate the first-inquiry accountability system, and urge defaulting enterprises to improve decision-making mechanism and management system with relevant affiliated enterprises, and designate personnel for posts. At the same time, risk warning is given to all affiliated companies to prevent similar problems.

Legal risk prevention and control	Market risk prevention and control
<ul style="list-style-type: none"> Formulate the "Key Points of the Law-based Work in 2020", and issue "Guidelines for Preventing Legal Risks for Enterprises in the Context of the COVID-19 Epidemic" to guide affiliated companies to prevent legal risks. By the end of 2020, the group had no cases of disputes over labor or economic affairs caused by the response to the epidemic. Promote the working mechanism for the general counsel of affiliated enterprises, and the general counsel system is implemented in all affiliated enterprises. All daily three legal audits are performed, with 770 audits, an increase of 19.2% over 2019. 	<ul style="list-style-type: none"> Improve customer evaluation management, conduct credit management activities as per market rules and prescribed procedures, and prevent tax risks caused by escape or loss of contact of customers. Improve market price risk control, determine risk management strategies, improve market risk measurement, and prudently select risk hedging tools. Control exchange rate risks, coordinate the balance of asset-liability structure in the currency of revenue and expenditure and foreign currency, conduct pilot projects for the cross-border use of RMB in transactions between domestic and foreign companies within the group, and endeavor to achieve marginal breakthrough in RMB settlement with external companies. Improve the overseas financial and fund supervision system, dispatch financial supervisors to all overseas entities, and prevent the risks to overseas state-owned assets. Improve the management system for appointing chief accountants and dispatching financial supervisors, improve the responsibility transmission chain, and apply the evaluation results of position performance.

Safeguard the rights and interests of investors

Following the requirements of the listing rules for the protection of shareholders' rights and interests, CNMC takes into account the company's sustainable development and reasonable returns for investors, tightens the company's internal control, and makes information disclosure on time to safeguard the interests of shareholders and the rights and interests of small and medium-sized investors. In 2020, the company's asset-liability ratio was 64.46%, down by 3.41% compared to 2019.

<p>Ensure that small and medium shareholders exercise their right to know and vote through the announcement of important matters and online voting</p> <p>In 2020, NFC held 5 shareholder meetings, and Ningxia Orient Tantalum held 3 shareholder meetings.</p>	<p>Strictly implement the system for independent directors and employee supervisors</p> <p>In 2020, NFC held 33 meetings of the board of directors and 8 meetings of the board of supervisors. Ningxia Orient Copper held 7 board meetings and 5 meetings of the board of supervisors.</p>	<p>Carry out information disclosure</p> <p>NFC and Ningxia Orient Tantalum Co., Ltd. performed information disclosure according to the Shenzhen Stock Exchange's "Listing Rules" and the company's "Information Disclosure Management Rules". CNMC and CNMC Daye performed information disclosure according to the requirements of the Hong Kong Stock Exchange and maintained its transparency as listed companies.</p>	<p>Foster communication and interaction with investors</p> <p>In 2020, NFC held 13 roadshows online to promote major asset restructuring plans, and held 5 performance briefing sessions online. Ningxia Orient Tantalum answered over 200 questions from investors on the company's business performance, development strategy, resource development, major asset restructuring, etc. the investors were concerned about via the investor interaction platform.</p>
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The Group reaches a new height in management and control

Technological innovation leads new development

New achievements in low-carbon development

Pursue a new pattern in a win-win manner

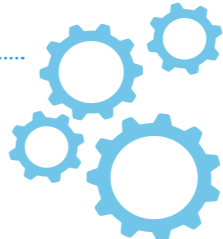
Contribute to a better life

Promote tackling tough problems in the reform

Centering on the company's strategic goals and the three-year action for deepening reforms, CNMC moves faster to carry out reforms and reorganization, steps up efforts for clean-up and exit, acts to complete the tasks of relieving SOE of their obligations to operate social programs and of resolving other longstanding problems concerning SOE, implements the "Double Hundred Campaign" and "Demonstration Campaign for Reform of Technology Enterprises", and scales new heights for the corporate development quality and efficiency.



Meeting on CNMC's three-year action to deepen reform and the on-site promotion for inspection and rectification of problems



⚙️ Promoted the three-year action for the company's SOE reform

Issued the "Three-Year Action Plan for Deepening Reform" and a task list.

Established a leading group and office for the three-year action on deepening reforms of CNMC, which were responsible for promoting the implementation of the plan.

The second-tier affiliated enterprises have formulated a task list of the three-year action for deepening reform of the enterprise.

⚙️ Implemented the plan for the SOE reform

Promoted the bankruptcy reorganization of NFC Shenyang Metallurgical Machinery Co., Ltd., the reorganization of CNMC Albetter Copper Co., Ltd., the reorganization of laneway company, the reorganization of CNMC Development, and the governance of the shareholder deadlock of China Nonferrous Metals (Guilin) Geology and Mining Company

Developed a special governance work plan for the separation of "non-main business and non-competitive business". Greater efforts were made to dispose of inefficient and invalid assets. It withdrew from 21 companies in the year (19 holding companies and 2 equity-holding companies).

Completed the tasks of relieving SOE of its obligations to operate social programs and of resolving other longstanding problems concerning SOE.

Conducted special actions for reform, revised the 2021-2022 reform plan and reform task register and submitted the plan, and facilitated the "Double Hundred Action".

Case The Group's promotion meeting on mixed-ownership reform program successfully held

CNMC and the Shanghai United Assets and Equity Exchange jointly held the "CNMC promotion meeting on mixed-ownership reform program" in the form of webcast on September 27, 2020, which piloted online project promotion. CNMC promotes enterprises or projects in hot areas such as deep processing of copper and aluminum, titanium and its alloy processing, new energy battery cathode materials, ITO target materials and other non-ferrous metal new material industries, large-scale diaphragm pump manufacturing, tungsten smelting and deep processing, insurance brokerage business, etc. This platform for efficient communication between CNMC and social capital helps promote the reform of mixed ownership and bring vitality to enterprise development.

Make four major business sectors stronger and better

In line with the development idea of "focusing on industry and commerce, giving prominence to main business, and specialization", CNMC makes efforts to scale up resources, produce quality materials, improve engineering capability, and seek high-quality trade. CNMC optimizes business models, and establishes coordination mechanisms for coordinated development in different markets.

Scale up resources

CNMC implements the national "going global" strategy, supports the Belt and Road Initiative, carries out investment and cooperation in the field of non-ferrous metal minerals at home and abroad, innovates resource development models, and improves the ability to integrate and use resources as its contribution to the non-ferrous metal industry in China and in the world.

19.07 million metric tons

Heavy non-ferrous metal resources CNMC owns at home and abroad

40,217 meters

Total drilling footage completed (29,248 meters overseas, 10,969 meters in China)

48.12 million yuan

Cumulative investment in exploration (38.41 million yuan overseas and 9.71 million yuan in China)

42 sites, **1,492** square kilometers

Number of mining rights projects and total area CNMC owns at home and abroad by the end of 2020

656,500 metric tons, a year-on-year increase of **36.36%**

Output of overseas non-ferrous metal products in 2020

1,856,600 metric tons, a year-on-year increase of **7.22%**

Output of non-ferrous metal products in 2020

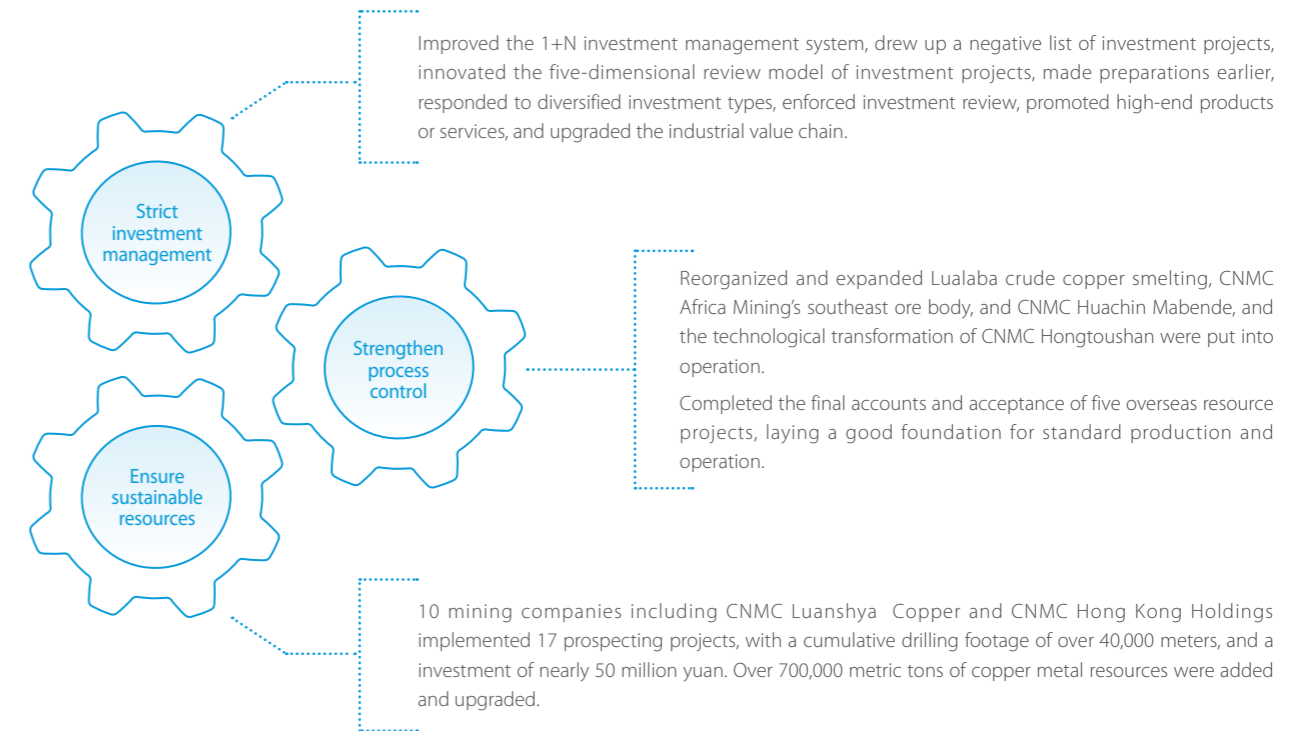
The Group reaches a new height in management and control

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Produce quality materials

CNMC focuses on cultivating new materials business as a new growth area and new main business. Under the development idea of "producing new products or better products than others", CNMC concentrates on the new materials sector, and promotes the company's shift from a non-ferrous raw material provider to a new non-ferrous material provider, becoming the "main force" to ensure the supply of national non-ferrous key materials.

Case Titanium and titanium alloy bars are recognized by the aerospace sector

As China's most complex aerospace system project involving the largest number of disciplines, Chang'e-5 mission realized the country's successful attempt to retrieve samples from an extraterrestrial body for the first time. This is another significant achievement made under a new system for mobilizing the nation to make technological breakthroughs. In 2020, Ningxia Orient Tantalum Industry Co., Ltd. received a "Thank-you Letter" from the Long March-5 Carrier Rocket Model Office concerning the use of titanium and titanium alloy bars for the successful first flight of the Long March 5B rocket. The thank-you letter expressed praise that Ningxia Orient Tantalum Industry provided titanium and titanium alloy bars of well-closed formation, high consistency, and reasonable strength and plasticity matching, and ensured a reliable delivery cycle, which contributed to the successful launch of the Chang'e 5 probe.

Case Chairman Xi Zhengping went on a tour of inspection of CNMC Albetter Copper Co., Ltd.

From November 9 to 10, 2020, Xi Zhengping Chairman of CNMC, and his entourage went on a tour of inspection of the affiliated company CNMC Albetter Copper Co., Ltd., and inspected copper pipe, copper strip and copper foil production workshops, science and technology building lab to learn about the production line's technological process, equipment operations, production and management, market situation. At the symposium on scientific and technological work held after the inspection, he instructed that CNMC Albetter must keep to high-quality development, step up efforts to develop high value-added products, and promote the upgrading of the new material industry through technological breakthroughs.



- 01
- 02

01 Production line of copper pipe with internal thread
02 Chairman Xi Zhengping is inspecting the copper strip workshop



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Improve engineering capability

CNMC has undertaken a great many engineering projects in China and neighboring countries, and other countries in West Asia, the Middle East, North Africa, central and southern Africa, etc. The business covers smelting, mining, electric power, highways, housing construction, mechanical and electrical installation, petrochemical engineering, municipal administration and other fields. CNMC has created two brands of "NFC" and "15MCC".



NFC has been selected as the "Top 250 International Contractors" by the US "Engineering News-Record" (ENR) for many consecutive years, and ranked among "Top 200 Global Design Companies".



China 15th Metallurgical Construction Co., Ltd. built over 700 large and medium-sized projects in over 100 counties and cities in 30 provinces (municipalities and autonomous regions) nationwide. It won the Luban Prize and the Silver prize for National High-quality Project Award many times, and set many new records for Chinese enterprises.



The value of newly signed engineering project contracts was 16.441 billion yuan.

Case CNMC Daye's cleaner production project of high-purity copper cathode with a capacity of 400,000 metric tons was launched

On May 28, 2020, CNMC Daye, an CNMC-funded enterprise, held a groundbreaking ceremony for the cleaner production project of 400,000-metric ton high-purity copper cathodes. This project is a concrete action taken by CNMC to pursue a new vision of development, deepen supply-side structural reform, and achieve the organic integration of the Yangtze River protection and industrial upgrading, and is also an important project for revitalizing post- COVID-19 high-quality development in Hubei. After the completion of the project, CNMC's domestic capacity of copper cathodes will reach 1 million metric tons, putting it at the forefront of the global copper industry.



Case CNMC held Somidez Mining and Lualaba Copper Smelting Completion and Operation Conference in Congo (DRC)

The completion and commissioning meeting for the two projects of Somidez Mining and Lualaba Copper Smelting was held in Kolwezi, Lualaba Province, Congo (DRC) on January 15, 2020 in the presence of representatives from the Congo (DRC) government departments, CNCC and its partners, employees, community people, etc.

Since the Somidez Mining and Lualaba Copper Smelting projects commenced construction, the teams overcame the difficulties such as the tight schedule and arduous tasks to complete construction in a short period of time and put the projects into commercial operation. These demonstrate China's speed and China's power, and active participation in cooperation under the Belt and Road Initiative, contributing to building a closer China-Africa community with a shared future.

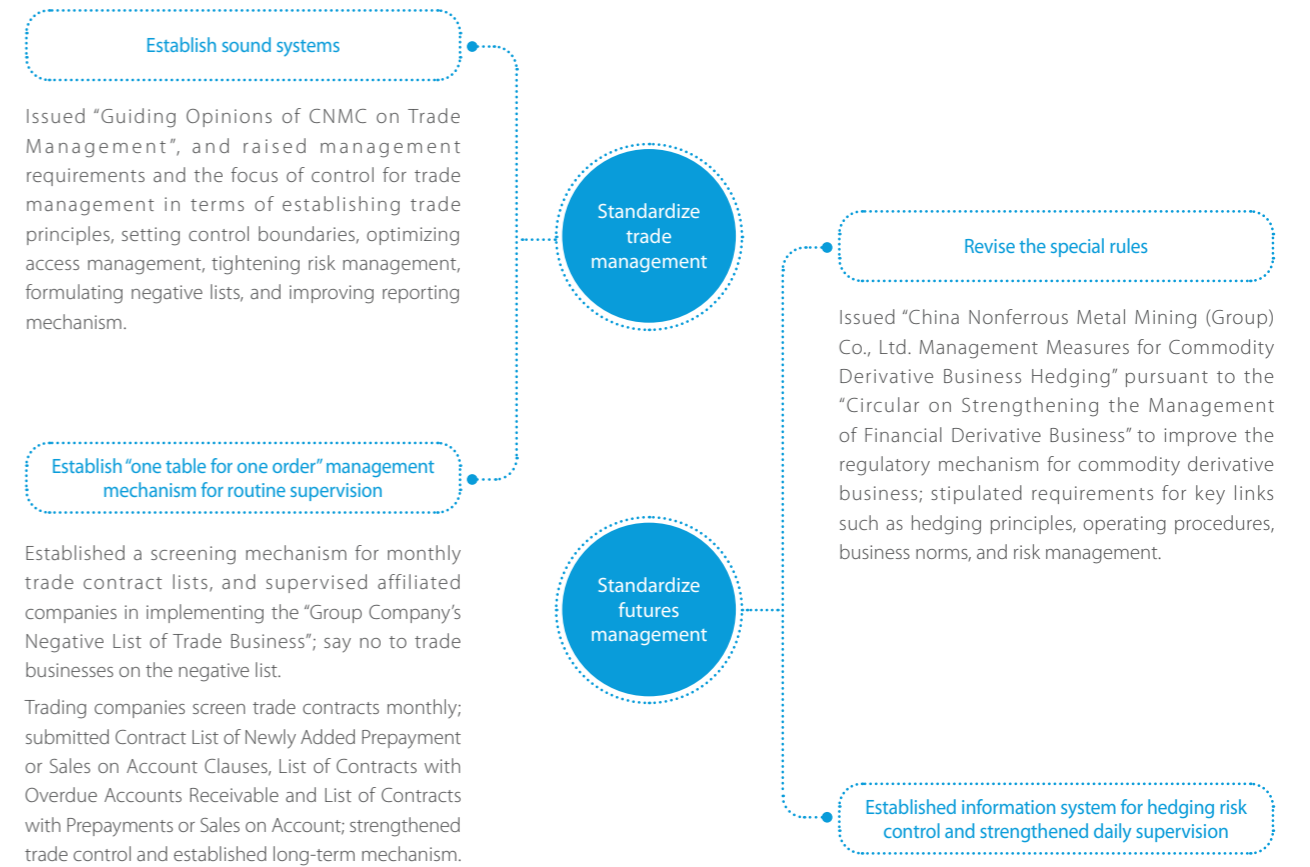


Kabonda Cannes, representative of the President of the Democratic Republic of the Congo, is giving a speech

“China and the Democratic Republic of the Congo have jointly witnessed the completion and commissioning of the Somidez Mining and Lualaba Copper Smelting projects. This is the result of sincere cooperation between the two countries. The Congo (DRC) government will always listen to the opinions of partners and work with them to build a partnership in the new era.”
—Kabonda Cannes, representative of the President of the Democratic Republic of the Congo

Seek high-quality trade

CNMC owns many professional import and export companies, trading companies, and logistics companies, and its trading business covers more than 20 varieties of non-ferrous metals such as copper, aluminum, lead, zinc, and nickel, covering many fields such as energy, chemical engineering, steel materials, building materials, and food. It has forged good cooperative relationship with enterprises in over ten countries and regions such as Zambia, Mongolia, Congo, South Africa, Australia, and Myanmar. It has developed a trading business layout with focused areas and diversified operations.



Technological innovation leads new development

Innovation is the primary driving force for the company's stellar development. CNMC implements the national strategy of innovation-driven development, puts in place sound innovative systems and mechanisms for management, steps up efforts for technological research and development and the commercialization of achievements, embraces innovation to spur high-quality development, and cultivates "little giant" enterprises that have distinctive technological strengths and bright development prospects.

02



Promote the establishment of an innovation system

Based on its own strengths and characteristics, the company consistently improves the innovation system and incentive mechanisms, brings all its energies to bear upon key technical problems, harnesses a sound innovation system to improve the company's quality and efficiency, and become a "technology-type" mining enterprise.

Improve the innovation mechanism

By putting the five technological innovation programs into practice, we have a good grasp of the company's requirements for core technologies for development, and give full play to employee motivation in innovation and creativity in terms of improvement in the organization, institutions, talents, platform, etc.



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Case Two affiliated companies of CNMC won the title of National "Little Giant"

Under the philosophy of green development, Tieling Flotation Reagents Co., Ltd. focuses on the construction of green mines and actively develops high-efficiency, low-toxicity and environmentally friendly reagents. Over the years, it has acquired outstanding comprehensive strength in the field of flotation agents, and its achievements in independent innovation, scientific research and application, market development, etc. are recognized by many parties. In December 2020, Tieling Flotation Reagents was selected for the second batch of "little giant" enterprises in China.

The Northwest Institute for Non-Ferrous Metal Research is the supply base of materials for cutting-edge technology for China's nuclear industry, aerospace and other national defense sectors. It has been involved in international and domestic major scientific engineering projects such as manned space flight project, lunar exploration program, manned deep submersible, European X-Ray Free-Electron Laser Facility, and Hard X-ray Modulation Telescope, etc., and has provided important materials for defense projects such as strategic missiles, nuclear submarines, nuclear reactors, and satellites. In July 2021, the Northwest Institute was selected for the third batch of "little giant" enterprises in China.



List of the second batch of national "little giant" enterprises, which includes Tieling Flotation Reagents

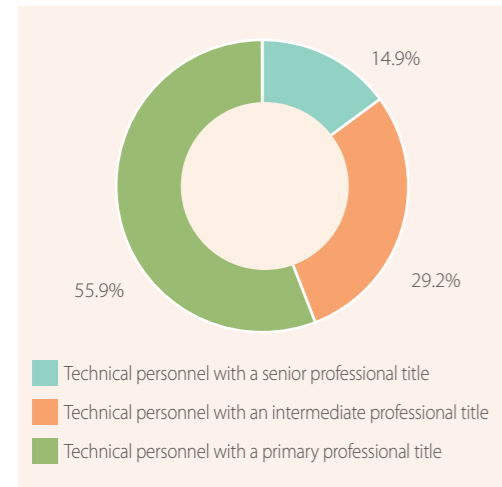
Case China's first beryllium technology innovation alliance established

The inaugural meeting of China's Beryllium Technology Innovation Strategic Alliance, which was established under the leadership of CNMC Orient Group, was held in Yinchuan, Ningxia on October 10, 2020. The alliance will enhance the capability of technology innovation in the industry, promote the collaborative innovation in the industrial chain of China's beryllium resources including development, smelting, processing, manufacturing, and application, spur the high-quality development of China's beryllium sector, facilitate strategic coordination among enterprises, research institutions, and universities, overcome technical bottlenecks that restrict industrial development, and realize the technological innovation of the beryllium industry and the common development of its members.

Enhance innovation capability

The company consistently carries out activities for innovation and better efficiency. Benchmarking itself against world-class mines, the company builds a high-quality team covering investment, management, technology, business, technical workers, and other disciplines, and allow free rein to talents, who are the driving force for corporate reform and innovation.

Innovation platform	Innovative talents
<ul style="list-style-type: none"> 5 research and design institutes 4 national R&D platforms 18 provincial R&D platforms 1 national key laboratory 3 national engineering technology research centers 2 nationally recognized laboratories 2 overseas laboratories 3 academician workstations 5 post-doctoral scientific research workstations 	<ul style="list-style-type: none"> 2 academicians of the Chinese Academy of Engineering 117 experts who enjoy Special Government Allowances 6 candidates for the "New Century Talents Project" 1 person for national special support plan for high-level talents
Innovation investment	
<ul style="list-style-type: none"> The R&D investment in 2020 totaled 1.965 billion yuan In 2020, 23.99 million yuan was allocated for the establishment of science and technology plan projects and research on ongoing projects 10 million yuan was allocated for the construction of overseas laboratories 770,000 yuan of subsidy funds were provided after the commercialization of achievements Carried out the annual science and technology award review, and issued a bonus of 1.684 million yuan. 	



Composition of CNMC's professional and technical personnel



The company and 4 key affiliated enterprises pledged to make breakthroughs in bottlenecks in key technology

Through benchmarking and analysis, scientific research was conducted on three generic technology research projects: "research on the comminution and separation of complex low-cobalt, high-magnesium copper ore from multiple sources and its regulation control", "research on key technologies for efficient use of raffinate from complex low-cobalt, high-magnesium copper ore", and "research on the ways to reduce water expansion in copper and cobalt hydrometallurgy".

Through benchmarking and analysis, it was found that copper concentrate has high calcium and magnesium impurities, Congo (DRC)-related cobalt recovery affiliated company has a low cobalt leaching rate associated with copper oxide ore and high product impurities, etc. It was established as a science and technology project in 2020 for research.

Organized and conducted "benchmarking research on Congo (DRC) copper and cobalt hydrometallurgical process technology", analyzed production problems, identified technical weaknesses, proposed countermeasures, and improved production technical capabilities.

The ZCCZ conducted benchmarking analysis of first-class multi-functional economic parks, and improved management capabilities in terms of strategic leadership, execution, organizational management, financial management, and risk management.

The company organized the Zambian lab to conduct process and technical process inspections, and technical comparison on four manufacturing companies in Zambia, and organized Chinese resource development, smelting, processing and engineering construction enterprises to conduct benchmarking to improve their capabilities.

Organized the evaluation of technological achievements

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Achieve fruitful results in innovation

Based on the orientation of the main business, the company focuses on scientific research projects with significant influence, makes continuous efforts to conduct innovative research and development, translates results of scientific research project into practical capabilities, and applies innovation achievements to drive the sustainable development of the company.

Carry out innovative research and development

To implement the strategy of innovation-driven development, the company continuously increase investments in innovative research and development, focuses on making breakthrough sin major key technical issues that restrict the corporate development, fosters cooperation between industry, universities and research institutes, and strengthens the new strengths in the company's innovative development.

Organized the evaluation of technological achievements

In 2020, the company evaluated 9 pieces of technological achievements, applied for 15 scientific and technological awards in the non-ferrous metal industry, won 3 first prizes, 2 second prizes, and 3 third prizes as the initiating company, and selected 125 corporate science and technology awards.

The achievements of "Key technology and application of coordinated large-scale disposal of waste circuit boards in copper concentrate oxygen-enriched top-blown smelting" made by CNMC Daye were world-class results and won the first prize for scientific and technological progress in non-ferrous metal industry.

Promote industry-university-research institute cooperation

Forged stable cooperative relationship with universities and research institutes such as University of Science and Technology Beijing, Guilin University of Electronic Technology, Central South University, Institute of Geochemistry Chinese Academy of Sciences, China-ASEAN Geosciences Cooperation Center, Southwest University of Science and Technology, Institute of Karst Geology of Chinese Academy of Geological Sciences, Guangxi Institute of Botany of Chinese Academy of Sciences, and Qilu University of Technology; the theoretical knowledge of universities and the rich practical experience of production enterprises combine to promote breakthroughs in key technologies and the improvement in production indicators.

Organize the evaluation of scientific and technological achievements, and promote cooperation between industry, universities and research institutes

Case Set up an innovation laboratory to solve production-related problems

In 2018, NFC Pump Industry established an innovation studio for diaphragm pumps. Since its inception 3 years ago, the innovation studio has organized a slew of activities to remove technical bottlenecks and difficulties in production and operation, with a focus on work safety, technological progress, cost reduction and efficiency improvement, energy conservation and environmental protection. Outstanding innovation results have been achieved. By the end of 2020, the innovation studio had held more than 40 seminars, organized 15 campaigns for technical breakthroughs, 9 technical seminars, and 16 training sessions. It applied for one utility model patent. Major progress has been made in the current stage in the "Technological Innovation in Assembly of Hydraulic Two-position Two-Way Valve for Diaphragm Pumps" and "Nitrogen Recycling of Nitrogen Package for Diaphragm Pumps". At the innovation studio, highly skilled talents, technical leaders and model workers play a demonstration and leading role in the company-wide efforts to "pursue craftsmanship, acquire skills, show dedication and demonstrate innovation ability".

In 2020, the company applied for **312** patents, including **125** invention patents. It obtained **221** newly authorized patents, including **42** invention patents. The company owns a total of **1,822** valid patents, including **695** invention patents.

In 2020, bonuses were given to teams and individuals who won national/provincial or ministerial-level science and technology awards, issued industry standards, or obtained authorized invention patents, involving **20** science and technology awards, **64** authorized invention patents and international patents, and **41** pieces of standards. The bonus totaled **1.684** million yuan.

In 2020, the company selected **15** first prizes, **24** second prizes, and **39** third prizes for rationalization proposals, which generated economic benefits of **131.15** million yuan.

Case

CNMC's Luanshya Muliashi hydrometallurgy plant carries out technological innovation, and sulfuric acid consumption decreased by 11.2% year-on-year

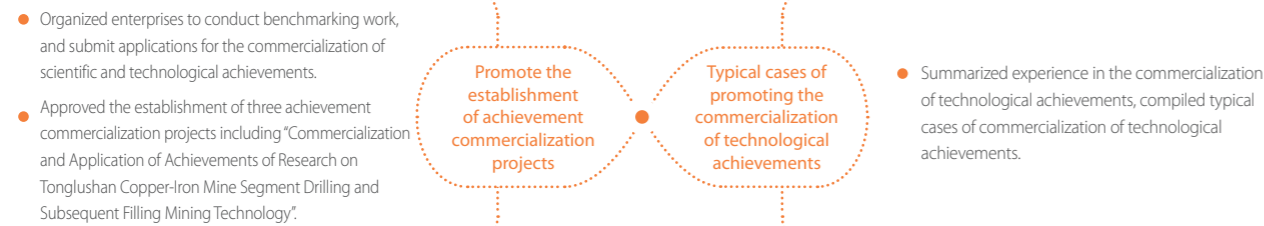
In 2020, CNMC's Luanshya Muliashi hydrometallurgy plant carried out innovations in the use of sulfuric acid raw materials in copper production. Thanks to innovative practices such as reducing the total amount of acid used in dump leaching, the modification of the sulfuric acid addition system, and cutting the unit acid consumption of easily leaching ores, the plant has cut the cost of sulfuric acid by USD 1,384,900, a year-on-year decrease of 11.20%.



Renovation of sulfuric acid addition system at CNMC's Luanshya Muliashi hydrometallurgy plant

Promote the commercialization of results

The company has put in place a mechanism for achievement commercialization approval, process management, evaluation and acceptance, and follow-up evaluation to translate potential technological productivity into direct corporate productivity, extend to the front end of the industry chain and the top level of the value chain, and significantly improved production efficiency.

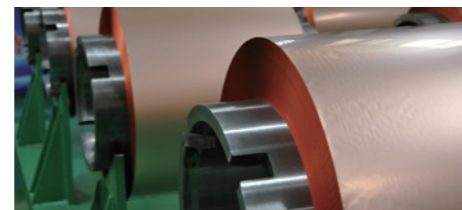


Promote the commercialization of scientific and technological achievements

Case

CNMC Albetter carried out independent R&D of key technologies to solve the "bottleneck" problem in the 5G communication field

CNMC Albetter has carried out research on the key technology of high-precision oxygen-enriched rolled copper foil base materials, and the resulting products can substitute imports. It ensures China's self-sufficiency in high-performance rolled copper foil base materials, improves technological progress in the field of high-end copper processing and the competitive edge of the enterprise, and has resolved the "bottleneck" problem of rolled copper foil base materials used in the 5G communications field.



High-flex rolled copper foil

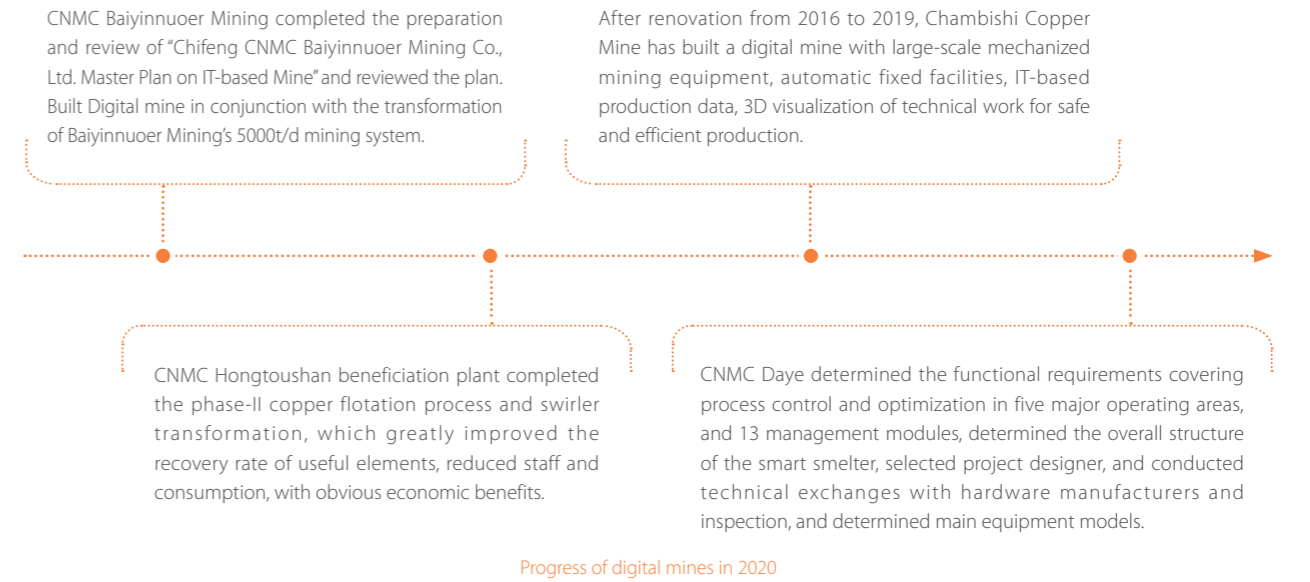
Case

China Nonferrous Metals (Guilin) Geology and Mining Company independently developed ion substitution and removal technology to reduce cadmium pollution in the soil

China Nonferrous Metals (Guilin) Geology and Mining undertook the investigation and restoration of heavy metal pollution in farmland soil in Moditang Village, Gongcheng County, Guilin City, a key project set by the central environmental protection inspection team and a key project of the pilot farmland soil pollution control and restoration project under the Ministry of Ecology and Environment. It used proprietary ion substitution and removal technology to restore farmland. The effective state of cadmium in the soil is cut by more than 90%, and 100% of crops during random inspection meets the standards.

Move faster to build digital mines

In keeping with the trend of digital transformation, the company pressed ahead with the construction of digital, IT-based, virtualized, intelligent, and integrated mining, promotes process reengineering, optimizes allocation of resources, and ensures modernized management system and capabilities. In 2020, the company established the Industrial Intelligence Division, and signed the agreement on digital mine construction with four mines on a pilot basis in 2021.



Progress of digital mines in 2020

Case

CNMC Africa Mining carried out digital transformation of the west ore body to improve the grade of crude ore

Through optimized design, purchase of equipment, training and on-site simulation experiments, CNMC Africa Mining carried out the digital transformation of the west ore body by leveraging the results of research on high-efficiency trackless mining technology in the IT-based large-scale panel. In 2020, the production capacity of the west ore body increased significantly. The extracted ore tonnage reached 1.39 million metric tons, exceeding the designed capacity by 39%. The ore grade was 2.02%, and the rate of dilution and loss rate of the stope was 7.6% and 21.7%, respectively, a year-on-year decrease of 1.1% and 1.6%. A number of indicators performed best in recent years, with significant economic benefits.



The Director of Zambia Department of Immigration is inspecting the digital transformation of CNMC Africa Mining



The Minister of Mines and Minerals Development of Zambia is introducing the digital mine of CNMC Africa to the Minister of Finance, the Minister of Labor and Social Security, and the Governor of Copperbelt Province

Improve the quality of products and services

CNMC fulfils its main responsibility for quality, regards quality innovation as the way forward, consistently improves the quality management system, tightens the control of the process quality, plays the leadership role of the brand, and improves customer satisfaction.

Improve quality management

Under the goal of "high-quality management, low-cost competition", the company ensures science-based, systematic, and standardized quality management. It has optimized the quality management system and processes, and raised the bar for quality management.

Quality management system

The company regards quality innovation as the way forward. It has formulated a series of documents such as the *Quality Enhancement Action Plan and Management Measures for Quality*, established a standardization system, and earnestly tightens quality management to ensure stable product quality and reliable performance.

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96.34 %

The product yield rate was

561

Identified and rectified hidden quality problems and defects

5.1 %

Accidents caused by poor quality decreased by year-on-year

0

Major quality accidents and major customer complaints throughout the year

3.7 %

Quality-related loss decreased by year-on-year

100 %

The first-time acceptance rate by construction enterprises was

Case

Orient Tantalum promotes quality improvement and innovation, and seeks a quantum leap in quality

In 2020, Orient Tantalum organized special product quality improvement program to promote the upgrading of new PFMEA and SPC statistical tools, with a process penetration rate of 85%. It played a great role in process monitoring and quality control. Orient Tantalum prepared 51 measurement systems analysis (MSA) research plans for the key characteristics of the product to ensure that the measurement systems meet the needs of product analysis and testing, and ensure the stability of the measurement systems. The advanced quality management methods and tools provides valid information for quality control and improvement.

Establish a sound quality management system

Revised "CNMC Quality Management Measures", updated the management requirements for quality management system, product process control, quality improvement, etc.; added provisions on "quality accident handling", and classified the negative effects of direct economic losses caused by quality defects.

Clarified the quality management responsibilities of the company headquarters and subsidiaries.

Implemented classified management and control of production companies, construction engineering companies, trade and service companies, and stipulated binding regulations for the quality management according to the nature of business.

Promote standardized management of system

Promote the establishment and upgrading of quality management system; 22 affiliated enterprises passed the quality management system audit on schedule.

Promote trade service enterprises to implement quality management system, regulated the main trade business, and lowered the compliance risk.

Strengthen process control and improved product quality

Analyze "inputs, outputs and activities" for each process, clarified process control objectives and evaluation indicators, formed process control standards and control measures, and made improvements as required by PDCA.

Establish a routine mechanism for evaluation of process activity, and evaluated and optimized all process activities and control requirements in workshop regularly.

Improve the process discipline inspection mechanism, and incorporated "risk control checklist" into the routine process discipline inspections of workshops and teams to ensure that the process is hierarchically controlled.

Strengthen the quality risk management for key products, improved corrective and preventive mechanism. QC team of each process conducted regular activities to correct existing or prevent potential problems.

Promote quality improvement and quality breakthrough

Organize quality technical breakthroughs in terms of problems in key system and product quality, key quality technical and economic indicators and other core elements.

Encouraged all employees to engage in improvement activities, and create a workplace where "everyone works for improvement".

Focused on quality weaknesses, conducted technological research, and improved the capacity for independent innovation.

Conducted quality breakthrough activities for key systems and key product quality problems, organized the implementation of quality improvement-related R&D projects, and increased investment in technological breakthrough.

Conducted events to improve quality

Organized engineering enterprises to pursue excellent quality, make quality appraisal and improve management.

Summed up the company's quality management experience through application for quality excellence projects and conduct publicity in the group, and raise the industry visibility of engineering service projects.

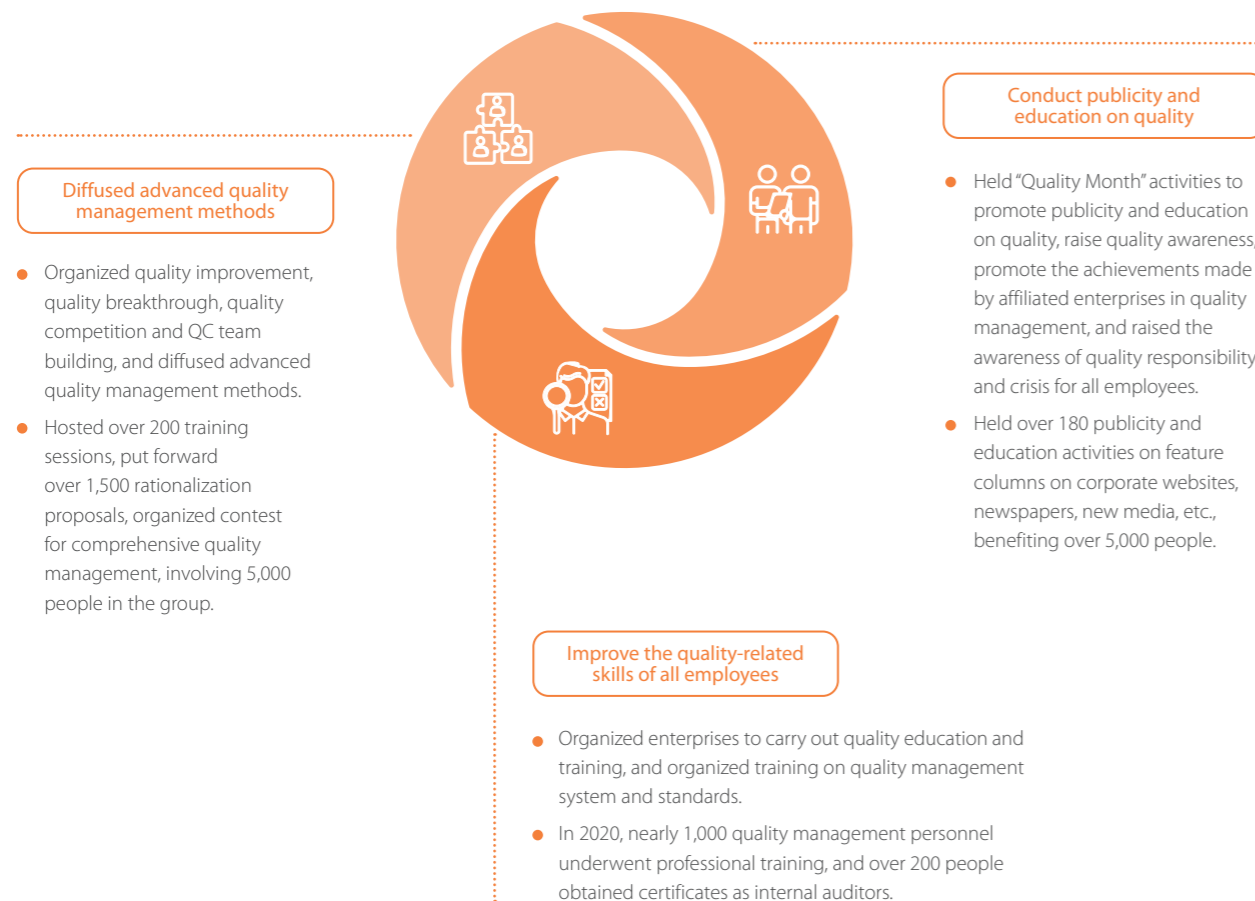
Used technology to improve the quality of mid-to-high-end product supply

Accelerated product quality upgrades, improved R&D capabilities through advanced technology and process, and improved the supply quality of high-performance, functional high-end products.

Logical diagram: tighten the all-process quality management

Raise quality awareness

Work on quality improvement is guided by high-quality development. The company carries out "Quality Month" activities, organizes activities for QC group, and hosts quality education and training, which lay the groundwork for continuous improvement in quality management.



Dajingzi Mining Electricians Competition



CNMC Xincheng holds kick-off meeting for the quality month



CNMC Hong Kong Holdings arranges management personnel to learn quality system standards

The Group reaches a new height in management and control

Technological innovation leads new development

New achievements in low-carbon development

Pursue a new pattern in a win-win manner

Contribute to a better life

Case CNMC Orient's quality achievements are recognized by many parties

In September 2020, the heat treatment QC team of CNMC Orient's Tantalum Powder Branch stood out from 152 outstanding projects by 76 central state-owned enterprises to win the second prize at the 3rd National Achievement Presentation Contest by Central Enterprises' QC Teams.

In August 2020, the electrical property team of CNMC Orient's Analysis and Testing Center won the title of National Quality Trustworthy Team at the 2020 National Excellent QC Team and Quality Trustworthy Team Review Meeting in the non-ferrous metal sector.

Moreover, CNMC Orient has won many other industry awards: the metallography detection QC team of the Analysis and Testing Institute won the "Excellent Publication Award" in the non-ferrous metal industry; the electrical property QC team of the Testing Center won the "Excellence Award" in the non-ferrous metal industry; the heat treatment team of the tantalum powder branch plant won the first place in the district trustworthy quality team contest; the physical inspection team of the inspection institute won the second place in the district trustworthy quality team contest; the post-processing QC team of Orient Tantalum Superconductor Company won the third place in the district trustworthy quality team contest; the "Research on Quality Stability Process Technology of Secondary Neutron Source Products for Third-Generation Nuclear Power Plants" by Beryllium Materials Research Institute won the second prize at China Association for Quality's Quality Technology Award; the "Exploration and Application of New Analytical Methods for Determination of Impurity Element Content in Tantalum-Niobium Complex" by the Analysis and Testing Center won the Excellence Award at China Association for Quality's Quality Technology Award.



Award certificate

Improve customer satisfaction

CNMC consistently strengthens its quality management system, improves service standards, keeps abreast of customer needs, keeps communication with customers, handles customer complaints, and improves the ability to serve customers, with a view to providing better products and services.

Build a standardized service management model

Improve customer satisfaction

Prepared control procedures for customer satisfaction, control procedures manual for defective and corrective measures, made improvement initiatives in case of complaints, communicated with customers, and improved service quality through standardized management model.

Product knowledge popularization and training

Popularize the true information on products among customers, add clauses on product quality standards, etc. in transaction contracts, ensure that the product information is true and accurate, and provide after-sales service.

Customer information protection

Customer information will not be disclosed to third parties without the customer's consent. Take reasonable measures to maintain website security, and strengthen the protection of customer information.

Actively respond to customer complaints

Establish a fast, efficient response mechanism for quality information in case of customer complaints.

Improve after-sales service

Set up an active after-sales service team to provide on-site services for effective management; learn about customer demands in a timely manner.

96.11 %

Customer satisfaction was

13.2 percentage points

A total of 184 customer complaints, a year-on-year decrease

0

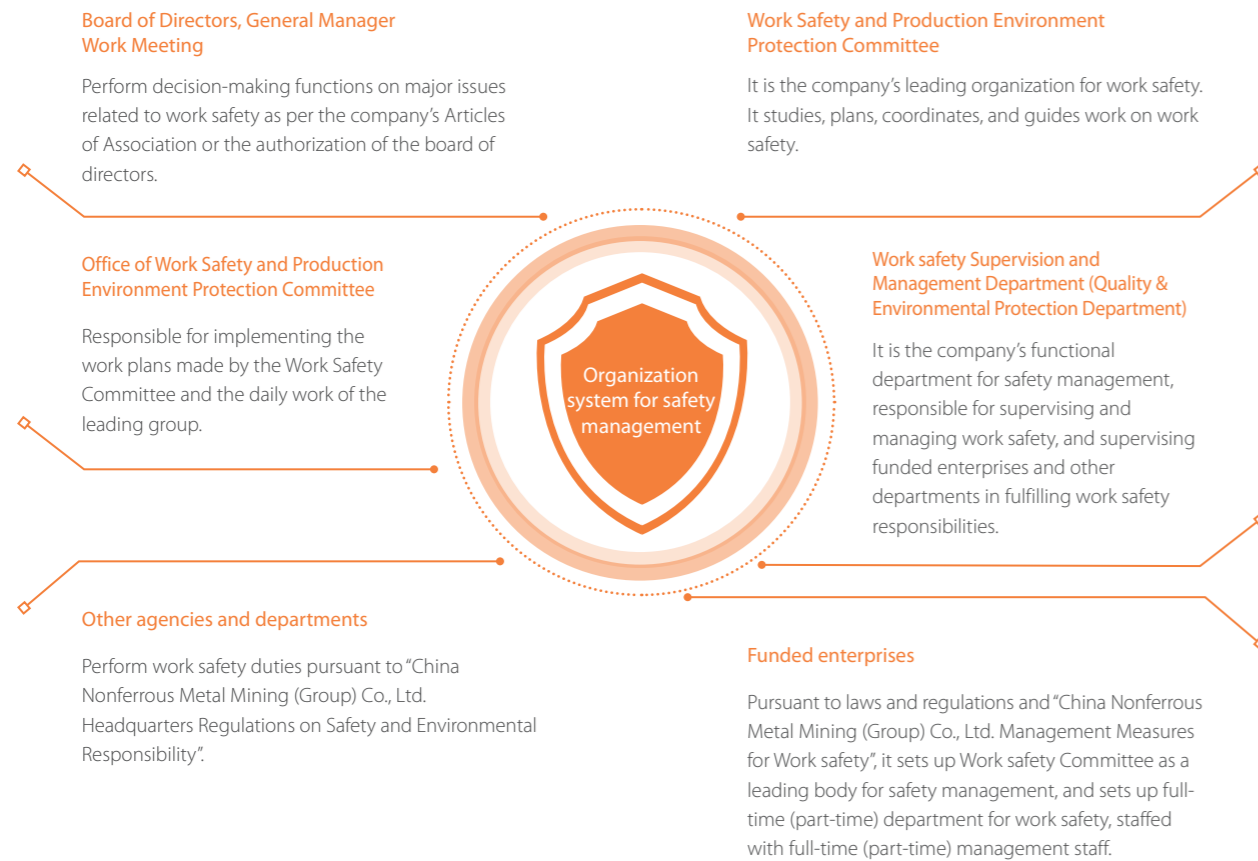
Major quality accidents and major customer complaints throughout the year

Make resolute efforts to ensure work safety

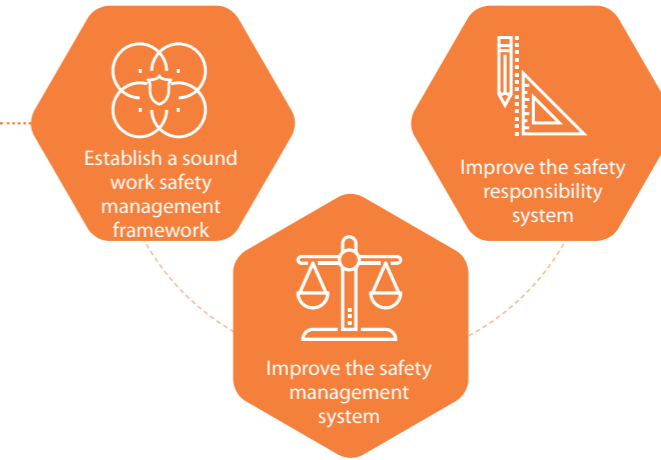
CNMC consistently puts in place a long-term mechanism for work safety, fulfils the responsibility for work safety, and comprehensively tightens work safety management for safe and efficient running of the enterprise.

Improve the safety management system

The company has established a sound safety management organization system and institutional system, formulated relevant rules and regulations, and underscores safety management, which lay the groundwork for the health and safety of employees.



Establish 13 pieces of work safety management rules including "Management Measures for Work safety", and establish an overall framework for work safety management in terms of responsibility system, performance appraisal, emergency management, accident investigation and handling, education & training, safety expenses, information submission and outsourcing management.



Formulate the "Implementing Measures for Safety and Environmental Risk Deposits (Trial)" and "Implementing Measures for Safety Director System (Trial)", establish a sound incentive mechanism for safety management personnel, and shift the focus of safety supervision to lower-level units.

Organize enterprises at all levels to formulate and revise over 1,500 pieces of safety management rules and over 1,700 pieces of regulations for safe operation.

- Formulate the "Implementing Measures for Safety and Environmental Risk Deposits (Trial)" and "Implementing Measures for Safety Director System (Trial)", establish a sound incentive mechanism for safety management personnel, and shift the focus of safety supervision to lower-level units.
- Organize enterprises at all levels to formulate and revise over 1,500 pieces of safety management rules and over 1,700 pieces of regulations for safe operation.

Key tasks for safety management in 2020

Security risk control

CNMC firmly upholds the concept of safe development, makes solid progress in the centralized and special rectification of problems in work safety, makes every effort to prevent work safety accidents of a major nature and above, and ensures the company's safe and high-quality development.

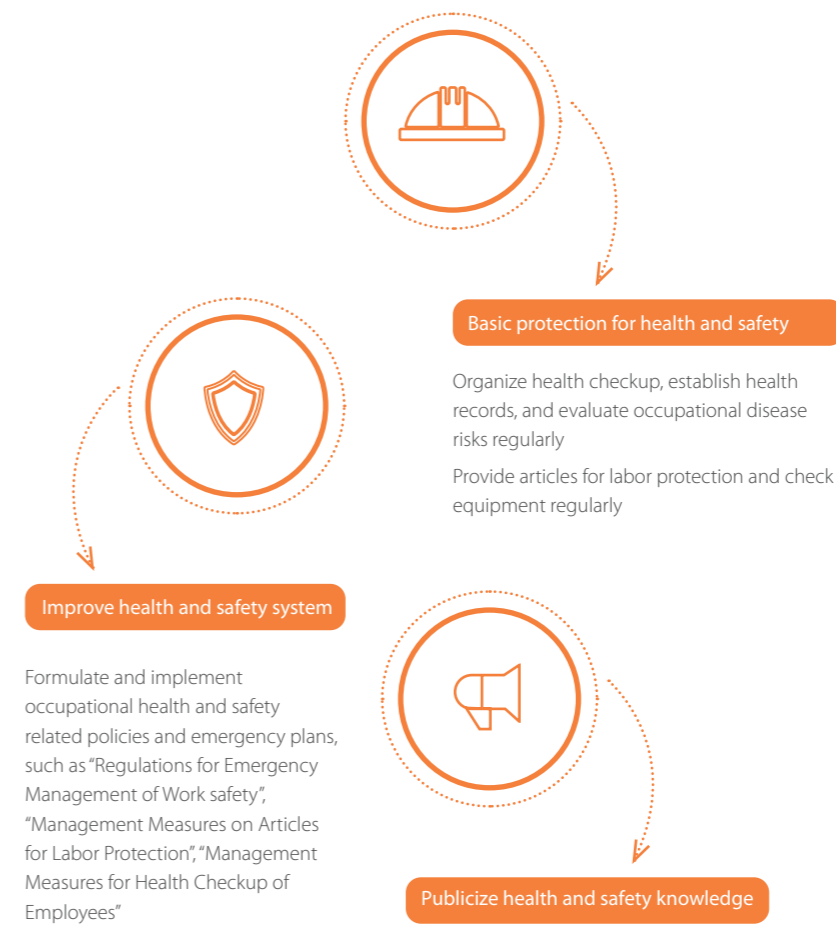


CNMC's safeguard measures for work safety

1,085 A total of problems were investigated and rectified in the centralized improvement initiative for work safety	1,579 More than hidden problems were solved in the three-year special action for work safety	1,135 Formulated pieces of detailed measures for key tasks	155 Recorded areas with major security hazards
51 A total of hidden dangers of tailings ponds were investigated and rectified	334 Hidden dangers were located and rectified in key areas and key links	3,287 2,622 Found over violations of command, operations, and labor discipline, involving over violators	590,000 yuan The penalty amount reached
Made over 15,000 inspections Organized and carried out work safety at all levels	24,000 More than hidden dangers were discovered through investigations at all levels	99 % The rectification rate of hidden dangers was	

Safeguard the safety and health of employees

Under the development philosophy of "life foremost, safety first", the company enhances the ability to ensure work safety, and create conditions for work safety, such as providing safety protection facilities and equipment, articles for labor protection, and using safety technology; follows the "people-oriented" management concept and implements the requirements of occupational health management to safeguard the health and safety of employees.



405 million yuan

Was invested in work safety

0

work safety accidents of a major nature and above

0.52

The rate of loss of work day per million working hours was

53 %

Work-related accidents decreased by year-on-year

11,000

Occupational health check-ups were carried out for funded enterprises at all levels

80 million yuan

About was invested in improving the safety and protection equipment for on-site workers

hit a record low

The death rate per 1 million yuan industrial output value and the rate of injury per 1,000 workers

Case NFC strengthens source management to protect employees' occupational health

China Non-ferrous Metal Industry's Foreign Engineering and Construction Co., Ltd. (NFC) keeps to the policy of "prevention first, combination of prevention and treatment" for occupational diseases. In accordance with the laws and regulations, the company carries out the treatment and control of dust, radioactive materials and other toxic and harmful factors, and conducts pre-evaluation of occupational hazards and the evaluation of occupational hazard control. The company regularly inspects and evaluates occupational hazards in the workplace to provide employees with a work environment in line with national occupational health standards and requirements, and offer necessary occupational health protection facilities and supplies to reduce the possibility of exposure to occupational hazards. In 2020, NFC invested a total of 37.1342 million yuan in work safety.

- The subsidiaries of NFC carry out safety prevention and control work of various types according to their own situation:
In 2019, all relevant branches and departments of CNMC Zinc adopted corresponding control measures for the points of operation that violated the inspection standards to ensure that each monitoring point meets the requirements for each indicator and create a good and pollution-free work environment;
NFC Pump conducted inspections on occupational hazards on key sites (including rubber workshops, painting workshops, and packaging workshops), and the inspection results showed zero violations;
- International Business Department establishes on-site medical centers for key construction projects, which are equipped with professional medical staff and ambulances, as well as all kinds of medicines and materials for first aid and daily needs. Medical centers provide medical services for all employees;
- The Congo (DRC) RTR project department sprays water for dust settlement on the roads at the construction site every day.

Raise employee awareness of safety

The company carries out publicity and education on work safety, safety drills and training on work safety to raise the employees' safety awareness and ability, and ensure the company's steady development.



Case Hold training sessions for work safety management personnel

On November 12-13, 2020, CNMC held a training course for work safety management personnel in the form of "on-site meeting + video". Relevant leaders from the authorities such as industry experts from China Academy of Safety Science and Technology and China University of Mining & Technology, Beijing were invited to give lectures. The training courses include the leading responsibility of enterprises for work safety, etc. More than 1,000 people including all members of the Work Safety Committee and safety management personnel underwent the training.



Holding a training session for work safety management personnel



New achievements in low-carbon development

Guided by the overall development goal of ecological progress, CNMC upholds the concept of “active safety and environmental protection”, explores the low-carbon transformation of the mining sector, makes strenuous efforts to promote cleaner production and build green mines, and contributes to the goal of peak carbon dioxide emissions and carbon neutrality, as well as lucid waters and lush mountains.

03



Promote energy conservation and emission reduction, and realize cleaner production

Upholding the concept of "energy conservation as the primary energy", the company promotes pollution treatment, energy conservation, emission reduction and carbon reduction, and cut wastes, and becomes an environmentally friendly enterprise for ecological progress.

Energy saving and consumption reduction

In response to the national goal of "achieving carbon neutrality by 2060", the company harnesses independent innovation and technological breakthroughs to explore the cleaner production process of mines and smelting enterprises, improves beneficiation technology and equipment and raises technical indicators, enhances the recovery rate and comprehensive utilization of mineral resources, and puts in place a long-term mechanism for resource conservation and efficient use.

Case Optimize management methods and reduce energy use

According to industry standards and optimized management methods, CNMC Orient evaluates the energy consumption indicators of each subsidiary company based on the standard of 5% reduction every 5 years, and improves the energy system. Subsidiaries and branches carried out consumption reduction campaign and achieved impressive results: CNMC New Materials greatly increased the output of electronic pastes by cutting the output of copper products. Jinhui Energy replaced high-energy-consumption and low-efficiency boilers with energy-saving and high-efficiency boilers. In 2020, CNMC Orient had energy consumption of 27,253.8 metric tons of standard coal, a year-on-year decrease of 3.2%; the comprehensive energy consumption per 10,000 yuan output value was 0.1155 metric tons of standard coal, a year-on-year decrease of 11.36%; the utilization rate of recycled water was over 90%, higher than the company's energy-saving targets during the 13th Five-Year Plan period.

Case Equip anode plates with new insulators to promote energy saving and consumption reduction

At the end of 2019, Chambishi Hydrometallurgy Co., Ltd. in Zambia installed new insulators on all old anode plates, which greatly improved the quality of work at the electrodeposition workshops. The current efficiency of electrodeposition was increased from about 82% to about 90%, and the energy consumption of cathode copper was greatly slashed.



The anode plate equipped with new insulators

746,400
metric tons of standard coal

The total energy consumption was

618,900
metric tons of standard coal

comprehensive energy consumption equaled

0.0013
metric tons of standard coal

comprehensive energy consumption per 10,000 yuan operating income (at comparable price) was

2.7 million metric tons

greenhouse gas emitted was

0.36 metric tons

greenhouse gas emission density was equivalent to of carbon dioxide emission per 10,000 yuan operating income (comparable price)

14 million metric tons

the total wastewater discharge by 8 domestic production enterprises was

1.8642 metric tons

the wastewater discharge amount per 10,000 operating income (comparable price) was

53.1 million metric tons

Water consumption was

3.65 metric tons

Water consumption per 10,000 yuan output value (income) (comparable price) was

Case CNMC Shenyang Mining's Dajingzi Tin Industry achieves "double reduction" in emission allowances and energy consumption

CNMC Shenyang Mining's Dajingzi Tin Industry carried out technical transformation of the new and old towers at the existing desulfurization workshops, optimized the drencher heads, removed one 220KW relay blower. This realized the "double reduction" in emission allowances and energy consumption. It is estimated that the annual electricity fee can be saved by about 500,000 yuan.

Pollution prevention and control

Aware of the philosophy of "active safety and environmental protection", the company regards the construction of green mines as the main measure to meet the pollution prevention and control requirements, and adopts the standards for green mines as corporate standards, which are used in international operations. Significant progress has been made in pollution prevention and control.

23.54%

Sulfur dioxide emissions decreased by year-on-year

537,200 metric tons

The amount of hazardous waste generated was

99.52%

The treatment rate of hazardous waste was

22,991,800 metric tons

The amount of harmless waste generated was

98.13%

The disposal rate of harmless waste was

2,257.53 metric tons

The emissions of sulfur dioxide was

658.87 metric tons

The emissions of nitrogen oxides was

423.81 metric tons

The emissions of chemical oxygen demand was

37.23 metric tons

The emissions of ammonia nitrogen was

Case CNFC Special Material upgrades alkali cleaning technology to achieve zero hazardous waste discharge

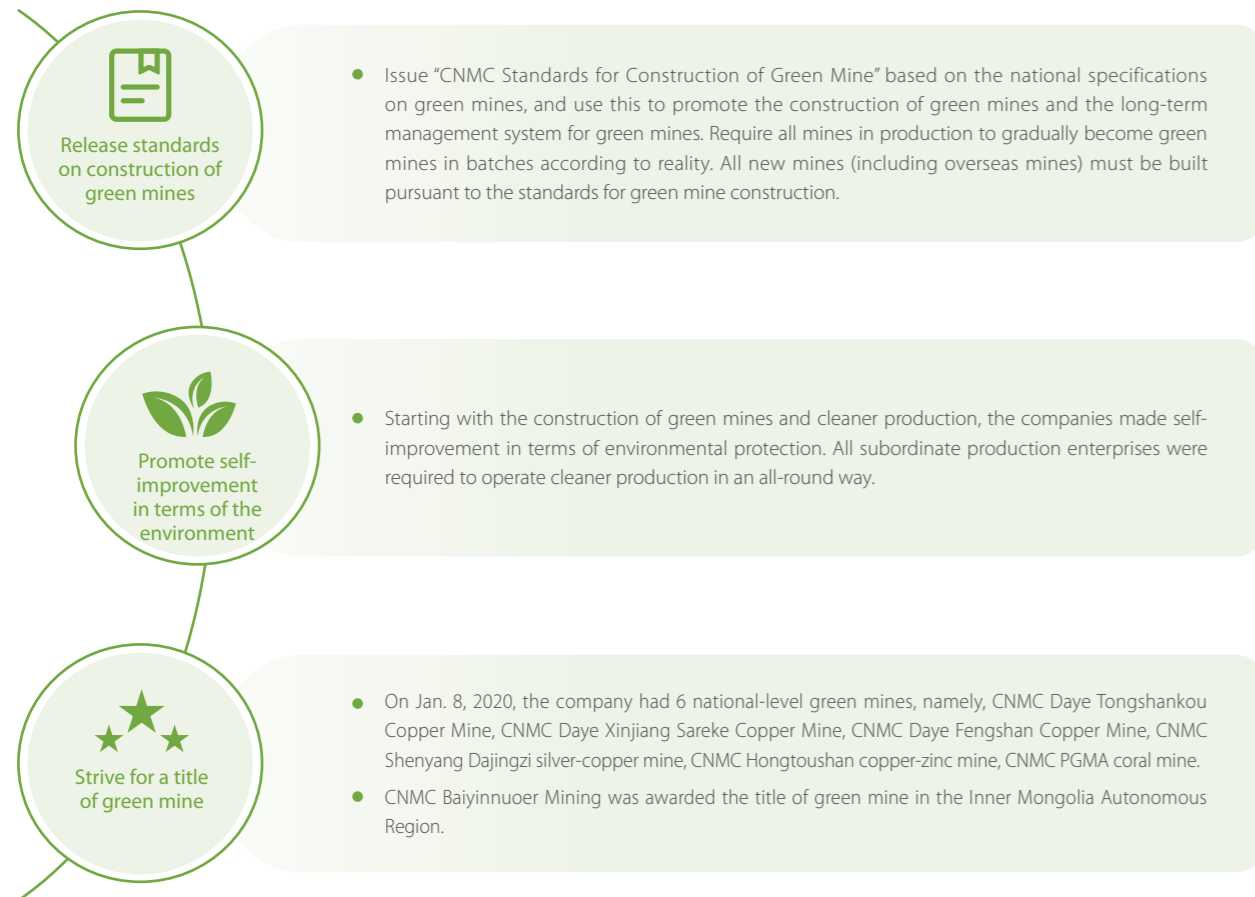
To cut the amount of hazardous waste generated and avoid the risk of environmental pollution, CNMC Special Material upgraded the alkali cleaning process and equipment for molds, so that 100% of waste lye can be recycled to ensure zero emissions, zero solid waste, and zero hazardous waste. The new process saves over 2 million yuan in alkali costs, operating costs, etc. each year.

Case Adopt state-of-the-art technology to achieve ultra-low exhaust emissions

At the end of 2020, CNMC Daye Smelter used advanced technologies such as low-temperature electric demisting and ozone removal of oxynitride to achieve ultra-low emissions of smelter tail gas. Of these, sulfur dioxide emissions alone was reduced by more than 50%, equivalent to sulfur dioxide emissions of 600 metric tons per year.

Ensure ecological protection

Under the development philosophy of "lucid waters and lush mountains are invaluable assets", CNMC coordinates reform, development and environmental protection, incorporates green governance into ecological operations, keeps to rational development to minimize the impact on the ecological environment, builds green mines, protects biodiversity, and promotes the environmentally friendly and sustainable development of the company.



Take multiple measures to promote the construction of green mines

Case Chifeng Dajingzi Mining carried out vegetation and ecological restoration on silver and copper mines

Chifeng Dajingzi Mining has consistently carried out vegetation and ecological restoration and the restoration of geological environment in silver and copper mines, and achieved encouraging results.

- Cultivate plants with strong drought resistance and a significant effect of wind prevention and sand fixation on the slopes on both sides of roads and open areas in the mining area through the methods such as digging fish scale pits, cave-like land preparation, and soil-covered nets. More than 10,000 trees were planted in three years, with a greening area of over 9,000 square meters;
- Build dams to retain water and sand at the mouth of naturally flowing water gullies under the excavated slopes to avoid soil erosion caused by construction;
- Sow grass seeds on the disturbed soil to restore vegetation around the reservoir area; cover the dry beach in the reservoir area with soil; install sprinkler devices;
- Carry out publicity to raise employee awareness of green mine construction and guide them to take positive action.



The slope is covered with soil, and planted with grass

Case CNMC Nickel reduces environmental disturbances at Tagaung Taung Nickel Mine to protect the local ecological environment

During the infrastructure construction period of the Tagaung Taung Nickel Mine, CNMC Nickel invested over USD 3 million beyond the project budget to protect the local 5 million sq. m virgin forest by erecting high-tower power transmission lines 20-40 meters higher than ordinary transmission lines. In the process of mining, CNMC Nickel, in view of the characteristics of red soil on Tagaung Taung such as barrenness and poor water storage capacity, adopted the method of "mining while reclaiming the land". Plant varieties with strong ability to resist drought, barrenness and heat such as acacia trees, acacia mangium, hardy sugar cane, and calico-plant are cultivated under the three-dimensional planting mode. Long-term reclamation and greening work is carried out in dumping sites, ore storage yards and stope reclamation areas. Rows of trees are planted around mining and transport roads, living quarters, and industrial sites. It is prohibited to disturb unplanned mining areas.



Greening on both sides of roads in Tagaung Taung Nickel Mine



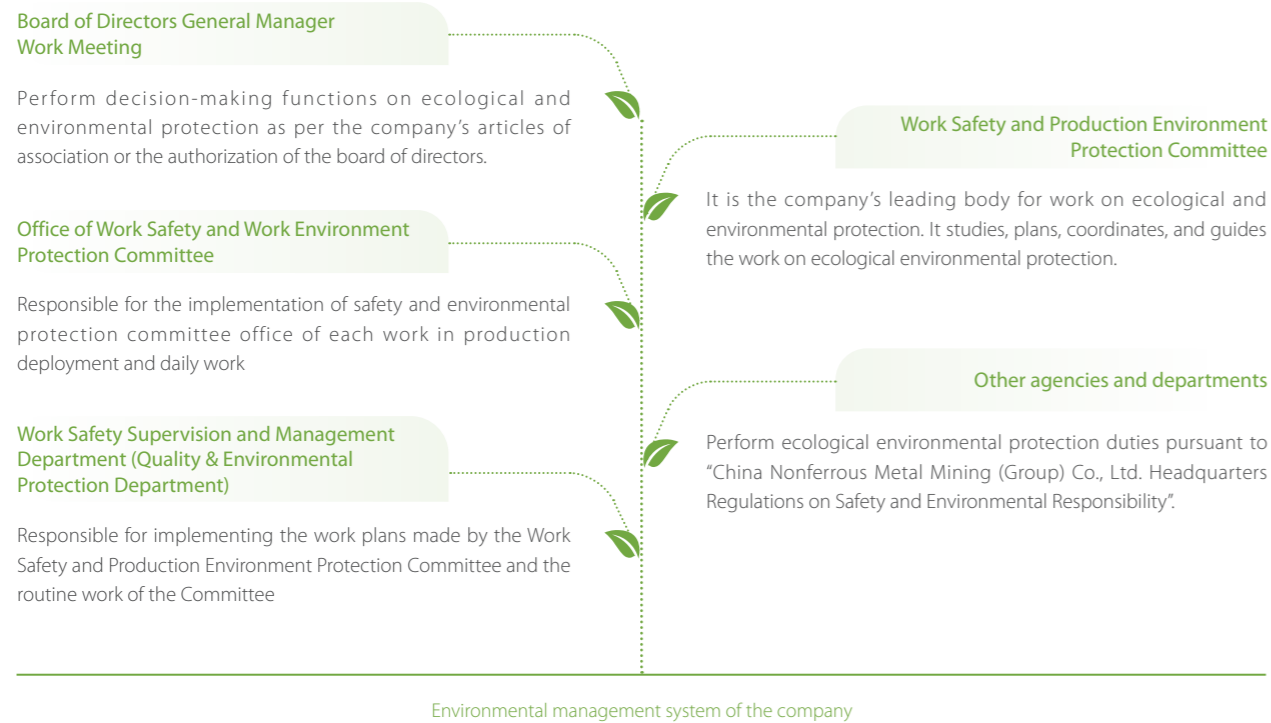
lush acacia trees at No. 2 dumping site

Promote green management and speed up green transformation

CNMC has put in place a sound long-term mechanism for ecological protection, improved the environmental management system, built ecologically harmonious mining areas, and promoted environmentally friendly mode of production to facilitate the overall sustainable development of the enterprise.

Environmental management system

CNMC follows national laws and regulations on energy conservation and emission reduction as well as standards for energy consumption quota, tightens early warning for environmental protection and emergency management, and moves faster to build green mines to turn green mines into invaluable assets.



Case Take multiple measures to ensure professional environmental management

The company promotes the establishment of an environmental management system in an all-round way, with a view to ensuring professional environmental management. First, build a pool of experts in environmental protection, and rely on their expertise to solve specific environmental problems, and share the company's intellectual resource for environmental management. Second, rely on environmental protection professionals in the disposal of specific projects. In 2020, the company used China Nonferrous Metals (Guilin) Geology and Mining Company as a professional technical consulting team in many projects such as the environmental protection risk rating of tailings pond and the governance of CNMC Hongtoushan's waste rock yard. The professional team greatly optimized the decisions on environmental protection in major projects.

The Group reaches a new height in management and control

Technological innovation leads new development

New achievements in low-carbon development

Pursue a new pattern in a win-win manner

Contribute to a better life

Establish institutional norms and regulatory responsibility

- Improve management rules for absent services and weaknesses according to latest laws and regulations, policy requirements and reality of companies.
- Improve the responsibility system, make clear "one post with dual responsibilities", focus on "primary responsibility" for implementation, and make clear requirements for supervision and regulation.
- Optimize supervision and evaluation, regard internal supervision and special inspection as long-term and routine task, suggest the provision of rewards, and focus on supervision of active violations.

Conduct special campaign for environmental risk prevention and control

- Conduct publicity and training, risk evaluation, plan revision and results verification on the prevention and control of environmental risks in tailings ponds, and investigate and solve environmental risk comprehensively to reduce environmental risks.
- Rely on internal supervision to investigate hazardous waste and problems in construction projects, and promote the settlement of key issues in a timely manner.
- By the end of 2020, 566 problems had been solved, accounting for 93.86%.

Strengthen the early warning and supervision regarding important information and sensitive periods

- Establish an information sharing mechanism for major corporate policies, keep abreast of important national and group policies in real time, and remind companies to deal with these in a timely manner.
- Operate a daily zero reporting mechanism for information on safety and environmental protection during sensitive periods, give early warning on risks, work plans and requirements for supervision, and maintain stability during special sensitive periods.

Tighten management over environmental protection risk prevention and control and early warning

Case CNMC Hongtoushan speeds up green transformation

Under the principle of protection precedence and cleaner production, CNMC Hongtoushan formulated the *Action Plan for Remediation of Environmental Problems* in 2020, carried out remediation of environmental hazards companywide, and tightened supervision, inspection, and monitoring management of key sources of pollution. At the same time, CNMC Hongtoushan reorganized and scaled up two key environmental protection projects, retired outdated technologies, and successfully treated environmental pollution caused by open-air storage of sulphur concentrates. Innovation leads to the upgraded environmental protection. In January 2020, Hongtoushan Mine was awarded the title of "Regional Demonstration Unit for National-level Green Mine".

487 million yuan

The total investment in environmental protection was

25 units

Passed ISO 14001/ GB/T 24001 environmental management system certification

Raise environmental awareness

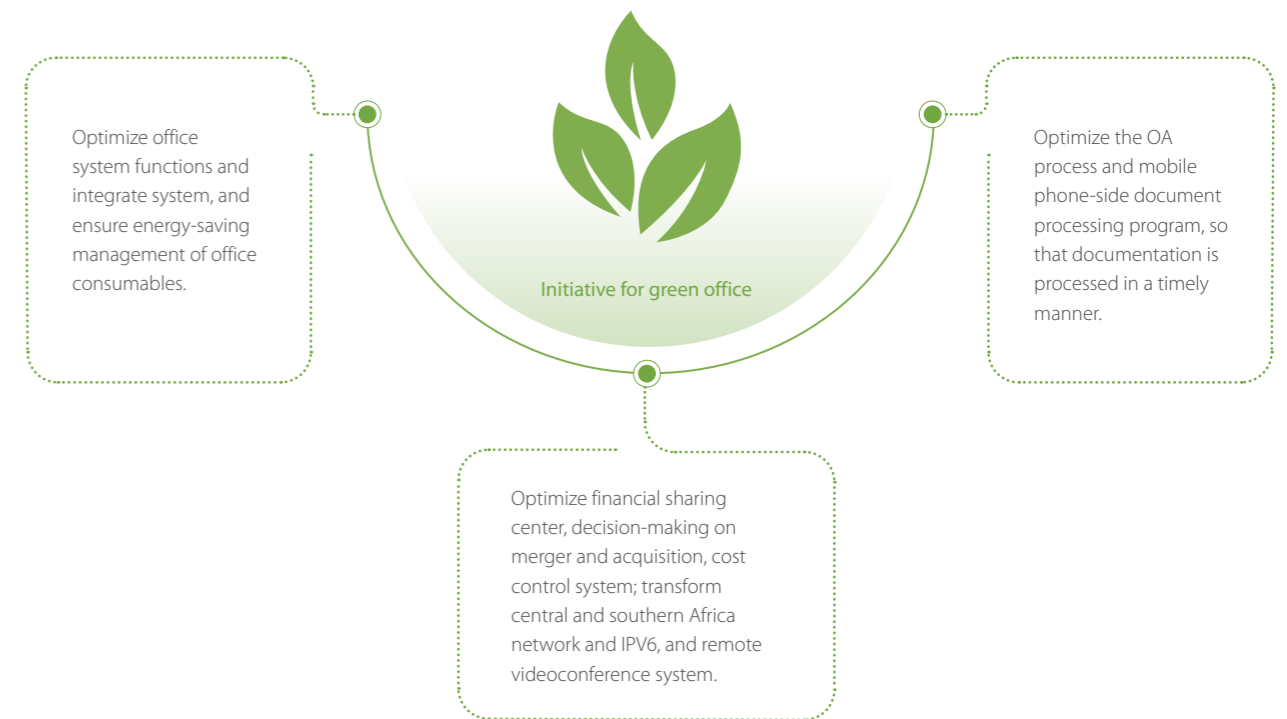
The company attaches great importance to raising environmental protection awareness among middle and senior managers as well as frontline employees, actively creates a culture of energy-saving and low-carbon development, regularly conducts training for middle and senior managers, upholds the concept of environmental protection, and enhances employees' awareness and ability in terms of environmental protection.



CNMC's environmental protection awareness-raising mechanism

Green office

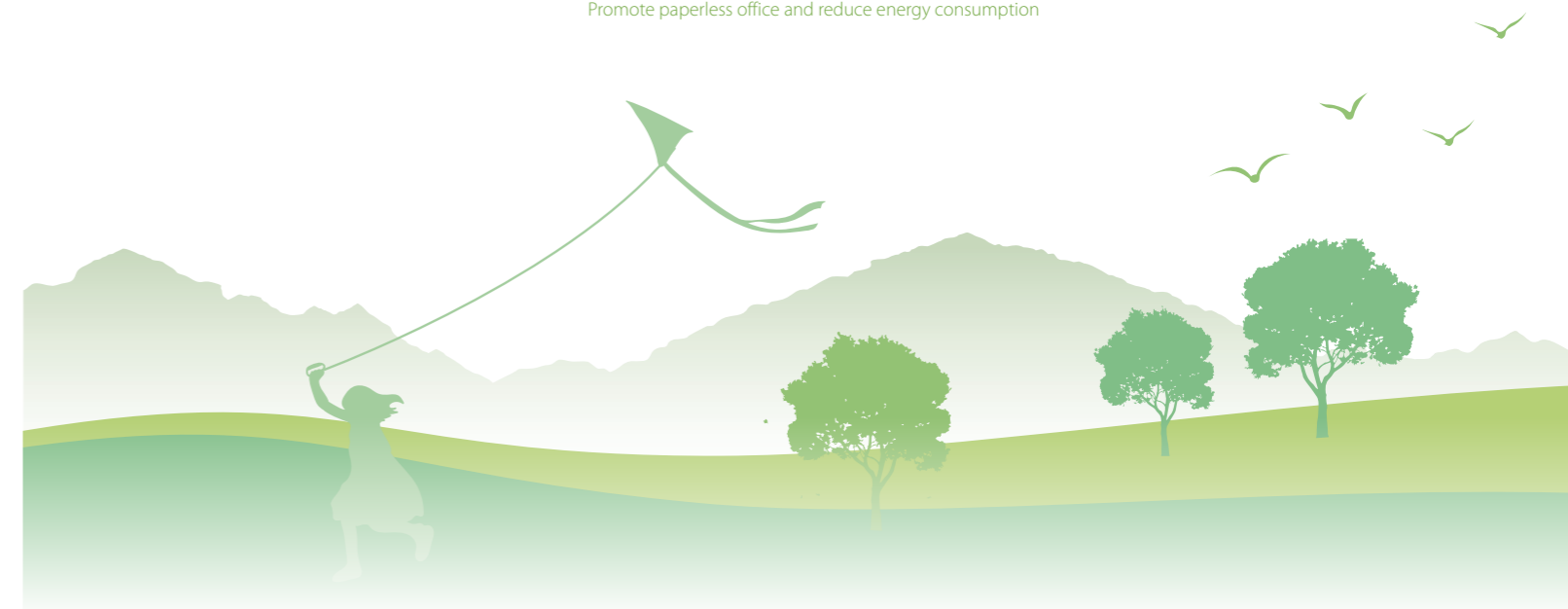
CNMC actively and consistently promotes paperless office, uses recyclable products, promotes environmentally friendly travel, cuts the generation and discharge of pollutants, and reduces energy consumption to a reasonable extent.



Promote paperless office and reduce energy consumption

Case Hold an ecological and environmental protection training meeting for middle and senior managers

CNMC held an ecological and environmental protection training meeting for middle and senior managers on December 8, 2020. Experts from the Ministry of Ecology and Environment, the Supreme People's Court, trial consulting experts, etc. were invited to interpret the national policy on environmental protection, the "14th Five-Year Plan", and the current situation of environmental protection; share typical cases of pollution discharge, environmental monitoring, emergency management, etc.; give in-depth analysis of the work procedures of central inspection of environmental protection, key points for attention, etc.; intensify the company's efforts for ecological environmental protection; and raise the awareness of the company's environmental protection management personnel at all levels about compliance with laws and regulations.



Pursue a new pattern in a win-win manner

"If you want to go fast, go alone. If you want go far, go with others." Upholding the ideas of open cooperation, resource sharing, mutual benefit and win-win results, CNMC endeavors to create a fair, just and open business environment, and cooperates with domestic and foreign partners to build a cooperation platform featuring extensive consultation, joint contribution, and shared benefits, and seek greater development.

04



Build a responsible supply chain

The company focuses on establishing honest, transparent and trustworthy business relationships with partners, promotes responsible supply chain management, builds a responsible supply chain, and forges sustainable long-term partnerships with suppliers.

Tighten supplier management

We carry out management of suppliers, makes clear the standards for supplier access, evaluation and supervision, and conduct dynamic evaluation. In 2020, the company implemented the *China Nonferrous Metal Mining (Group) Co., Ltd. Measures for the Management of Suppliers* on a trial basis. Under the principles of "strict access, classification and grading, dynamic evaluation, and competitive elimination", it establishes a mechanism for supplier sourcing, access, selection, evaluation, rewards and punishments, and exit.

7,886

In 2020, the total number of suppliers was

100 %

In 2020, the dynamic quantitative evaluation rate of suppliers of CNMC Orient and NFC was

Record of suppliers



Lay down code of conduct for suppliers, learn about the performance of suppliers in terms of compliance, safety, environment and health management rules, observance with anti-corruption laws, etc.; require suppliers to commit themselves to perform corporate social responsibilities, give overall consideration to suppliers' competence in specialized areas, and launch a rigorous and detailed access system for suppliers.

Evaluation of suppliers



Conduct sustained inspections on selected suppliers; conduct phased evaluation on suppliers in terms of contract, acceptance, payment, after-sales service, etc.; supervise, record, analyze, and make suggestions for supplier's performance. Register the results of supplier evaluation for the record, and make updates in a timely manner based on changes in material information on suppliers. Evaluate suppliers annually, fill out the "Evaluation Form of Qualified Suppliers", give overall consideration to supplier's performance in terms of quality, service, environment and society, including sustainable development management, environmental protection, employment of children or forced labor, etc. Caution or disqualify suppliers that fail to pass evaluation according to the performance level.

Management of suppliers



Formulate rules for hierarchical management of suppliers, and foster cooperation with excellent suppliers. Supervise suppliers for bad conduct, and release in a timely manner the list of suppliers which are subject to ineligibility for bids, suspension of trade, termination of contract, and blacklisting. Promote suppliers to fulfil responsibilities, hold training on social responsibilities for suppliers, communicate with them about responsibility fulfilment, help them fulfil environment and social responsibilities, create a green and responsible supply chain for win-win outcomes.

Promote responsible sourcing

We make continuous efforts to improve the procurement management systems, and formulate the *Management Measures for Procurement, Management Measures for Tendering, Management Measures for E-commerce Platform for Procurement Bidding*, etc., to ensure complaint procurement process. We promote responsible procurement, tighten the management and control of risks in the procurement field, and ensure that the procurement system is fair, just, and transparent. We continuously promote centralized procurement, intensify efforts to supervise, guide and evaluate procurement management, and work to achieve full coverage of procurement for inspection.

Case

Procurement bidding e-commerce platform improves procurement quality and efficiency

In 2020, CNMC launched the procurement bidding e-commerce platform, which facilitate more suppliers to participate in the company's procurement and bidding business. The procurement business is more transparent and fairer. The system offers an automatic reminder function. Following the procurement notice, before the bid opening, and after the completion of procurement plan, reminders will be sent to persons concerned via SMS, e-mails, etc. to improve procurement efficiency. Through the bid opening hall, expert judges and the bidders can carry out sufficient technical exchanges and business negotiations. By the end of 2020, a total of 60 enterprises at all levels had used the platform to release 1,064 bidding projects and 18,374 non-bidding projects, with a total transaction value of 5.995 billion yuan. It involved 7,886 registered and chosen suppliers, and 915 registered and chosen bid evaluation experts.



China 15th Metallurgical Construction Group held training on the application of procurement bidding e-commerce platform

In 2020, CNMC Orient

69.54 %

had centralized procurement rate of

100 %

Electronic bidding rate of

100 %

online invitation-to-bid publishing rate of

In 2020, CNMC Albetter

100 %

had centralized procurement rate of

100 %

Electronic bidding rate of

100 %

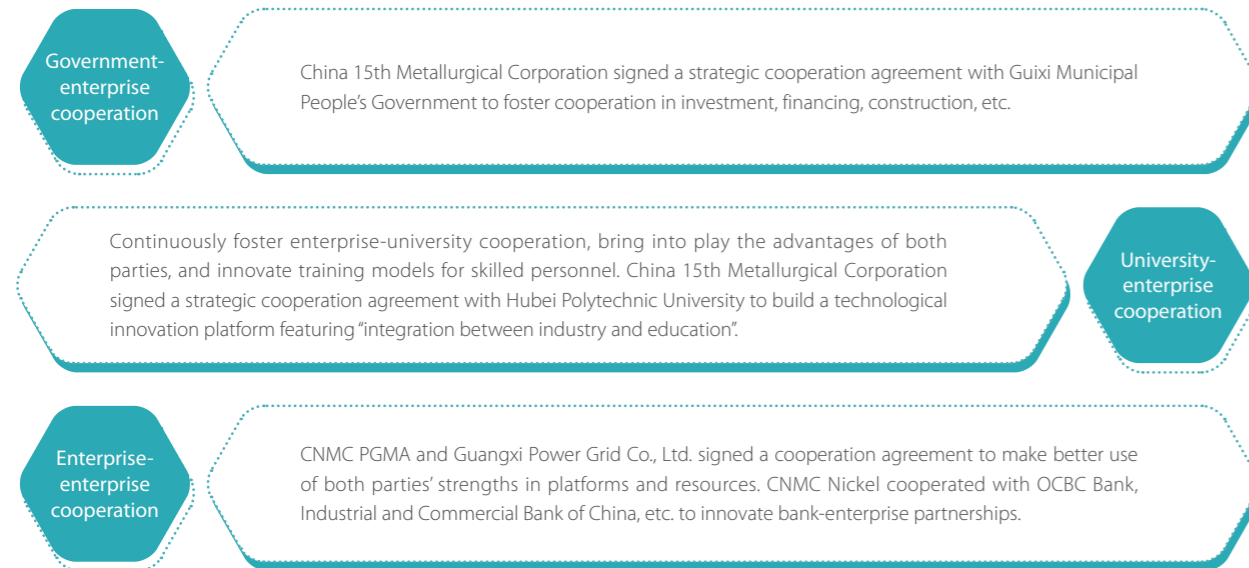
online invitation-to-bid publishing rate of

Join hands to lead the development of the industry

Upholding the ideas of openness, sharing, and win-win cooperation, the company innovates modes of cooperation, establishes mutually beneficial and win-win relationships with industry chain partners, peer companies, etc., participates in the formulation of industry standards, and explores the high-quality and sustainable development of the industry.

Deepen strategic cooperation

We work with partners such as governments, universities, enterprises, and industry organizations to foster cooperation in terms of talents, technology, resources, etc. We put in place a regular reporting system for the implementation of strategic cooperation, focus on tracking and supervising cooperation agreements, and promote the implementation of cooperation agreements. In 2020, the company inked strategic cooperation agreements with five domestic and foreign enterprises and local governments, including Aero Engine Corporation of China, Qinghai Investment, and Ivanhoe.



Case Work with Ivanhoe to create a model of cooperation in the mining sector

As a world-renowned mining company, Ivanhoe Mines realizes sustainable development based on the goal of being responsible for the environment and society. In August 2020, CNMC and Ivanhoe Mines signed a strategic partnership agreement, whereby the two parties will discuss and innovate cooperation models, promote the implementation of core projects, and lead the development of the industry.

The signing ceremony of strategic partnership agreement between CNMC and Ivanhoe Mines

Participate in formulation of standards

We participate in the formulation, promotion and implementation of international, national and industry standards to contribute to the development of the industry while enhancing our own overall strength.

548 pieces

By the end of 2020, the company had presided over the formulation of international, national and industry technical standards



International, national and industry standards which were formulated with the participation of some funded companies

Strengthen exchanges with partners

We join industry associations, and participate in conferences, exchange activities, etc., build a communication platform for the industry for common growth with industry partners. In 2020, the company participated in the 3rd China International Import Expo, the annual meeting of China National Association of Chemical Construction Enterprises and other industry events to achieve win-win results through experience sharing.

Case Participate in the 3rd China International Import Expo

The 3rd China International Import Expo (CIIE) was held in Shanghai in November 2020. CNMC participated in relevant activities during the CIIE, and held the third import procurement signing ceremony. CNMC International Trade, CNMC Daye, and NFC signed cooperation agreement with well-known domestic and foreign companies, respectively, with a record high for the value of intended transactions. It is of great significance for the company to scale up trade and better "go global".



The 3rd CNMC Import Procurement Signing Ceremony

Case Host the roundtable meeting of China-DRC Mining Enterprise Strategic Alliance

As the rotating chairman unit, CNMC hosted the fourth roundtable meeting of China-DRC Mining Enterprise Strategic Alliance in November 2020. CNMC conducted discussions with the alliance members regarding response to the COVID-19 epidemic, compliance operations, and better fulfillment of social responsibilities. It contributed to strategic coordination and sustainable development.

Protect intellectual property rights

The company sets great store by the protection of intellectual property rights. It abides by the laws and regulations such as *Patent Law of the People's Republic of China*, *Trademark Law of the People's Republic of China*, and *Law of the People's Republic of China Against Unfair Competition*; and respects and protects intellectual property rights. With major scientific and technological projects as the core, CNMC intensifies efforts to protect intellectual property rights and safeguard legitimate rights and interests.



- Make the legal review of unified procurement contracts for genuine office software, and cooperate with business departments in investigating the legal protection of genuine software used by each funded enterprise;
- Strengthen the management of intellectual property rights such as trademarks, patents, and trade secrets through registration, filing and rewards;
- Promote protection of intellectual property rights and raise staff awareness of intellectual property protection.

Uphold integration into local development

As the first central enterprise "going global" in China's non-ferrous metal industry, CNMC has always regarded localized operations as an important task for the company and various funded enterprises. In the process of project construction and operations, it attaches importance to creating local jobs, integrating into local culture, driving local economic development, and building a corporate image as a responsible company in the context of a new development pattern.

Improve localized operations

We implement localized management, abide by the local laws and regulations, respect and safeguard international conventions on human rights, labor rights, etc., attract local employees, and work to build an equal and diversified career platform for employees.

Local recruitment

The company gives priority to recruiting and promoting local employees. All overseas affiliated companies cooperate with local universities in selecting outstanding graduates, and establish competitive salary and benefit system in accordance with local laws and regulations, culture, local habits, etc., for overseas employees, and attract and motivate outstanding talents. In 2020, CNMC Nickel hired 1,636 Myanmar employees, who account for 83% of the total number of employees. Six Myanmar employees hold management positions at the company.

Localized procurement

The company upholds open cooperation and consistently promotes the localized procurement for overseas projects to drive the development of the local economy. CNMC Nickel signed 30 procurement contracts in Myanmar throughout the year, and CNMC Congo purchased USD7.858 million' worth of local materials throughout the year.

Development of local employees

The company promotes the capacity building of overseas employees in terms of language, professional expertise, techniques, management, etc., encourages employees to participate in training activities organized by the company, and supports employees in pursuing academic education, etc. CNMC Africa Mining formulated the *Training Policy* and funded overseas employees to a certain extent for their studies in local colleges, company training schools, etc., to improve their professional competence and overall quality.



CNMC Somidez holds safety skills training for employees in the host country

Case CNMC Africa Mining supports female employees in realizing career growth

Since its inception, CNMC Africa Mining has always respected and valued female employees. It has hired 86 local female employees, accounting for 5% of the total number of employees. Female employees hold positions for personnel, supply and marketing, finance, logistics, laboratories, etc. Many of the female employees now hold management positions in the company through training and their own hard work, creating value for the company and fulfilling their career dreams. In May 2020, the *Times of Zambia* published a story on the career growth of a young female technician named Memory Phiri at CNMC Africa. We give thumbs-up to CNMC Africa for respecting the value of female employees and helping them achieve self-realization.



Female employees participate in safety knowledge contest



"NFCA is commendable for its policy on gender equality. Many female workers have become backbone staff in human resource management, financial management, supply, laboratory, administrative management and other positions. They are recognized by the company and also realize their own value."

—Memory Phiri, a female employee of CNMC Africa Mining



CNMC Nickel organizes Chinese language test for Myanmar employees

Care for local employees

In view of the severe COVID-19 epidemic overseas in 2020, CNMC's funded companies overseas prevented the concentration of employees by adopting staggered work, group-based meals, etc., and coordinated the procurement of masks, protective clothing, medicines, etc. to protect employees. We establish a mental health service platform and invite experts from psychological institutions to provide psychological counseling services for employees, etc. to defuse any psychological problems in a timely manner.

The company attaches importance of the work-life balance, helps solve in a timely manner any difficulties faced by employees in their work and life, and organizes rich activities to help employees defuse work pressure and better integrate into the company. China 15th Metallurgical Corporation purchased quilts, corn flour and other daily necessities for the local employees of Luanshya Mining Project Department in Zambia. CNMC Nickel organizes sports competition and singing competition every year for employees in Myanmar to promote the friendship and cooperation between Chinese and Myanmar employees.



Zambia-China Economic & Trade Cooperation Zone held a football match for employees of China and Zambia during the isolation period for the epidemic

Promote cultural integration

We actively integrate into the local community and culture, acquaint ourselves with local laws and regulations, language, cultural customs, etc., and participate in local activities. We also hold training on Chinese culture for local employees, promote Chinese culture in the local communities, facilitate employee integration through cultural identity, get along well with local residents, and create a happy environment for Chinese and overseas employees in work and life.

CNMC Somidez	CNMC Nickel	Chambishi Copper Smelter	ZCCZ
launched all-French introduction on Twitter account, signed enterprise-media strategic cooperation agreement with local media NYK broadcasting station, which covered CNMC through such channels as broadcasting programs, YouTube account, and Twitter account, helping local stakeholders to learn about the company and creating a good corporate image.	began to hold the national flag-raising ceremony of China and Myanmar regularly since 2018 to inspire their patriotism and improve the cohesive force of employees. Chinese language training courses help local employees, local students and villagers to learn Chinese, benefiting 1,000 trainees.	funds festival celebration events in Zambia such as the Women's Day, Youth Day, Labor Day, Environment Day, Teacher's Day, and Independence Day, and strive to integrate into local society.	partners with Chinese Chamber of Commerce in Zambia, and Zambia Chinese Overseas Association to hold Zambia's first Import and Export Product Expo, create a platform of exchange and mutual trust for Chinese and Zambian enterprises and business communities, and help more Chinese enterprises integrate into local society.

Case

The case of CNMC Africa Mining was selected as the "Excellent Case of Cross-cultural Fusion" for the global image of Chinese companies in 2020

In November 2020, the case "Open Day for Families of Excellent Employees" by CNMC Africa Mining was selected by the Chinese Enterprise Global Image Summit as the "Excellent Case of Cross-cultural Fusion" for the global image of Chinese enterprises in 2020. This is the ultimate award for global image building for Chinese enterprises. The "Open Day" event features outstanding Zambian employees and their family members. By inviting family members of outstanding employee to participate in the "Open Day" event, it showcases the "common growth and development" of employee families and the company, and help the people of Zambia learn about Chinese companies. CNMC Africa Mining will consistently fulfill its overseas social responsibilities, help promote a dual-cycle development pattern relying on both domestic and international economic cycles, and play a good role in cementing China-Africa friendship.



Drawings by Zambian children



Kampamba Mulenga Chilumba, Minister of Community Development and Social Services of Zambia, participated in the "Open Day" event



The Belarusian Project Department of China 15th Metallurgical Construction held fun games to promote the Dragon Boat Festival culture

Contribute to local community

The company consistently carries out investment and operation activities overseas in a responsible manner, and actively help the host countries cope with major emergencies. We are involved in the co-building of local communities, and organize charity events, voluntary activities, etc., to develop ties with the local people and help local people live a better life.

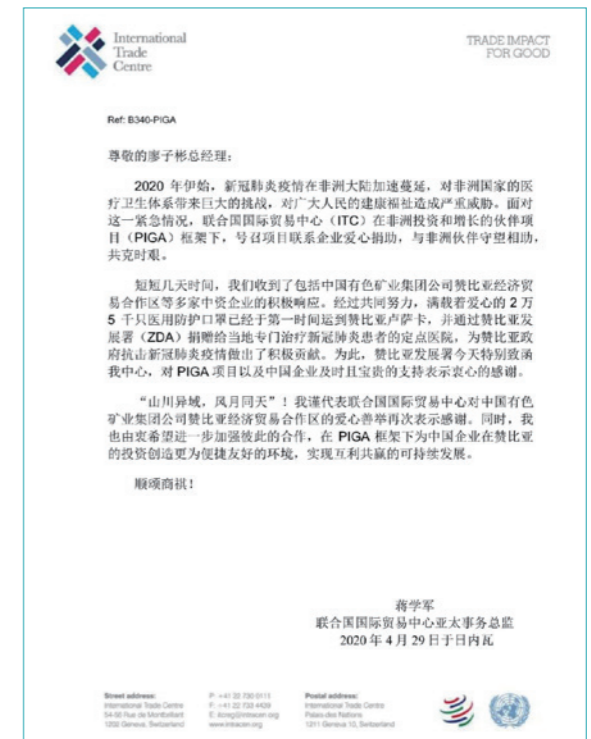
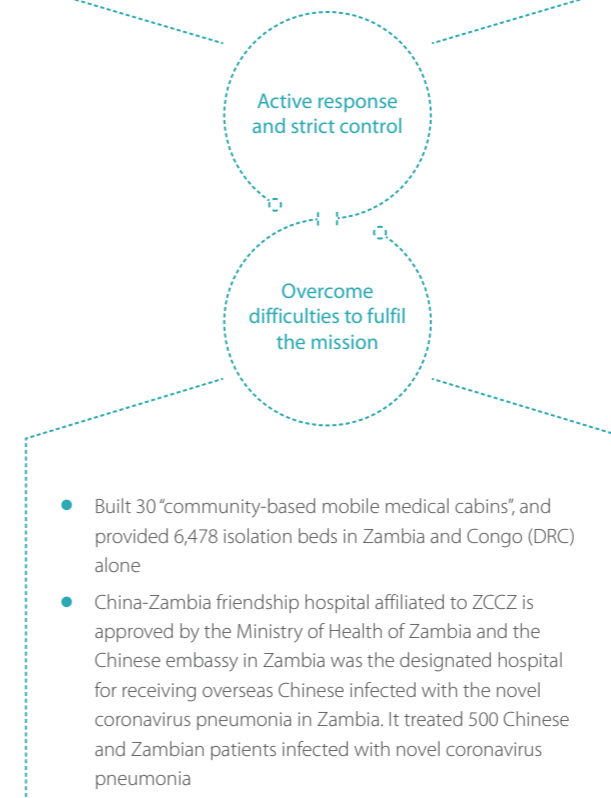
Assist in the response to the epidemic

CNMC has adopted an overseas epidemic response model featuring "large-scale closure, small-scale isolation, and same rules, and simultaneous response". By the end of 2020, no cases of infection occurred overseas.

- Establish patrol and supervision team, and conduct remote patrol and supervision for response to the COVID-19 epidemic and resumption of work and production
- Exercise closed-off management over overseas factories and other company grounds. Areas for production, office work, living, etc. are separated for management
- Provide one-to-one guidance for 14 overseas key enterprises to make targeted response to the epidemic

"You provide a new model for the response to the epidemic in the mining sector in Zambia!"

— Minister of Mines and Minerals Development of Zambia, Member of Parliament



In 2020, in response to the call of the UN International Trade Centre (ITC), the ZCCZ donated medical masks to designated hospitals for patients infected with novel coronavirus pneumonia in Zambia. ITC sent a thank-you letter to the ZCCZ, expressing praise for CNMC's spirit of international cooperation.



Chambishi Copper Smelter donated to Kalulushi Modern Stars Football Club



The ceremony of the ZCCZ's donation to Kasama, Zambia

Carry out charity events overseas

We harness the company's many overseas branches and abundant resources to participate in the economic and social development in the host countries, jointly cope with sudden disasters, and share the development results.



Improve infrastructure

- CNMC Congo Mining helped local community built an asphalt road at a cost of USD1.29 million, benefiting nearly 10,000 residents nearby
- Chambishi Copper Smelter built farmer's market, bridges, tennis pitches, basketball courts, etc. in Kalulushi, bringing benefits to local residents
- By the end of 2020, CNMC Africa Mining donated 250,000 yuan to Zambia for constructing infrastructure such as solar-powered street lamps and road repair



Improve educational quality

- CNMC Nickel made donations to a total of nearly schools in Myanmar. Newly built or renovated school buildings, study articles, scholarship, etc. helped local students complete their studies. By the end of 2020, CNMC Nickel paid salary of nearly 443,000 yuan to teachers at China-Myanmar Friendship Buddhist School which was built with the aid of CNMC
- Chambishi Copper Smelter provided paired-up assistance to Bushfire Children Village, donating food, clothes, sports and study articles, etc. on a regular basis, and holding Chinese language and music courses for children



Cope with emergency disasters

- A severe flood hit Zambia in the rainy season in 2019 and 2020. ZCCZ donated 3,000 bags of noodle worth ZK 200,000 to the disaster victims in Kasama region. It helped the Zambian government in the disaster relief after the flooding

Case

CNMC Somidez launched the "Community Charity Assistance Action"

In line with the "Eight Major Initiatives" announced at the 2018 Beijing Summit of the Forum on China-Africa Cooperation, CNMC Somidez carried out Community Charity Assistance Action in Congo (DRC) for five straight years, covering agriculture, infrastructure, education, medicine and health, energy and other aspects. It is committed to driving the economic and social development in surrounding communities and sharing the results of resource development with local people.



Representatives of many parties sign the assistance project agreement



Everett, the Liaison Officer of China Somidez, is delivering a speech

Contribute to a better life

CNMC never waivers in its efforts to become an excellent corporate citizen. We put people first, value common growth with employees, and strive to cultivate world-class talents in the resource and mineral industry. We fulfill our responsibility as central state-owned enterprise, and contribute to a victory in the battle against poverty.

05



Develop the company through talents and create a happy workplace

Talent is the cornerstone for the sustainable development of the enterprise. The company appreciates the value of talents, protects the rights and interests of employees in accordance with law, and forge a harmonious labor relationship, so that every employee enjoys happy and fulfilling work and life.

Protect the rights and interests of employees

Under the "people-oriented" philosophy, we are committed to creating a fair, transparent and harmonious workplace for employees.

Equal employment

- Abide by laws and regulations such as the Labor Law and Labor Contract Law, and sign labor contracts with employees on an equal and voluntary basis. Uphold equal employment without discrimination on the grounds of origin of country, ethnicity, nationality, gender, religious belief, cultural background, etc. There is no case of employment of child labor, forced labor, harassment or abuse, leakage of employee privacy, etc.

Remuneration and benefits

- Formulate the rules such as Administrative Measures for Remuneration, Administrative Measures for Gross Payroll, and Administrative Measures for Performance Assessment; improve remuneration management system, performance management system, etc.
- Establish the basic salary system based on post salary, and the dynamic remuneration incentive mechanism based on promotion and positions.
- Uphold equal pay and benefits for equal work, establish a sound corporate annuity system, and pay salary and "five social insurances, housing fund and corporate annuity"
- In addition to statutory holidays and festivals, employees enjoy paid leave such as paid annual leave, maternity leave, and wedding leave, as well as birthday gifts, health checkup, etc. overseas funded enterprises offer home leave, reimbursement for air tickets, overseas allowances, etc.

Democratic management

- Improve the organization of trade union, value communication with employees, and listen to employee demands in a timely manner. Regularly hold staff and worker representative congress, so that employees fully exercise their right to know, participate, express and supervise, and take the initiative to participate in corporate decision-making easily.

2,390

In 2020, employees were recruited

100 %

Employees signed labor contracts

27.4 %

female managers accounted for

3,348, accounting for **11 %**

By the end of 2020, the company had employees of minority or other ethnicities

5,375 employees

from 27 companies

Joined the corporation pension plan

8.73 days

Paid annual leave per employee was

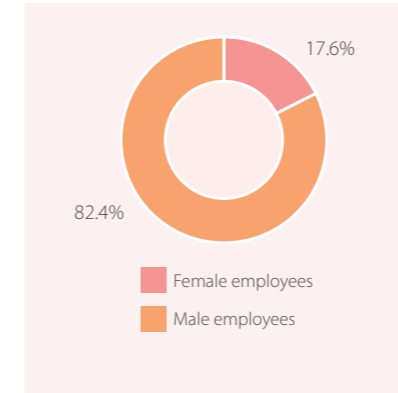
The Group reaches a new height in management and control

Technological innovation leads new development

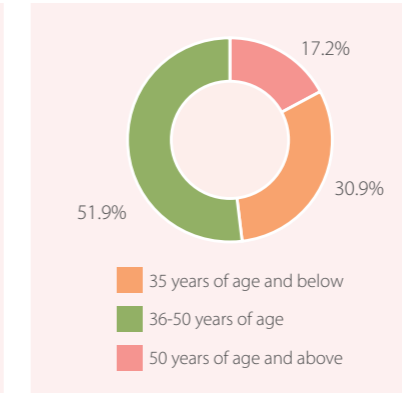
New achievements in low-carbon development

Pursue a new pattern in a win-win manner

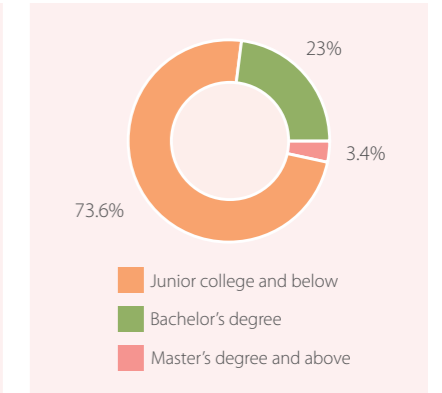
Contribute to a better life



Gender structure of employees in 2020



The age structure of employees in 2020



Education structure of employees in 2020

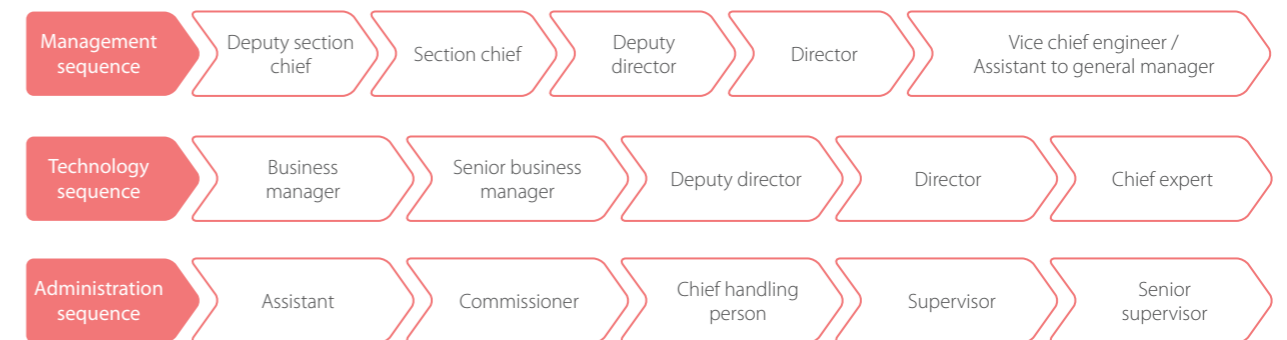
Promote career development

In 2020, the company formulated or revised 23 pieces of rules for human resource management, and put in place a human resource system covering education and training, selection and appointment, evaluation, salary incentives, and management and supervision. We formulated the *Management Measures for Education and Training*, implement a systematic employee training plan, and establish sound career advance channels to help employees realize their career dream.

We customize training courses for personnel in different positions and different disciplines, innovate training methods, conduct training evaluation, and help employees enhance their professional skills and all-round quality. The training is carried out in terms of rules, business, skills, etc. Training combines classroom teaching, video teaching, and online teaching. We establish a quality evaluation mechanism, conduct examinations or evaluation for trainees, and evaluate the trainers to make training more effective.

benefiting **4,500** trainees

In 2020, 45 headquarter classes were held to improve the quality and ability of officials,



CNMC's career promotion channel

Case Tighten the management of overseas employees

To better manage overseas employees, CNMC set up the Overseas Talent Division of the Human Resources Department, formulated the *Program for Communication Platform for Chinese Personnel of Overseas Affiliated Enterprises, Implementation Plan for Reserve Chinese Personnel of Overseas Affiliated Enterprises*, etc., and have a better understanding of the basic information on employees of overseas affiliated enterprises, latest developments, etc., thereby assisting overseas affiliated enterprises through more efficient human resource management.



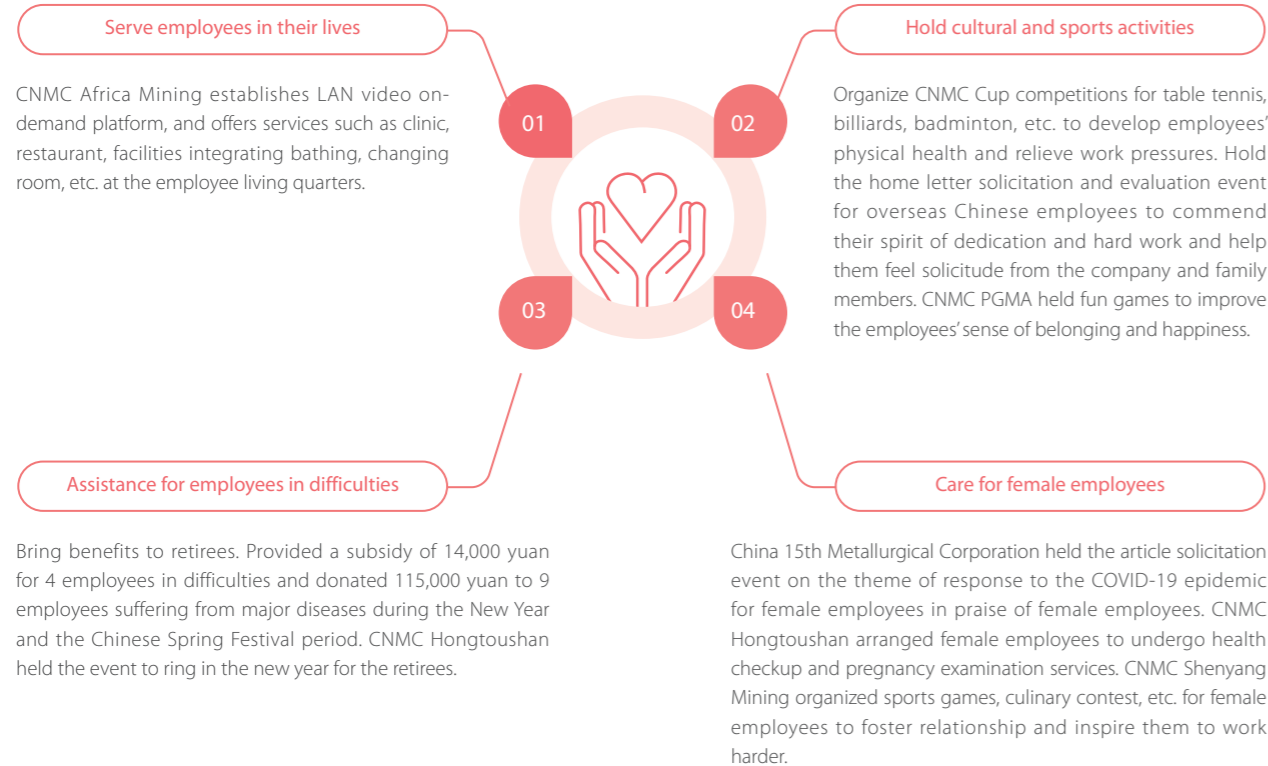
China 15th Metallurgical Corporation held a training session on financing and construction business



Skills training for team leaders organized by CNMC Shenyang Mining

Care for employees

Upholding the "people-oriented" concept, we care for the physical and mental health of employees, listen to their demands, organize rich activities for employees, help them address their worries, and create a good workplace for employees.



Basketball game for staff



China 15th Metallurgical Corporation holds an event to celebrate Mother's Day



Lualaba Copper Smelting Co., Ltd. holds a dumpling-making event during the Spring Festival



CNMC Orient organizes outward-bound development event for employees



CNMC Africa Mining launches planting activity on Women's Day



CNMC Shenyang Mining holds a theme activity for female employees

Fulfil mission and responsibility, and assist in poverty alleviation

CNMC steps up capital investment to promote the paired-up work in poverty-stricken counties through multiple channels at many levels, and has pulled off the task of poverty alleviation.

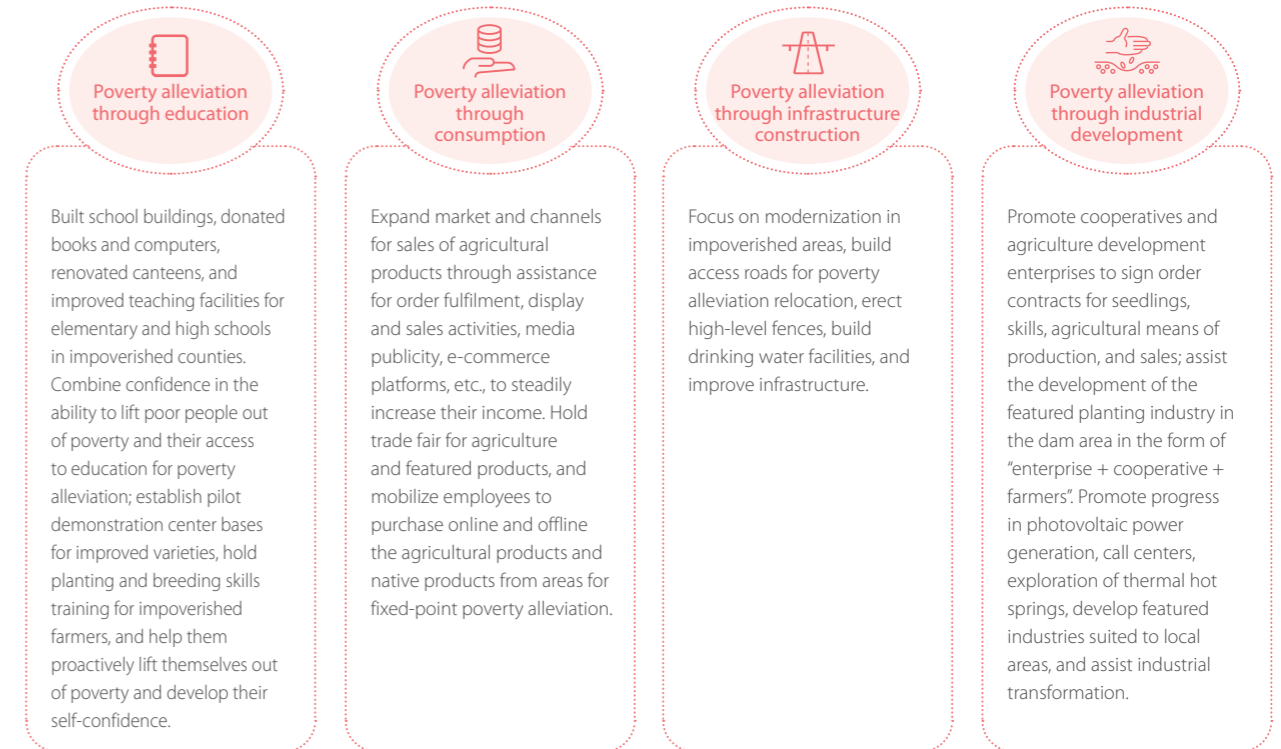
Improve the assistance mechanism

In 2020, the company improved the well-organized and coordinated working system to provide strong support for securing a victory in the fight against poverty.



Innovative assistance methods

In 2020, the company gave full play to its strengths in resources, talents, technology, capital, etc., and took multiple measures to ensure targeted poverty alleviation. It valued the effective articulation between poverty alleviation and rural vitalization, prevent people from falling back into poverty, and lay a foundation for advancing the rural vitalization strategy.



Case Build the teaching building at the Second Elementary School in Mangdong Town for students

CNMC donated 3.343 million yuan for the construction of a new comprehensive teaching building for the Second Elementary School in Mangdong Township, Lianghe County, Yunnan Province. The building can accommodate over 360 students, benefiting 1,783 relocated households, including 314 registered poverty-stricken households and 221 registered students. It offers a better study environment for more students.



Students attending classes at the newly built Second Elementary School in Mangdong Township



CNMC donated 500 schoolbags to the students of Second Elementary School in Mangdong Township, Lianghe County; Menglian Elementary School in Hexi Township; and Menglong Elementary School in Xiaochang Township

Case Bank-enterprise cooperation helps articulation between poverty alleviation and rural vitalization

In July 2020, CNMC signed a strategic cooperation agreement on poverty alleviation with China Construction Bank in five areas, namely, poverty alleviation through consumption, financial means, industrial development, education and science and technology. The two parties establishes online poverty alleviation halls, organize offline promotion meetings for poverty alleviation, provide "village bank" close to the populace, provide training on financial knowledge and e-commerce knowledge for poverty alleviation merchants and impoverished households, etc. These aim to promote standardized, large-scale and brand-based work for poverty alleviation, increase the value of products, develop markets and the industry, help them acquire knowledge and skills, and help impoverished households increase income while laying the groundwork for the overall vitalization of rural areas.

Case Carry out consumption-based poverty alleviation event on National Poverty Alleviation Day

To help impoverished people sell slow-selling agricultural and animal husbandry products and promote production and marketing, CNMC launched CNMC Poverty Alleviation Hall on Shanrong Business e-commerce platform in July 2020. The products available include high-quality agricultural and sideline products from impoverished areas such as camellia oil, red glutinous rice, and husked rice. Consumption experience vouchers worth 500,000 yuan were issued to employees. All parties were mobilized to participate in the "October 17" National Poverty Alleviation Day activities, so that consumption-based poverty alleviation campaign plays an important role in promoting stable poverty alleviation and sustainable development in impoverished areas.

Achieve remarkable results

In 2020, CNMC invested 7.2 million yuan in support funds, and introduced 2.0248 million yuan in support funds in Lianghe County, trained 504 officials at the primary level and 156 technical personnel, purchased agricultural products worth 967,200 yuan in poverty-stricken areas, and helped sell agricultural products worth 831,900 yuan in poverty-stricken areas. When the epidemic raged, the company organized overseas affiliated companies to purchase 30,000 medical masks in Zambia for donation to Lianghe County People's Hospital, and organized training for 156 rural medical staff. Part-time officials and the first secretary worked on the front line to safeguard the health and safety of the local people. In May 2020, poverty was officially eliminated in Lianghe County, and the overall poverty headcount ratio fell from 22.53% in 2014 to 1.09%.

Respond to the epidemic and help improve people's well-being

We fulfill our community responsibilities and organized and participated in community volunteer activities to help cope with the impact of emergencies such as the COVID-19 epidemic and the flood in Hubei for the benefit of the people.

In 2020, CNMC took multiple measures to maintain stability in employment and meet basic living needs. In line with the requirements of "stabilizing positions and creating jobs", we participated in the cloud publicity for the "National Recruitment Action" on the CCTV video platform, and scale up recruitment. Affiliated enterprises in Hubei introduced measures to ensure "no reduction in institutions, no redundancy, and no salary cut". Engineering enterprises hired more than 1,500 laborers from poverty-stricken areas. Enterprises at all levels cut rents worth 15 million yuan for 334 small, medium and micro enterprises and individual businesses. We signed cooperation agreement for "cleaner production of high-purity cathode copper" with Huangshi City, Hubei Province to help Hubei province realize high-quality development in the post-COVID-19 era.

We uphold the volunteering spirit of "dedication, friendship, mutual help, and progress", promote the volunteer culture, and encourage employees to engage in voluntary service activities to contribute to the development of community.



CNMC Orient provides voluntary maintenance service

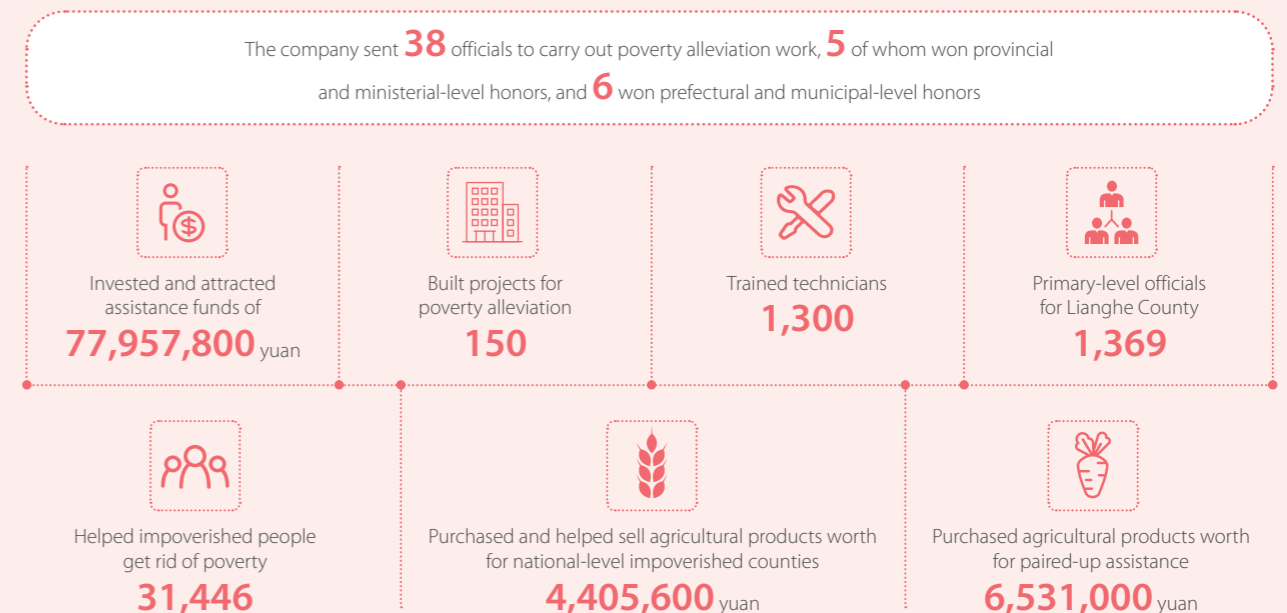


Volunteer service team of China Nonferrous Metals (Guilin) Geology and Mining Company

Case CNMC Daye provides full support in flood emergency rescue in Hubei

In July 2020, seepage, flooding, etc. occurred in many places of dykes and dams along the Kaotian River in Huangmei County, Huanggang City, Hubei Province due to multiple rounds of heavy rainfall. CNMC Daye cooperated with the Hubei Provincial Government in the drainage mission. CNMC Daye swung into action to set up flood prevention and rescue team who rushed flood relief equipment and materials at the first time. Their rescue efforts protected the life and property security of the local people.

2012-2020:



Feature: CNMC's achievements in poverty alleviation

CNMC began to provide paired-up assistance to Lianghe County, Dehong Prefecture, Yunnan Province in 2001. Its affiliated enterprises have undertaken paired-up assistance and partner assistance tasks arranged by local governments and competent authorities in Hubei, Inner Mongolia, Ningxia, Jiangxi, and Liaoning provinces and region.

Since 2012, it has provided assistance to a total of **30** impoverished counties, townships and villages

In 2017, it invested **30** million yuan in the Central Enterprise Industrial Poverty Alleviation Fund

From 2018 to 2020, the members of the company's leading group and officials at all levels made **69** visits to Lianghe County and local impoverished villages for investigations

Outlook

2021 is a critical year for continuous development. CNMC serves the national strategy, seizes opportunities in the new development stage, adopts the new vision of development, and pursues a new development pattern. It forges ahead on the new journey of high-quality development during the "14th Five-Year Plan" period, makes outstanding achievements and strives to become a world-class mining enterprise as soon as possible!

CNMC tightens corporate management and lays a solid foundation for development. Led by political progress, it focuses on inspection and rectifications. Based on the three institutional reforms, it deepens reforms in an all-round way. With financial management as the core, it tightens management in all respects. Guided by scientific and technological innovation, it creates new driving force for development. Better conduct is adopted to improve work efficiency and contribute to high-quality and sustainable development.

CNMC promotes coordinated advance and seek win-win outcomes. With a focus on the four parties of entrepreneurs, technological talents, skilled talents, it builds a loyal and responsible team of stellar talents. It leverages the company's strengths in a sound industrial chain and advanced technologies to enhance the synergy for collaborative innovation in the entire industrial chain, and facilitate the high-quality development of the non-ferrous metal industry. It makes unwavering efforts in consolidating progress in poverty alleviation and promoting rural vitalization, helps impoverished people from falling back into poverty, addresses weaknesses, and help modernize agriculture and rural areas, and help farmers get rich. It promotes the localized development, upholds "extensive consultation, joint contribution, and shared benefits", drives the economic and social development in the host countries of projects, promotes cultural exchanges and fusion, helps local communities improve people's well-being, and creates a development community, a community of responsibility and a community with a shared future featuring mutual trust and common prosperity.

Responsibility and honors

Responsibility and honors	Issued by
Tieling Flotation Reagents won the title of "Little Giant" Enterprise in 2020	Ministry of Industry and Information Technology
Xindu Mining was awarded the titles of Mongolia's national "Advanced Mine for Safety" and Sükhbaatar "Advanced Enterprise for Safety"	Mongolia
The Comprehensive Resource Utilization Project of China Nonferrous Metals (Guilin) Geology and Mining won the third prize at the 2019 Jiangxi Provincial Science and Technology Progress Award	Jiangxi Provincial People's Government
"The Exploration and Construction Project in the southeastern mining area of Chambishi Copper Mine in Zambia" won the 2020 China Construction Engineering (Overseas Project) "Luban Prize"	China Construction Industry Association
The case "Open Day for Families of Excellent Employees" by CNMC Africa Mining was selected as the "Excellent Case of Cross-cultural Fusion" for the global image of Chinese enterprises in 2020	Chinese Enterprise Global Image Summit 2020
The project of "Mining and Dressing Project in southeast mining area of Chambishi Copper Mine" won the First Prize at the 2020 "Excellent Engineering Design Achievement Award for Non-ferrous Metal Construction Industry (Ministerial Level)"	China National Association for Nonferrous Metals Industries Construction
CNMC Orient was named the 2018-2019 China Aerospace Supplier with Outstanding Contribution	China Aerospace Science and Technology Corporation
CNMC Zinc was named the Key Supplier for 2020-2021	Shougang Procurement Center

Responsibility performance

Indicators	2018	2019	2020
Operating income (100 million yuan)	1,113.65	1,315.20	1,361.64
Total profit (100 million yuan)	20.71	17.27	31.73
Total assets (100 million yuan)	1,206.20	1,212.28	1,094.12
Total taxes paid (100 million yuan)	30.28	46.66	41.1
Asset-liability ratio (%)	69.08	67.87	64.46
Output of non-ferrous metal products (10,000 metric tons)	169.96	170.36	185.66
Value of newly signed engineering project contracts (100 million yuan)	77.86	132.51	164.41
Number of organizations that have passed ISO 14001/ISO 24001 environmental management system certification	—	15	25
Total energy consumption (10,000 metric tons of standard coal)	145.27	78.28	74.64
Comprehensive energy consumption (10,000 metric tons of standard coal)	—	64.65	61.89
Comprehensive energy consumption per 10,000 yuan operating income (comparable price) (metric ton of standard coal per 10,000 yuan)	—	0.0032	0.0013
Greenhouse gas emissions (10,000 metric tons)	221	216	270
Greenhouse gas emission density (metric ton of carbon dioxide emission equivalent per 10,000 yuan operating income (comparable price))	4.36	0.36	0.36
Total wastewater discharge by 8 domestic production enterprises (10,000 metric tons)	—	—	1,400
Discharge of wastewater per 10,000 yuan operating income (metric ton per 10,000 yuan)	—	—	1.8642
Amount of hazardous waste generated (10,000 metric tons)	—	33.12	53.72
Disposal rate of hazardous waste (%)	—	85.93	99.52
Amount of harmless waste generated (10,000 metric tons)	—	14.11	2,299.18
Disposal rate of harmless waste (%)	—	85.38	98.13
Sulfur dioxide emissions (metric tons)	8,712.07	2,952.55	2,257.53
Nitrogen oxide emissions (metric tons)	1,222.88	961.55	658.87

Indicators	2018	2019	2020
COD emissions (metric tons)	485.55	412.71	423.81
Ammonia nitrogen emissions (metric tons)	53.11	31.94	37.23
Ratio of qualified products (%)	94.73	96.81	96.34
Yield of finished products (%)	78.7	96.3	—
Investment in work safety (100 million yuan)	2.43	2.92	4.05
Emergency drill	320	460	700
Participate in work safety training (10,000 people)	6	19.5	15.8
R&D expenditure (100 million yuan)	14.90	19.02	19.65
Newly authorized patents	242	187	221
Total number of suppliers	8,706	9,232	13,348
Proportion of foreign employees in employees of overseas companies (%)	—	—	75.44
Total number of employees	52,044	52,715	49,873
Staff turnover rate (%)	3	4	2.4
Ratio of labor contracts signed (%)	100	100	100
Social insurance coverage rate (%)	100	100	100
Paid annual leave per employee (days)	10	10	8.73
Per capita salary (yuan/year)	63,524	68,819	72,474
Staff training sessions	2,373	4,459	181
Total training time of employees (hours)	26,165	35,678	4,560
Employee training coverage rate (%) (employees at the company headquarters only)	83	90	100
Number of people lifted out of poverty alleviation (persons)	3,310	3,030	476
Assistance funds invested and attracted (10,000 yuan)	593.02	802	936.22
Total external donations (10,000 yuan)	2,370.01	2,111.41	3,276.39

Rating Report



Rating Report of "The 2020 Sustainability Report of China Nonferrous Metal Mining (Group) Co., Ltd."

Upon the request of China Nonferrous Metal Mining (Group) Co., Ltd. (hereinafter referred to as "CNMM"), the Chinese Expert Committee on CSR Report Rating invited experts to form a rating panel to rate *The 2020 Sustainability Report of China Nonferrous Metal Mining* (hereinafter referred to as "the Report").

I. Rating Criteria

Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises (CASS-CSR 4.0) by Chinese Academy of Social Sciences, and *Rating Standards on China's Corporate Social Responsibility Reports (2020)* by China Expert Committee on CSR Report Rating.

II. Rating Process

1. The Rating Panel reviews and confirms CSR Report Process Materials Confirmation and supporting documents submitted by the CSR Report Compiling Group;
2. The Rating Panel assesses the preparation process and contents of CSR Report, and drafts the Rating Report;
3. Vice Chairman of China Expert Committee on CSR Report Rating, the Leader and experts of the Rating Panel jointly review and sign the Rating Report.

III. Rating Results

Process (★★★★★)

The report, with a definite functional value proposition, is taken as an important tool for disclosure of social responsibility practices, and enhancement of communications among relevant parties. Substantive issues are identified based on domestic macro policies, domestic and international social responsibility standards, industry benchmarking analysis, corporate development strategies, and investigation of stakeholders, etc. China Daye Non-Ferrous Metals Mining Limited, one of CNMM's subsidiaries, is urged to release a corporate social responsibility report to strengthen the efforts of disclosing CSR information. The report is planned to be published on the CNMM's official website, and to be presented in electronic, printed and H5 versions in Chinese and English, with excellent performance in process.

Substantiality (★★★★★)

The Report systematically discloses the key industry issues such as product quality management, S&T innovation, occupational health management, safe production, research and application of environmental-friendly technologies and devices, conservation of energy and resources, reduction of "three wastes" emissions, control of dangerous chemicals, governance of the plant's surrounding environment, etc., with detailed and full description and excellent performance in substantiality.

Integrity (★★★★☆)

The main body of the Report discloses 87.81% of the core indicators of the industry from the perspectives of "the Group's management and control reached a new high", "S&T innovations led new development", "low-carbon development achieved new results", "multiple parties constructed a new pattern", "making new contributions to a good life", with a leading integrity.

Balance (★★★★☆)

The Report reveals negative data such as "staff turnover rate", "accident rate per million of working hours", "number of major production-related safety accidents", "annual major quality accidents", "annual key account complaints", "number of cumulative complaints by clients", and "major accidents and environmental pollution events", and details the causes and countermeasures for such complaints of Volkswagen and Skoda, with leading performance in balance.

Comparability (★★★★★)

The Report discloses the comparative data of 33 key indicators such as "total assets", "contract amount for newly signed projects", "total energy consumption", "greenhouse gas emissions", "safe production inputs" and "total donations" for three consecutive years, and horizontally compares "ranking the 18th among Top 50 Internationalization-oriented Chinese Enterprises" and "ranking the 62th among Top 500 Chinese Manufacturers" with excellent performance in comparability.



Readability (★★★★★)

The report adopts a themed framework, and elaborates on CNMM's responsibility performance progress from five dimensions of new height, new development, new achievements, new pattern, and new contributions, with a clear framework and highlighted topics. It also responds to the expectations and appeals of related parties. The cover adopts illustration styles, expands CNMM's identity, integrates various business elements, depicts the scenarios of a good life, and increases the recognition level of the report. The speeches of stakeholders are introduced to prove the performance results, thus enhancing the credibility of the report, with excellent performance in readability.

Innovativeness (★★★★★)

The report starts with two responsibility topics, namely, "DO well in resource development business and forging pillars of a great power" and "embarking on a new journey of a world-class mining enterprise". The report concentrates on CNMM's compliance with national macro policies and pursuit of building a world-class enterprise, demonstrates a central enterprise's sense of responsibility; proactively responds to the United Nations' SDGs, and highlights the updatedness of the report, with good performance in innovativeness.

Overall Rating (★★★★★)

The 2020 Sustainability Report of China Nonferrous Metal Mining (Group) Co., Ltd. was rated as five stars by the rating panel. It is an excellent corporate social responsibility (CSR) report.



The Sustainability Report of CNMM has won a rating of five stars for two consecutive years

IV. Improvement Suggestions

1. Increase the disclosure of the industry's core indicators, and further improve the report's integrity;
2. Increase detailed disclosure of deficiencies, and improve the balance of the report.

Vice President of Chinese Expert Committee on CSR Report Rating

Panel Leader

Panel Expert



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Date of Issue: 27 August 2021

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Feedback Table

Dear readers,

Thank you for reading this report. In order to help us make further improvement and meet your expectations in the next report, we hope you give feedback and suggestions in the areas described below.

Your identity:

Government and regulatory authorities Shareholder/investor Customer Employee Partner Scientific research institution or university
 Community resident Media Peer Social team Financial institution

Multiple-choice questions:

1. Are you satisfied with this report on the whole?

Yes No Ordinary

2. Is the information you are interested in shown in the report?

Yes No Ordinary

3. Do you think the report truthfully reflects CNMC's work on social responsibility and its impact on stakeholders?

Yes No Ordinary

4. Can you easily find the information of interest to you in the report?

Yes No Ordinary

5. Are you satisfied with the layout design of the report?

Yes No Ordinary

Open questions:

6. What do you think are the weaknesses of this report?

7. What information do you want to be published in this report on a regular basis?

8. Do you have any comments and suggestions for our work on social responsibility and its report?



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