



China Minmetals Corporation 2023 Sustainability Report

# 2023 Sustainability Report

China Minmetals Corporation



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You may also read the PDF version of the Report in Chinese and English as well as the dynamic information related to CSR activities of the Corporation under "Sustainability" on the homepage of the China Minmetals' official website.  
Official website: <http://www.minmetals.com.cn>

# About This Report

<b>Reporting Period</b>	This report covers the period from January 1 to December 31, 2023, and some parts may also involve significant years in the Corporation history.
<b>Reporting Cycle</b>	The Corporation publishes sustainability reports annually and this report is the 17th since 2007.
<b>Reporting Scope</b>	This report covers the information of the headquarters and subsidiaries of China Minmetals Corporation. Given the varied business attributes of subsidiaries, there will be slight differences in the boundary and scope of specific topics and explanations will be provided in corresponding paragraphs of this report.
<b>References</b>	For readability, China Minmetals Corporation is referred to as "China Minmetals", "the Corporation", "the Company" and "we".
<b>Preparation Basis</b>	The report is prepared in compliance with the requirements of <i>the Guideline on High Standards of Social Responsibility of Central Enterprises in the New Era</i> released by the State-owned Assets Supervision and Administration Commission of the State Council (SASAC of the State Council) in 2024, and in accordance with <i>the Sustainability Reporting Standards (2021)</i> issued by the Global Sustainability Standards Board (GSSB). It also refers to <i>the Guidance on Social Responsibility (ISO 26000:2010)</i> , And the State Administration for Market Regulation, <i>the Standardization Administration Chinese national standard GB/ T36000-2015 Guidance on Social Responsibility, the Ten Principles of the United Nations Global Compact</i> , and <i>Guidelines for Social Responsibility in Outbound Mining Investments</i> issued by China Chamber of Commerce of Metals, Minerals & Chemical Importers & Exports.
<b>Data Sources</b>	All data contained herein are from the Corporation's official documents, statistics reports and financial statements as well as its sustainability practice information collected by sustainability information management system of the Corporation and reviews by the functional divisions and subsidiaries.
<b>Report Availability</b>	This report is available in both Chinese and English. Please contact us for a hard copy. You may also find the PDF version of this report in both languages as well as the updates related to CSR activities of the Corporation under "Sustainability" on the homepage of China Minmetals' official website.  Address of the headquarters: Tower A, Minmetals Plaza, No.3 North Chaoyangmen Avenue, Dongcheng District, Beijing, China (100010) Tel: 0086-10-60169896 Fax: 0086-10-60169831 Email: xwc1@minmetals.com Website: <a href="http://www.minmetals.com.cn">http://www.minmetals.com.cn</a>

# Statement

The China Minmetals Sustainability Report 2023 is to disclose the Company's activities and performance in value creation, innovation, health and safety, environment protection, employee growth, partnership and social harmony. Stakeholders are the most important resource for the Corporation's sustainable development. We adhere to the principle of "cherishing stakeholders and endeavoring to create unlimited value for them", and strive to disclose to the stakeholders the information about our CSR practices and performance as much as possible in an accurate, truthful and objective manner. By doing so, we hope to achieve the most effective communication with our stakeholders on an equal, comprehensive and in-depth basis, so as to enhance mutual trust and cooperation for common progress.

A third-party assurance engagement on this report has been performed by TUV NORD (Hangzhou) Co., Ltd. The statement of assurance is attached hereto as an appendix.



# Table of Contents

## 4 Chairman's Statement

## 6 About Us

## 11 Sustainability Management

- 11 Background Analysis on Sustainable Development
- 12 Communication Platforms
- 13 Materiality Analysis
- 14 Stakeholder Engagement

## 16 Spotlight 1 BRI Cooperation Across Geographical Boundaries

- 16 Development for Common Prosperity
- 19 Connectivity for Sharing Among Stakeholders
- 22 Friendships with Stronger Bonds

## 24 Spotlight 2 Dedication to Rural Areas for Common Prosperity

- 24 Promoting Comprehensive Vitalization in a Landscape of Harmony and Beauty
- 25 Strengthening Leadership to Pool Together Assistance
- 25 Cementing Development Foundation in the Five Aspects of Rural Vitalization
- 30 Creating Assistance Benchmarks to Achieve Targeted Effects

## 1 Serving National Strategies by Strengthening Core Business

- 34 Metals and Minerals
- 37 Engineering Construction
- 42 Strategic Emerging Industries

## 2 Cementing Foundation through Robust Development

- 48 Driving Technological Innovation
- 52 Creating Values
- 54 Improving Governance
- 59 Integrating Industry and Finance

## 3 Fortifying the Foundations of Safety and Environmental Management

- 62 Enhancing Safety and Environmental Management
- 65 Ensuring Safe Operations
- 66 Addressing Climate Change
- 70 Mitigating Environmental Impact
- 72 Enhancing Ecological Conservation

## 4 Building a Dedicated and Entrepreneurial Team

- 78 Empowering the Corporation with Talents
- 81 Practicing Democratic Corporate Management
- 82 Protecting Legitimate Rights and Interests
- 83 Caring for Employees

## 5 Undertaking Responsibility for Inclusive Sharing

- 88 Improving People's Livelihood
- 92 Promoting Overseas Community Development
- 96 Building a Responsible Supply Chain

## 100 Appendix

- 100 Sustainability Performance
- 101 Outlook 2024
- 102 Assurance Statement
- 104 Content Index
- 106 Feedback Sheet



# Chairman's Statement



Party Group Secretary and Chairman

**Weng Zuliang**

Since the 20th CPC National Congress, Xi Jinping, General Secretary of the CPC Central Committee, has updated judgments on and requirements for developing state ownership and SOEs in the context of fully advancing the Chinese path to modernization. He emphasizes the need for SOEs to "enhance core functions and core competitiveness" and the importance for SOEs to fulfill their mission and responsibility assigned by the CPC Central Committee. Anchored in its direction and strategy, China Minmetals is fully aware of our mission in China's modernization. Our core function is to guarantee the supply and security of metal and mineral resources in China while our core competitiveness lies in the development of full chain across the metal and mining industry. We act as a sci-tech innovator, an industrial dominant player, a security pillar, and a strategic force to build China into a great modern socialist country in all respects. We are also a pacesetter leading the transformation of China's industrial system and a critical force to promote technological development.

The year 2023 marks the beginning of fully implementing the guiding principles set forth by the 20th CPC National Congress. Thoroughly informed of General Secretary Xi Jinping's important instructions, China Minmetals implemented the decisions and deployments of the CPC Central Committee and the State Council, prioritized high-quality development, and fulfilled our original mission of "serving and reinvigorating the country through mining." We practiced the "five core principles" and sped up efforts in "five action plans" and "China Minmetals with five characteristics", showing a good track record in high-quality development in the new era. In 2023, our annual revenue reached CNY 934.6 billion, total profit amounted to CNY 28 billion, and our total assets were worth CNY 1.13 trillion, ranking 65th on the Fortune Global 500 list. Giving full play to our role as a pillar and ballast in China's economy, we continued to contribute to China's high-quality development by maintaining stability while promoting progress.

**In 2023, we held high the political banner and reinforced our stance, which strengthened the foundation of high-quality development.** The Party group of China Minmetals maintained a clear political position, cemented political foundations, and conducted in-depth campaigns on learning and delivering Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era. In response to the "political examination" by CPC central inspectors, we pushed forward full and strict governance over the Party and the Company as well as central SOE development under the rule of law. We also practiced the "five core principles" and took multiple measures to ensure that Party building integrated and reinforced with business activities. These practical actions showed that we, as a central SOE, resolutely fulfilled the mission and responsibility assigned by the CPC Central

Committee. Our unadulterated loyalty to the Party supported our pursuit of building a world-class company and a modernized brand-new SOE.

**In 2023, we focused on our core business and forged ahead, consolidating the momentum of high-quality development.**

China Minmetals was ambitious in adjusting our business model and structure as well as improving quality and efficiency. Guided by the "one profit and five ratios" (total profit, as well as return on net assets, operating cash ratio, asset-liability ratio, R&D investment intensity, and labor productivity) indicator system, China Minmetals tackled challenges and addressed internal and external pressures, with our core business indicators outperforming the average of central SOEs. Focusing on our core business, we leveraged the advantages of our complete business ecosystem as a main metal resources supplier and a national team specialized in building and operating metallurgical projects. We completed the acquisition of the Botswana Khoemacau copper mine and achieved significant prospecting results in the Siah Diq, Las Bambas, and Shuikoushan mines at home and abroad. Chentaigou, Nihe, and Zhaopingfang iron ore mines were in full swing. Our 5600 mm thick plate "king of the rolling mill" broke the monopoly held by foreign companies, the 2000 cubic meters of low-carbon blast furnace was put into production, and the 6-million-ton green intelligent graphite mine was completed. We marched firmly toward high-quality development, becoming an important source of new drivers for economic development.

**In 2023, we deepened reform and sci-tech innovation, which strengthened the momentum of high-quality development.**

Aiming at value creation, China Minmetals deepened SOE reform, with our performance ranking among the top in assessments. Once again, we were rated A-level in the annual assessment of the business performance of the person in charge of central SOEs and the assessment of key tasks in China's SOE reform three-year action plan. Our subsidiaries were newly added to the lists of "double hundred enterprises", "science and reform enterprises", and "specialized and sophisticated SMEs". We piloted the establishment of state-owned capital investment companies and launched the treasury system and supply chain governance platform core functions, which served as important means for modernizing our governance system and governance capacity. Given the need to upgrade conventional industries and implement the central SOE "9 + 6" strategy, we undertook national major sci-tech tasks, accelerated efforts to build a cradle of original technology, and made breakthroughs in technological bottlenecks. The national sci-tech platforms we owned increased to 46, with 7,203 new patents and revenue of CNY 61.4 billion generated from technology commercialization. Driven by reform and technology, we fostered new momentum and strength for high-quality development.

**In 2023, we fulfilled our responsibilities and prevailed over difficulties, which enhanced the foundation for high-quality development.**

Putting people and life first, China Minmetals contributed to philanthropic activities such as disaster relief, rural vitalization, and donations, upholding the social responsibility of a central SOE with a quiet yet resolute approach, as subtly effective as the nurturing rain. In a seemingly impossible mission, we made it possible to repair the Zhuozhou Sewage Treatment Plant within ten days, which would have been finished in four to six months. We urgently donated money and supplies worth CNY 18 million to support earthquake relief efforts in Gansu and Qinghai Provinces, extending our hands to those in need at a critical moment. We earmarked CNY 56 million of unrecoverable assistance funds and CNY 140 million of recoverable assistance funds to consolidate and expand the achievements of poverty alleviation and advance rural vitalization on all fronts. We addressed the risks of overseas mines by taking proactive risk prevention and resolution measures. We restored the ecology at Yaogangxian and adopted harmless treatment of beryllium slag. External problems were resolved swiftly and efficiently, showing our strong commitment to fulfilling the social responsibility of a central SOE.

Into uncharted territory, we will conquer new heights and lead the trend of our times. The year 2024 will mark the 75th anniversary of the People's Republic of China and be a key year for realizing the goals and tasks of the 14th Five-Year Plan (2021-2025). Guided by Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, we will implement the guiding principles of the 20th CPC National Congress and the Central Economic Work Conference and follow the arrangements and requirements of the SASAC of the State Council to promote high-quality development. We will strengthen our main responsibility and business, optimize value creation, and deepen SOE reform to build a world-class enterprise with global competitiveness in the metal and mining industry. Opening a new chapter in the development of China Minmetals in the context of the Chinese path to modernization, we will contribute greater strengths to achieving a strong nation and national rejuvenation.

# About Us

## Company Profile

Established in 1950, China Minmetals Corporation (China Minmetals), an important state-owned enterprise with metals and minerals as its core business, is directly subordinated to China's central government and a pilot state-owned capital investment company, and headquartered in Beijing.

China Minmetals has undergone three major stages over the past seven decades of development. Since its founding to the reform and opening-up (1978), China Minmetals, as a professional trading company, was the main trader for importing and exporting metals, minerals, hardware, and building materials in the PRC. After the reform and opening-up, China Minmetals explored a diversified and industrialized development path in the market economy, and was among the first Chinese companies to "go global". Upon entering the 21st century, China Minmetals embarked on a strategic transformation through restructuring and merger and acquisition in the metal and mining industry. In 2015, China Minmetals carried out strategic restructuring with MCC Group, a Fortune Global 500 company, becoming one of the first companies in the world to unblock the whole industrial chain covering resource acquisition, prospecting and exploration, design and construction, mining and mineral processing, smelting

and processing, and trade and logistics, with better performance in business scale, business type, and risk resistance.

Committed to our strategic vision of building a world-class enterprise with global competitiveness in the metal and mining industry, China Minmetals strives to become a principal force to ensure the security of supply and a national team specialized in building and operating metallurgical projects with the original aspiration and founding mission of "serving and reinvigorating the country through mining".

Stepping into the new era, following the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, all employees of China Minmetals will abide by world-class standards, adhere to the leading role of independent innovation, take a problem-oriented approach, and strive for the quality of excellence in the spirit of never giving up. Leveraging our role as a state-owned capital investment company in the metal and mining industry, we will make unremitting efforts to build a world-class enterprise with global competitiveness in the metal and mining industry.



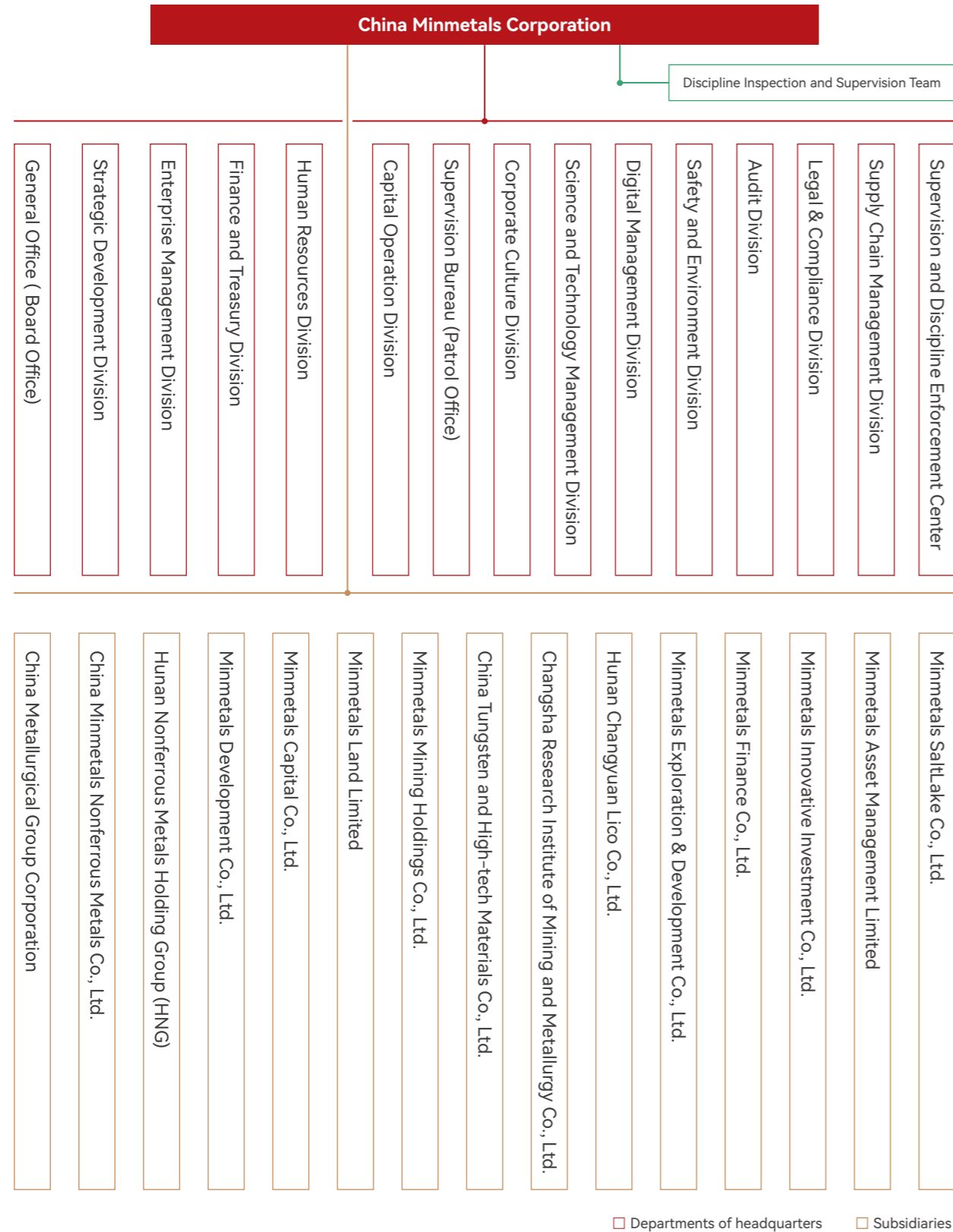
### In 2023



### China Minmetals owns eight listed companies

Publicly listed on the Shanghai Stock Exchange and Hong Kong Stock Exchange	MCC (601618.SH, 1618.HK)
Publicly listed on the Shanghai Stock Exchange and Shenzhen Stock Exchange	Minmetals Development (600058.SH) Minmetals Capital (600390.SH) China Tungsten Hightech (000657.SZ) Changyuan Lico (688779.SH) Zhuzhou Smelter Group (600961.SH)
Publicly listed on the Hong Kong Stock Exchange	MMG (1208.HK) Minmetals Land (0230.HK)

## Organizational Structure



## Party Building

Party leadership and building the role of the Party are "the root and soul" for SOEs and lend strong support to our efforts in building a world-class enterprise. China Minmetals upholds and strengthens the overall leadership of the Communist Party of China over SOEs, implements the requirements of decisions and plans made by Party Central Committee, and adheres to the guidance of Party building. We timely convey General Secretary Xi Jinping's important instructions, hold mobilization and planning meetings and joint sessions of theoretical study center groups, formulate science-based implementation plans, and establish a "1+N" research and implementation system. In the Education Campaign, we study, research, work, and summarize our know-how, which is reflected in our practical actions to serve and reinvigorate the country through mining.

### Promoting company-wide Education Campaign

Following the general requirement to "study Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, strengthen Party consciousness, prioritize practical efforts, and achieve substantive results", we focus on the main theme and common thread and emphasize the importance of studying to cultivate inner strength, gain wisdom, improve Party conduct and motivate actions. We align the fundamental task of theory learning with the fundamental purpose of investigation and research, and the purpose of rectification-oriented inspections with that of promoting development. This deepens Education Campaign, encourages Party members and cadres to consciously, actively and creatively apply the Party's new theory in their actions, and gives us more inspiration about how to enhance the Company's core competitiveness and core functions.

The Company has issued an implementation plan for Education Campaign, which is oriented by studying and implementing General Secretary Xi Jinping's important speeches and instructions on Education Campaign. In particular, we focus on theory learning, investigation and research, development promotion, and rectification-oriented inspection and other key measures. We emphasize the study and promotion experience of "Pujiang experience" and "Green Rural Revival Program", and learn to enhance our work through direct engagement with people at the primary level, including spreading the Party's guidelines, principles, and policies to them, conducting on-site investigations and research, addressing public complaints at their doorsteps and fulfilling our duty on the ground. Centering around the "Party lesson", "work on the ground", "role models around us", "delivering practical services to the people", and "reinvigorating the country through mining", the Company gives targeted guidance within China Minmetals and continues to deepen Education Campaign.



Weng Zuliang gives a Party lesson on Education Campaign for Party members, cadres, and employees in China Minmetals

▶ Carrying out rotating training for an in-depth understanding of the guiding principles of the 20th National Congress of the CPC

China Minmetals carries out in-depth rotating training on Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era and the guiding principles of the 20th CPC National Congress. We hold demonstration training session at the group level, and subsidiaries at all levels advance training according to the power of cadre administration, forming an enabling atmosphere in which cadres take the lead, the majority of Party members follow up, and all Party members and cadres study together and exchange ideas.



The opening ceremony of the demonstration training session on the guiding principles of the 20th CPC National Congress

## Corporate Culture and Brand Building

**Action guide, value orientation, corporate spirit**

Adhering to the cause of becoming a world-class company, the leading role of independent Innovation, the problem-oriented work approach, the quality of excellence, the spirit of never giving up

**Strategic vision**

A world-class enterprise with global competitiveness in the metal and mining industry

**Original aspiration and founding mission**

To become a main force to ensure the security of resources and a national team to upgrade the metallurgical industry with the original mission of "serving and reinvigorating the country through mining"

# Sustainability Management

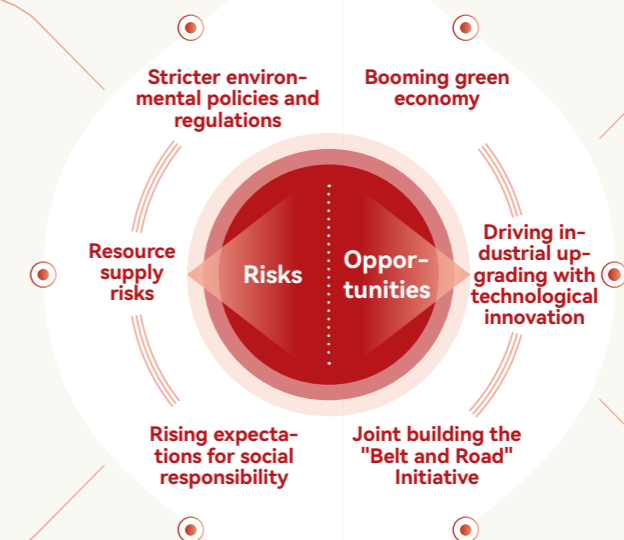
## Background Analysis on Sustainable Development

Sustainable development is the inevitable result of social productivity growth and technological advancement. In the context of global sustainable development, we face severe risks and challenges as well as unprecedented opportunities.

With the growing global awareness of environmental protection, environmental policies and regulations are becoming increasingly stringent and emission standards are being raised, requiring companies to strictly adhere to environmental management standards across all phases of extraction and production to ensure operational compliance.

The strong global demand for green, low-carbon, and circular economies provides significant momentum for China Minmetals' transformation and upgrading. The Company should increase investment, promote the construction of green mines and factories and attach importance to environmental technology innovation, leading the industry in green development.

Resource security is a ballast of the overall national security. Strategic mineral resources are crucial for the development of emerging strategic industries, with implications for both economic and national defense security. The increased uncertainty and volatility in the global resource market could lead to supply disruptions or significant cost rising. Therefore, it is essential to conduct in-depth analysis on the global resource market and establish early warning mechanisms to ensure the stability and reliability of resource supplies.



Rapid technological advancements offer unprecedented opportunities for resource-based enterprises. The Company should continuously improve its technological research and development layout and promote deep integration of industry, academia, research, and application, fully unleashing innovative vitality.

As public expectations for central SOEs to fulfill social responsibilities grow, the Company needs to continuously strengthen communication with stakeholders, respond to their concerns, and actively improve corporate social responsibility performance.

The "Belt and Road" Initiative has gained support from most countries worldwide, making deepening international cooperation a key strategic direction for enterprise development. China Minmetals should actively expand partnerships both domestically and internationally, and establish solid strategic cooperation with local governments, international organizations, and enterprises, jointly advancing the global sustainable development agenda and enhancing international competitiveness.

## Communication Platforms

China Minmetals engages with stakeholders through diverse channels, including sustainability reports, the official website, WeChat official account, and mass media. The Company's headquarters has released 17 sustainability reports. By compiling annual sustainability reports, we summarize the social responsibility practices and achievements in a systematic way. Furthermore, qualified subsidiaries are encouraged to publish their independent reports, overseas responsibility reports, and special reports on major projects, forming a three-dimensional sustainability reporting model of the Company, subsidiaries, and project-oriented reports.



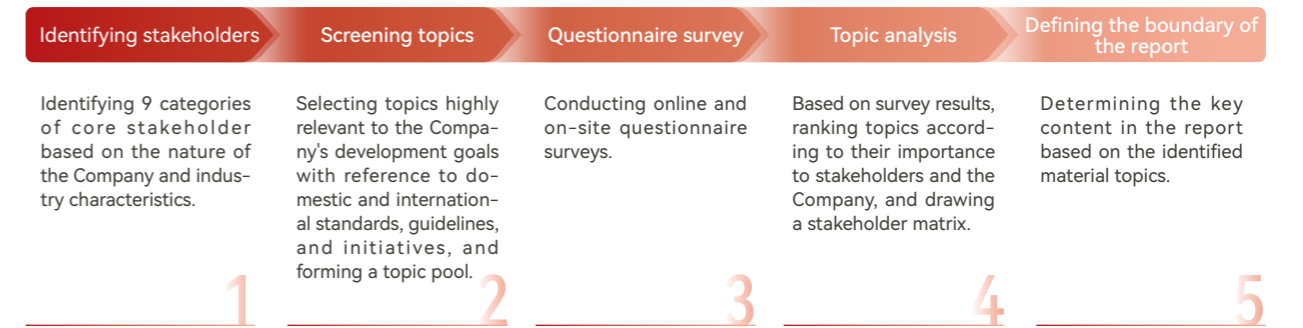
In December 2023, the *China Minmetals 2022 Sustainability Report* stood out from 2,407 reports and won the **"GoldenBee Excellent CSR Report Evergreen Award with Three Stars"**.



## Materiality Analysis

During the reporting period, according to the Global Sustainability Standards Board's *GRI Standards 2021* recommendations on double materiality analysis for important topics, we establish a priority determination process for material topics. After identifying sustainability issues highly relevant to our industry, we determine the scope of topics and the degree of disclosure to ensure more accurate and comprehensive information disclosure.

### Material Topics Identification Process

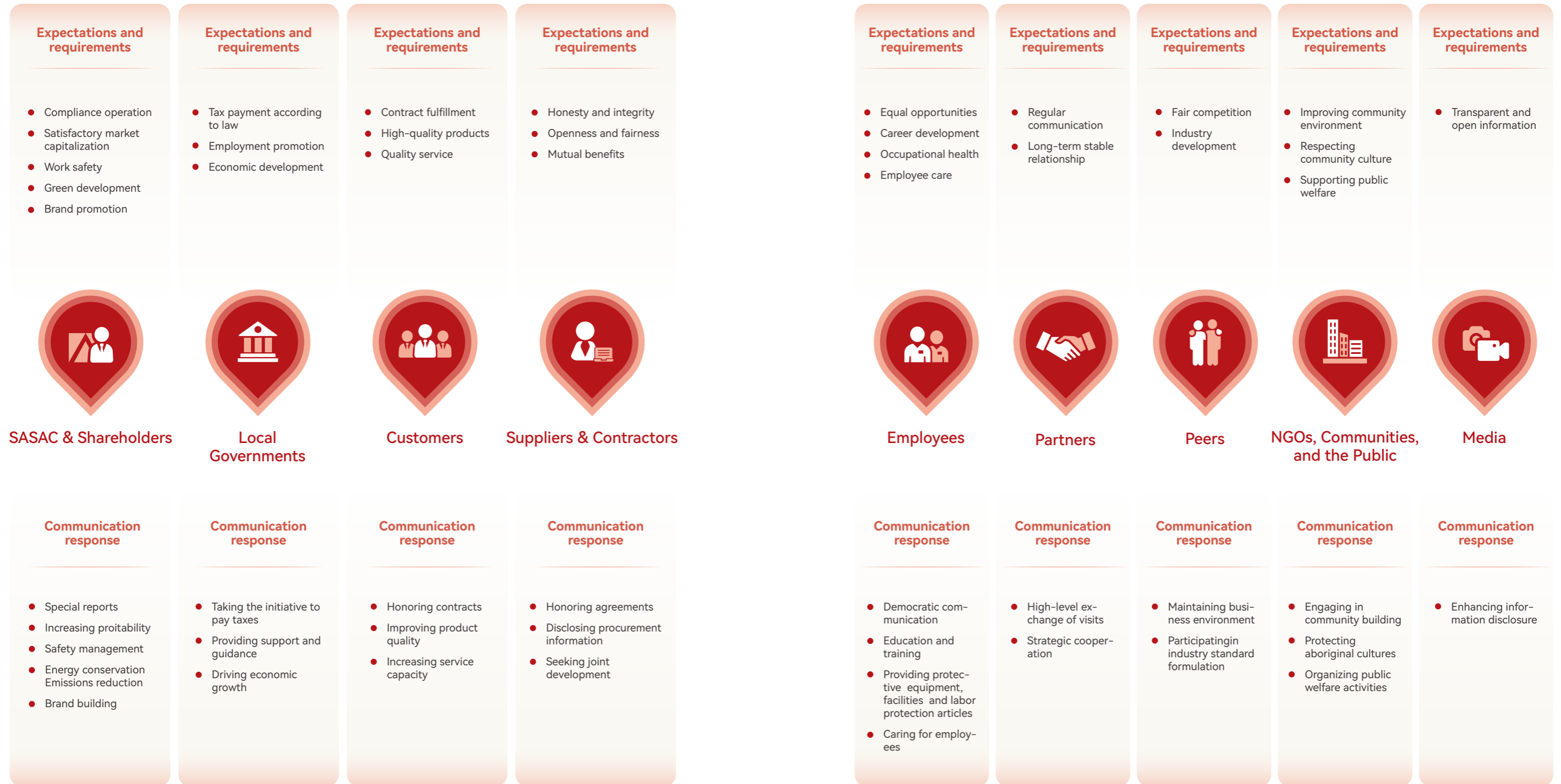


### Materiality Matrix

Great	● Quality and safety of products	● Ensuring resource security	
	● Deepening international cooperation and exchanges	● Developing new quality productive forces	
Importance to stakeholders	● Intellectual property protection	● Technology innovation	
	● Ecological environment protection	● Digital transformation	
	● Clean energy development and utilization	● Responsible supply chains	
	● Biodiversity conservation	● Promoting low-carbon transition in the industry	
	● Addressing climate change	● Occupational health and safety	
	● Tailings ponds management	● Corporate governance	
	● Rights of indigenous people/Community relations management	● Compliance and risk management	
	● Rural vitalization	● Protection of employee rights and interests	
	● Consumer rights and privacy protection	● Employee training and development	
	● Anti-unfair competition	● Community engagement and development	
Minor	Importance to the Corporation		Great

## Stakeholder Engagement

We prioritize communication and engagement with stakeholders. By analyzing their expectations and requirements, we develop targeted communication strategies to effectively address their needs. This approach ensures we meet stakeholders' demands and enhances two-way communication, fostering sustainable and high-quality corporate development.



Spotlight 1

# BRI Cooperation Across Geographical Boundaries

The year 2023 marks the tenth anniversary of the Belt and Road Initiative (BRI). The ultimate goal of this initiative is to explore new ways for countries from near and far to achieve common development and to open up a "path of happiness" that benefits the whole world. Over the last decade, following the principle of "extensive consultation, joint contribution, and shared benefits", we have tapped into our strong capabilities in resource exploration, development, and operation, expertise in metallurgical technology, design, and construction, and a worldwide trade and logistics network. We have deepened practical cooperation with partner countries in infrastructure, trade connectivity, and people-to-people connectivity, contributing to prosperity and development of BRI and a community with a shared future for mankind.



## Development for Common Prosperity

"Development is the master key to all problems." Development carries people's aspirations for a better life, serves as the top priority of developing countries and a timeless theme for humanity. Adhering to the development concept of "cooperation, mutual benefits and win-win outcomes", China Minmetals regards mineral resource collaborative development and iron and steel metallurgical engineering construction as an important driver for BRI cooperation, which supports the economic and social development of partner countries and improves people's well-being.

### Metals and mining supports mutual benefits and win-win outcomes

Mineral resource collaborative development is an important part of BRI. Tapping into our expertise in exploration, design, construction, operation, distribution, and deep processing, China Minmetals introduces more Chinese solutions, technologies, and wisdom to partner countries, jointly turning resource endowments into economic benefits. It also effectively promotes the economic prosperity, industrial upgrading, and sustainable development of BRI countries.

#### Las Bambas Copper Mine in Peru

Located in the Apurímac region in southern Peru, Las Bambas Copper Mine is a world-class huge copper mine featuring large-scale resources and production, high concentrate quality, low costs, substantial reserves, and long service life. Since it started production in July 2016, it has maintained stable operations, with key indicators such as ore processing capacity and recovery rates continuously improving. By the end of 2023, the copper mine had produced copper concentrates containing 2.7097 million tons of copper, making it a flagship project of China-Peru production capacity cooperation under BRI. The success of the project has created about 75,000 local jobs and stimulated the local economy, allowing the GDP growth of the Apurímac region to outpace that of the capital city of Lima.



#### Ramu nickel-cobalt laterite in Papua New Guinea

Located in Madang Province, Ramu nickel-cobalt laterite is one of the largest nickel and cobalt mining projects invested by Chinese enterprises outside China and one of the first nickel and cobalt laterites adopting high-pressure acid leaching in the world to be successfully put into operation. The project is among the first to realize a complete process of nickel and cobalt hydrometallurgy and to reach production targets, standards, and profitability goals. The nickel and cobalt products are one of the main raw materials for new energy batteries. The success of the project strongly supports PNG's economic development and international poverty alleviation, trains excellent professionals for a better hydrometallurgy industry, and offers technical practices and pathways.



#### Saindak Copper-Gold Mine in Pakistan

Located in the Chagai District of Balochistan in northwestern Pakistan, the Saindak Copper-Gold Mine boasts 413 million tons of ore reserves. In 2022, MCCT renewed the contract for another 15 years and commenced the landmark project of expanding the size of the 2.75-million-ton beneficiation plant, which laid a solid foundation for the fourth lease. The 22nd furnace ignition ceremony was held on April 25th, 2023, which marked a new chapter of steady and high production at the Saindak Copper-Gold Mine. The project is of great significance in accelerating resource exploration and development around Saindak and promoting the development of the mining industry. It will also play a greater role in improving the economy and people's well-being.





**Metallurgical engineering supports prosperity**

Iron and steel metallurgy is where China excels and where more international production capacity cooperation is required. Tapping into our technology expertise developed over the last 70 years in the whole industry of iron and steel metallurgy, China Minmetals aims to achieve high-end, intelligent, and green development and provides high-quality and efficient solutions for customers in BRI countries and regions, facilitating local players to achieve greener production. We also expand international production capacity cooperation and share the economic and social benefits it brings.

**▶ Vietnam Hoa Phat Dung Quat Steel Plant project**

Vietnam Hoa Phat Dung Quat Steel Plant is a huge modernized green steel base built by MCC Group and Hoa Phat Group, a top steel producer in Vietnam. It is also a benchmark for BRI countries to adopt Chinese standards, manufacturing, and services. Based on a world-class master plan and design scheme, the project integrates the design of a 10-million-ton steel system and the export of full industrial chain. Thus, it stimulates the export of Chinese technology, standards, and equipment and covers high, medium, and low-end steel products. It is regarded as a milestone in promoting the development of Vietnam's middle- to high-end manufacturing and construction and the rise of Vietnam's steel industry.



**▶ Eastern Steel Sdn Bhd (ESSB) 2.7-million-ton integrated steel plant project**

The 2.7-million-ton integrated steel plant project of ESSB is constructed by MCC Group, which has turned an outdated steel plant with a capacity of 700,000 tons into a modern first-class steel plant with a capacity of 2.7 million tons in a limited land. It is expected to produce a greater amount of steel more efficiently. In a compact layout, the exquisitely constructed plant fully utilizes old facilities and adopts cutting-edge technologies. The success of the project facilitates the transformation of the local steel industry, meets the needs for steel from the construction, home appliance, and automobile industries, and removes obstacles across the steel industry.



**▶ Dexin Steel Indonesia Plant project**

Dexin Steel Indonesia Plant owns the largest production scale and state-of-the-art technology in the country. When designing and building the plant, the project team of MCC Group creatively puts different processes of the whole steel plant at different altitudes, forming a staircase-shaped structure descending from 90 meters to 40 meters in five levels of varying gaps. A compact layout shortens the distance within the plant. At the same time, materials are transferred with the help of gravity to reduce lifting and operation costs. After the project is completed, it is expected to offer more than 5,000 local jobs and provide tens of thousands of jobs for the local upstream, midstream, and downstream industries.



**Connectivity for Sharing Among Stakeholders**

With the goal of "high-standard, sustainable and people-centered growth", China Minmetals addresses challenges that emerge in overseas operations and demonstrates superior craftsmanship in high-quality infrastructure projects that make regional public transportation more convenient. This improves the quality of people's lives and work and provides not just a road to prosperity but also hope for humanity.

**Infrastructure supports connectivity**

Infrastructure connectivity is a BRI priority. Giving full play to the coordination of the whole industry chain, we expand and improve our infrastructure business, making infrastructure connectivity an important direction for BRI cooperation. We serve the construction of highways, airports, and other transportation projects in BRI countries to improve the infrastructure along BRI, which will help BRI countries lay a stronger foundation for development, create more growth opportunities, and share the fruits of development.

**▶ Three expressway projects in Sri Lanka**

The three expressway projects in Sri Lanka constructed by MCC Group are important in the 21st Century Maritime Silk Road jointly pursued by China and Sri Lanka. The Colombo-Katunayake Expressway (CKE), which is known as the "first-ever highway" of Sri Lanka, connects the capital Colombo and Bandaranaike International Airport, serving as the bridgehead project of the 21st Century Maritime Silk Road. The Outer Circular Highway (OCH), which connects the CKE, the Southern Expressway, and the Central Expressway as a road hub, has become the main road of local traffic. The completion of the Central Expressway Project (CEP) connects the capital economic circle and the southern and central regions, shaping a prototype of the national expressway transportation network. It is affectionately referred to as the "Road to Future Prosperity" by locals.



### ► Techo Takhmao International Airport in Cambodia

Techo Takhmao International Airport in Cambodia, constructed by Shanghai Baoye Group, the ninth largest airport in the world and one of the biggest airports in Southeast Asia, is a Class 4F airport, the highest class. It is one of the key projects of Sino-Cambodian production capacity cooperation and a concrete example of both governments aligning China's BRI with Cambodia's Rectangular Strategy. The project adopts the international ICAO and US FAA standards, develops concrete materials highly resistant to pressure and impact, and precisely controls the timing of runway grooving. The airport is expected to boost Cambodia's economy, its international tourism and cultural exchanges, and its people's well-being.



### ► Highlands Highway project in Papua New Guinea

Papua New Guinea Highlands Highway, constructed by China 19th Metallurgical Corporation, is one of the longest highway projects executed by a Chinese enterprise in PNG. The first phase of the project, with a total length of 430 kilometers, started on February 1, 2019, and the project was completed as scheduled before being opened to traffic. The second phase of the project is underway. The project team adopts high friction piles that are driven into a humus layer more than 40 meters deep to ensure the safety, stability, and longevity of the project. After the highway is put into use, it will greatly facilitate the sales of Juncao and upland rice, which is of great significance in driving the development of agriculture and mineral resources and improving the national road network of PNG.



### Livelihood projects improve well-being

Livelihood projects are an important way to rapidly enhance people's sense of fulfillment in BRI countries. China Minmetals has built many projects that improve people's well-being and greatly improve their quality of life in partner countries, showing concrete achievements while bringing people's hearts together.

### ► Cambodia Prince Happiness Plaza project

Cambodia Prince Happiness Plaza, constructed by Shanghai Baoye Group, is a super 5A-level office building in Cambodia, which is located in the important administrative and commercial center of Phnom Penh, the capital city. The project is a super high-rise commercial and residential complex, including garages, a shopping mall, a swimming pool, elevated gardens, aprons, etc. It is devoted to becoming the main place for a trendy life in Phnom Penh CBD. The project witnesses China's speed of completing one floor in five days through advanced technology, which reduces costs and the time needed. After it is completed, there will be first-class offices and leisure, entertainment venues, and more job opportunities.



### ► Kuwait College Town project

Sabah Al-Salem Kuwait University City is one of the largest university cities in the world. In this project, China MCC17 Group has constructed the Petroleum College and the College of Science, which can accommodate over 10,000 students and faculty members. Laboratories of the university city are among the best in the Middle East region. The university city was put into use in September 2019. When building the College of Science, China MCC17 Group adopted the technology of "structural separation, integral waterproofing, reinforced blocks", addressing the difficulties in large-area concrete pouring under high temperatures. It also secured a breakthrough in high-standard construction technology for huge independent and complex projects in a desert climate. For the first time in six decades, Kuwait realized its dream of building a college town, which became the cradle of educating professional talent in the country.



### ► Vietnam Hanoi waste-to-power plant project

The Vietnam Hanoi waste-to-power plant project, constructed by China First Metallurgical Group Co., Ltd., is one of the largest waste-to-power plants in Asia given its scale, with a daily treatment capacity of 4,000 tons of municipal waste, or more than 50% of the total domestic waste in Hanoi. The construction of the garbage storage tank realizes single-shot concrete pouring of an extra-long and huge area equivalent to the size of two standard soccer fields. It effectively improves the overall garbage storage and treatment volume. In addition, concrete strength and seepage resistance are improved to avoid contamination of soil and water due to leachate. Having been put into operation in April 2023, the project helps address the local problem of excessive garbage, contributes to the green and sustainable development of Vietnam's capital city, and improves its energy mix.



## Friendships with Stronger Bonds

Committed to win-win cooperation, China Minmetals has deepened economic ties and trade with BRI countries and regions, realizing cooperation between internal and external industrial players and regional coordinated development. In addition to trade, we also understand and respect the social systems, religious beliefs, and customs of BRI countries, while spreading Chinese culture. Such actions play a positive role in consolidating China's multilateral diplomatic relations and shaping China's image as a responsible major country.

### Economic cooperation and trade sustain a shared journey

Unimpeded trade is an important engine that drives the economic growth of BRI countries. China Minmetals has helped set up the China-Chile Entrepreneurs Committee, promoted the construction of the China-Europe freight train (Xi'an) consolidation center, and deepened international trade and logistics cooperation. Our efforts stimulate the exchange and allocation of resources in the domestic and international markets and bring tangible benefits to the people of all countries.

#### ▶ Chairing the China-Chile Entrepreneurs Committee

As the initiator and chairman of the China-Chile Entrepreneurs Committee, China Minmetals has invigorated bilateral economic and trade relations and gradually positioned the Committee as a bridge for friendly exchanges among enterprises of both countries. Over the past decade, guided by important talks between leaders of China and Chile, the China-Chile Entrepreneurs Committee has contributed to the joint efforts of China and Chile to tackle the pandemic and organized the mutual donation of medical supplies. The Committee has also cooperated with the Chilean Embassy in China and other institutions in holding four China-Chile Entrepreneurs Committee Online Round Tables, and participated in more than ten seminars and exchanges such as "Chile Week". Trade in conventional areas such as minerals and agricultural products is consolidated while new endeavors to develop trade in services such as IT and e-commerce are intensified. With an emphasis on infrastructure, telecommunications, and finance, the Committee champions international production capacity cooperation and promotes the growth of two-way investment. Meanwhile, in the new era, enterprises in both countries are also sharing know-how and resources in new energy, artificial intelligence, big data, cloud computing, smart cities, and other emerging fields in pursuit of SDGs, helping both nations strengthen strategic alignment and high-quality BRI cooperation.

#### ▶ Supporting the development of the China-Europe freight train (Xi'an) consolidation center

Longteng Yunchuang Minmetals Logistics (Xi'an) Co., Ltd. has built a comprehensive modern intelligent logistics park in the railway logistics base of Xi'an International Port. Longteng Yunchuang (Xi'an) leverages its strengths in information, intelligence, network, and global operations of metal commodities to provide integrated supply chain services such as warehousing, consolidation, and distribution of commodities in Central Asia and the Central Europe region to Chang'an China-Europe freight train. In November 2022, Longteng Yunchuang (Xi'an) shipped its cargo using the China-Europe freight train service for the first time. In 2023, Longteng Yunchuang (Xi'an)'s cargo throughput reached 4.58 million tons, with contracts signed with more than 390 customers.



#### ▶ Invigorating global trade

Over the past decade, Minmetals Overseas Trade Co., Ltd. has strengthened its ferrous metal import and export business with more than 20 BRI countries such as Malaysia, the Philippines, Thailand, Vietnam, Singapore, Pakistan, Poland, and Egypt, dealing with products such as steel, chromite, manganese, iron ore, nickel, and coal at a turnover exceeding the CNY 100 billion. The trade of ferrous metal optimizes resource allocation and promotes the integrated development of the industry and the supply chain, injecting more energy and vitality into an open global economy.



### Cultural exchanges strengthen people-to-people ties

Trade is generated and sustained by cultural exchanges. As our global business is expanding, China Minmetals also attaches great importance to cultural exchanges with partners, fulfills social responsibility, and strengthens communication and mutual trust with locals.

China Minmetals and KGHM in Poland jointly sponsor the reconstruction project of "China Avenue" and the construction of a Chinese-styled garden, which are highly recognized by the leaders of the two countries. In Peru, Papua New Guinea, Pakistan, and the Democratic Republic of Congo, China Minmetals has carried out a variety of charitable projects including helping villagers build community facilities and establishing clinics to facilitate medical treatment for nearby villagers. Such philanthropic acts have won unanimous praise from the local government and the public, laying a solid foundation for long-term trade partnerships.



Spotlight 2

# Dedication to Rural Areas for Common Prosperity

Promoting the Chinese path to modernization requires a stronger agricultural foundation and rural vitalization in all respects. By consolidating and expanding the achievements of poverty alleviation and promoting rural vitalization, China Minmetals have committed to establish Comrade Xi Jinping's core position on the Party Central Committee and in the Party as a whole and to establish Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era as the guiding principle. We have resolutely upheld General Secretary Xi Jinping's core position in both the CPC Central Committee and the entire Party and upheld the CPC Central Committee's authority and its centralized, unified leadership. We focus on growing rural industries that generate more wealth, develop new-type agricultural operators and social services, and educate rural talent to raise farmers' income. Our intensive efforts in rural vitalization meet the tasks assigned by the CPC Central Committee. In 2023, China Minmetals was once again rated "good" in the evaluation of the effectiveness of the central SOEs' targeted assistance and was awarded the Rural Vitalization Award in the 18th People's Corporate Social Responsibility Award. We were granted the "2023 Caring Enterprise in the Annual Angel Project" by the China Foundation for Rural Development.

## Promoting Comprehensive Vitalization in a Landscape of Harmony and Beauty

Committed to our political and social responsibilities as a central SOE, we uphold the general principle of "accuracy, distinction, and efficiency" and follow the general requirements of vitalization in five aspects. We strengthen rural assistance responsibilities and guidance and innovate assistance measures to improve assistance quality and efficiency.

In 2023  
We offered assistance to  
**7** Counties  
Zhenxiang, Yiliang, and Weixin in Yunnan, Dejiang and Yanhe in Guizhou, Huayuan in Hunan, and Qilian in Qinghai

CNY  
**56.442** million  
Directly invested as assistance funds

CNY  
**10.635** million  
Introduced investment as assistance funds

CNY  
**49.605** million  
Consumption-based assistance

CNY  
**140** million  
Invested

CNY  
**190** million  
Introduced investment

**6,548**  
Cadres trained

## Strengthening Leadership to Pool Together Assistance

Attaching great importance to assistance, the Party Group of China Minmetals fully implements General Secretary Xi Jinping's important instructions on rural vitalization and maintains high-standard management and work systems. We have established a task force on targeted assistance and paired assistance headed by the Secretary of the Party Group and the Chairman of the Board.

### Weng Zuliang, Party Group Secretary and Chairman of China Minmetals, visits the Huayuan County

From November 30 to December 1, 2023, Weng Zuliang, Party Group Secretary and Chairman of China Minmetals, visited Huayuan County, Hunan Province, to get first-hand observations of and give his instructions to local assistance, with visits paid to those who had been lifted out of poverty. When visiting the mushroom industry base in Changtan Village, Changle Township of Huayuan County, Weng Zuliang got to know the project operation, checked the growth of mushrooms in the greenhouses, and learned the scale, production, sales, and joint-farming of the base. After he was told that more than 60 mushroom greenhouses had realized the market-oriented operation and self-reliance, he was impressed, saying: "We should make of most of proven practices and know-how, accelerate industrial development, and look for e-commerce channels, so that more people can be benefited."



Weng Zuliang visits Shi Shunlian, a veteran Party branch secretary of Shibadong Village in Huayuan County

With a general roadmap for rural vitalization in place, the Company formulates annual plans and holds special meetings. During meetings, we convey policies and requirements on rural vitalization, summarize the progress and experience of rural assistance, and set up annual priorities.

In 2023, China Minmetals made **126** visits to targeted assistance counties. Leaders of the Party group led seven county visits for full-coverage research, and our subsidiaries fulfilled the responsibility of "double pegging" and carried out paired assistance with Party building given their characteristics.

Following the principle of "rotating appointment of the best talent", the Company has sent **10** cadres to **7** targeted assistance counties, including seven deputy county chiefs and three village-level first Party secretaries. The assigned cadres fulfill their duties at the front line. Two of them are commended by Guizhou Province, and one of them is honored as the excellent village-level first Party secretary in Yunnan Province.

## Cementing Development Foundation in the Five Aspects of Rural Vitalization

According to the five aspects of industry, talent, culture, environment, and organizational structures in rural vitalization, we make coordinated efforts while strengthening weaknesses in key areas. In targeted assistance counties, we implement several distinctive, replicable, and scalable projects, which effectively stimulate internal vitalization vitality and unveil a new landscape of rural vitalization.



"Happy Peach and Pear" agricultural demonstration park whose construction is assisted by China Minmetals opens in Yanhe County

► Building the "Happy Peach and Pear" rural vitalization demonstration park that accommodates the five aspects of vitalization

In Yanhe County, Guizhou Province, China Minmetals has built a 4.32 million square meter "Happy Peach and Pear" modern agricultural demonstration park based on the planting of peach and pear trees. It utilizes modern science and technology, regional distinctive culture, and rural tourism, and has achieved remarkable results.



"Happy Peach and Pear" agricultural demonstration park whose construction is assisted by China Minmetals opens in Yanhe County

Focusing on peach and pear planting to achieve industrial vitalization

For five consecutive years, we have invested more than CNY 30 million to develop the peach and pear planting industry covering an area of over 1.33 km<sup>2</sup>. We have built infrastructure, distributed 110,000 purchased saplings to farming households, and established the Guizhou Kuangyan Agricultural Development Co., Ltd. and the "4321" benefit-linked mechanism to consolidate the foundation of industrial development.



Coordinating talent recruitment, education, and appointment to achieve talent vitalization

We invite experts from the Zhengzhou Fruit Tree Research Institute of the Chinese Academy of Agricultural Sciences for agricultural technology guidance, fund the training of village cadres, wealth creation leader and technicians, and carry out agricultural skill competitions. In total, we have recruited seven sci-tech professionals, trained 23 skilled workers, and provided industry development training to more than 1,130 participants.



Integrating agriculture, culture, and tourism to vitalize rural culture

With the help of the CISDI Beautiful Country and Smart City Technology Research Institute, we combine the elements of Wujiang River culture, Tujia culture, agricultural culture, peach and pear culture, and ecological culture to create a recreational agricultural demonstration park with cultural characteristics. We have registered the trademark of "HaoyiHe" peach and pear products and created the original "Heishui Story" Tujia song and peach and pear "Huanhuan, XiXi" cultural and creative products to polish the cultural brand.



Pursuing green and circular development for ecological vitalization in rural areas

We have utilized idle land resources by encouraging villagers to put 1.33 km<sup>2</sup> of abandoned land and mountainous areas amounting under the management of the cooperative, bringing more than CNY 800,000 of land transfer income to the villagers. We have built an intelligent modern pig fattening farm that accommodates 1,500 pigs, where pig manure and sewage are oxidized, fermented, and sent to the orchard through an intelligent pipeline network for automatic sprinkler irrigation. Deodorized dry pig manure is processed into organic fertilizer, realizing intelligent breeding and planting as well as circular and green development.



Upholding the leading role of Party building to consolidate the vitalization of rural organizations

The five village Party branches in the area where the park is located are merged into the CPC Heishui Town Ecological Fruit and Vegetable Committee, where 121 Party members elect seven Party committee members, Party secretary, and deputy secretary according to the procedure. The normalized joint meeting system regularly analyzes the park's industrial development and primary-level organizations, giving play to the role of Party organizations in bringing people together.

The project drives the sale of catering, agricultural products, and accommodation in

16 villages

CNY 450,000 to the collective sector created

More than 8,000 people offered a job

58 people lifted out of poverty

Increased people's annual income by more than CNY 10,000

Developing special industries for industrial vitalization

The Company explores the unique resources of targeted assistance counties, shaping a "small but sophisticated" industrial support model with the characteristics of China Minmetals.



We have created special industrial projects such as Yanhe "Peach and Pear Joy", Huayuan Shibadong village Tourism, Dejiang Naval Orange and Chrysanthemum, Yiliang Ganoderma Lucidum and Gastrodia elata Blume, Qilian Beef and Mutton, etc., which help poverty-stricken households improve their income.

Strengthening professional training for talent vitalization

In 2024, the Company carried out targeted, instructive, and practical training for

6,548 participants in 2023

2,716 community cadres were involved in the training on primary-level Party building, rural vitalization policies, work safety, and financial knowledge

3,832 rural vitalization leaders and technicians were engaged in training on planting and breeding, welding, domestic service, Miao-styled embroidery, and e-commerce



Weixin County vocational skills training

These training initiatives continue to motivate people in rural areas to realize their full potential and provide a solid talent support for rural vitalization.

Optimizing educational resources for cultural vitalization

Focusing on the deficiencies of education in targeted assistance counties, the Company helps Yiliang Xincheng Middle School, Weixin Zaxi Primary School, and Zhenxiang Yile Kindergarten improve their infrastructure and raise their reputation in the region. The brand projects of education vitalization are rolled out in all respects, such as the "Mining Center" Vocational Education and the "Loving Packages" program.



Zhenxiang County Yile Kindergarten built with the assistance of China Minmetals

In 2023, we implemented the "Mining Center" Vocational Education at the Panzhihua Institute of Technicians which produced the world welder champion, attracting

70 students from targeted assistance counties to learn professional skills.

In partnership with the China Foundation for

Rural Development, we carry out the "loving packages" campaign, sending

29,500 "love parcels"

to students in targeted assistance counties, stimulating students' passion for learning and exploring the unknown

### Pursuing a beautiful countryside and ecological vitalization

Improving the rural environment and building a beautiful and livable countryside are fundamental to the well-being of farmers.

- The Company has carried out beautiful countryside infrastructure projects such as residential and drinking water projects in targeted assistance counties, implemented **22** toilet renovation projects, and built garbage and sewage treatment facilities in **3** villages.

- We have built **4** beautiful countryside demonstration sites, namely, Jinzhong Community in Zhenxiang County, Lianghe Community in Yiliang County, Shibadong Village in Huayuan County, and Aigun Village in Yanhe County.

- Based on the CPC-related tourism resources of the Shibadong village, we help the "Aizhai - Shibadong Village - Dehang Grand Canyon" to be listed as a national **5A**-level tourist attraction.

- We also make Huayuan County a new landmark of tourism in western Hunan, realizing the integrated development of primary, secondary, and tertiary industries.

#### ▶ Creating a 5A-level tourist attraction and improving the living environment

China Minmetals upgrades the cultural tourism of Shibadong village to create a new era CPC-related landmark in western Hunan. Going deep into the CPC-related tourism resources of Shibadong Village, the Company has invested more than CNY 20 million for 4 consecutive years to help build facilities such as paths, visitor service centers, sightseeing platforms, public toilets, street lights, pavilions, kiosks and helped "Aizhai - Shibadong village - Dehang Grand Canyon" to be listed as a national 5A-level tourist attraction. In 2023, following General Secretary Xi Jinping's important instruction of "no artificial scenery", the Company donated CNY 3.95 million to help the villages around Shibadong Village in renovating dilapidated houses.



Panoramic view of Lianghe Community, Yiliang County



Entrance to Shibadong Village, Huayuan County

#### Promoting joint Party building to vitalize organizational structures

The Company leverages the leading role of Party building in rural vitalization so that people lifted out of poverty can feel the consideration from Party organizations.

During the Spring Festival in 2023, we donated CNY **500,000** to each of the **7** targeted assistance counties as anti-pandemic medical funds.

We implemented the "Helping Those in Urgent Need" project in Huayuan County, which subsidized more than **80** persons in difficulty facing the risk of relapsing into poverty due to illness and other accidents.

20 Party branches of our subsidiaries visited 24 villages for joint Party building activities and called for Party members to donate CNY **159,000** and over **10,000** books.



China 19th Metallurgical Corporation donates supplies to Aiqun Village in Yanhe County

## Creating Assistance Benchmarks to Achieve Targeted Effects

As we promote rural vitalization on all fronts, China Minmetals has actively explored combining the resource endowment of targeted assistance counties with our advantages according to new situations and requirements. We have launched distinctive assistance benchmark projects, such as the "Mining Center", "Loving Packages", and "Futures +Insurance" to forge a practical China Minmetals assistance model.

### ▶ Building the "Mining Center" talent vitalization project

China Minmetals has implemented the "Mining Center" program for 5 consecutive years. At the Panzhihua Institute of Technicians, a national key vocational college under China Minmetals, we provide three-year free vocational education for students from disadvantaged families, with their living expenses covered and jobs recommended upon graduation. Over the past 5 years, 282 students from the targeted assistance counties have been enrolled in the program. Among them, 75 have graduated, 11 have entered university, 64 have joined the workforce, and more than 20 have participated in the training team for the national-level skills competition.

In 2023, with education quality uncompromised, China Minmetals expanded enrollment to 70 students. Wu Zongshan, a promising student from Yiliang County, won the silver medal for welders in the 16th National Vocational Skills Competition and received the title of "National Technical Skilled Worker" by the Ministry of Human Resources and Social Security of the People's Republic of China. The project was included as an annual excellent talent vitalization case in the *Blue Book of Central SOEs Contributing to Rural Vitalization* issued by the SASAC.



Yiliang County student Wu Zongshan (second from left) wins the silver medal for welders in the 16th National Vocational Skills Competition

### ▶ "Futures + Insurance" special assistance scheme

With our approved license to provide all financial services, China Minmetals has been carrying out "futures + insurance" assistance for 7 consecutive years, making full use of the price discovery and risk hedging of the futures market to secure profits regardless of market fluctuations. Over the past 7 years, we have carried out 101 projects in rubber, corn, apple, etc., benefiting 75 districts (counties), with a coverage of CNY 2.77 billion and a claims settlement of CNY 87.91 million, alleviating farmers' concerns.

In 2023, we implemented 38 projects, benefiting 34 districts (counties), with a coverage of CNY 911 million and a completed claim of CNY 24.18 million. The project was extended to all targeted assistance counties. We donated premiums of CNY 3 million to the pig breeding industry and delivered insurance coverage of CNY 92.66 million. The project was included as an annual demonstration project in the *Blue Book of Central SOEs Contributing to Rural Vitalization* issued by the SASAC.



In April 2023, Minmetals Futures Co., Ltd. settled the claim of Yiliang County's 2022 "Pig Insurance + Futures" scheme

“ I am thrilled to have a new school bag. Thank you very much. I will work even harder. -- A primary school student at Yanhe County Tudiao Town ”



By the end of 2023, 29,500 loving packages had been delivered to disadvantaged primary school students in 7 targeted assistance counties

# 1

## Serving National Strategies by Strengthening Core Business

On the new journey, committed to the original mission of "serving and reinvigorating the country through mining", we have optimized our business structure in line with national strategies and the frontier of industrial development and focused our efforts on conventional and emerging industries. We accelerate the implementation of "five action plans" and pursue "China Minmetals with five characteristics", delivering results of high-quality development.



# Metals and Minerals

Mineral resources sustain economic and social development and their efficient utilization and development is fundamental to industrial modernization. Based on the foundation of our business, we act as a major supplier of metal resources, advance the metal variety action plan, and mobilize the efforts of all stakeholders in the general metal and mining system. We give full play to the unique advantages of industrial chain integration and innovative resource acquisition to establish a more secure and more reliable resource supply base.

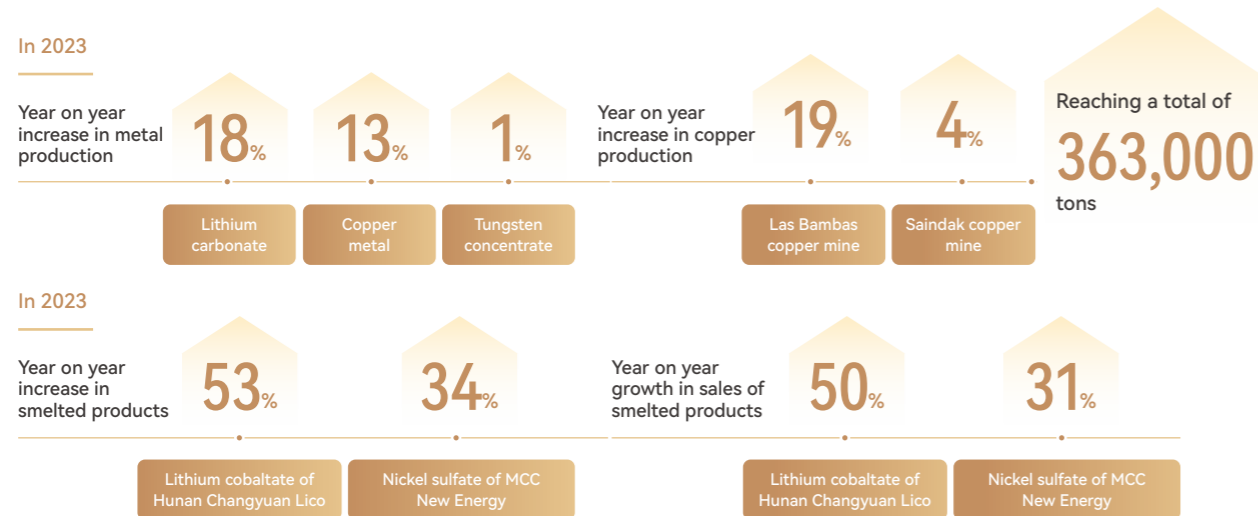
By the end of 2023

**38**  
Mines at home and abroad

**15**  
Overseas mines

## More output amid smooth and orderly mine production

China Minmetals develops non-ferrous and ferrous metals such as copper, lead, zinc, nickel, tungsten, antimony, molybdenum, manganese, lithium, chromium, and graphite. Adhering to the business policy of "fast-paced and full-capacity production and sales", we expand production and sales at domestic and overseas mines, with the reserves and output of main ore types steadily increasing and production and operation stabilized. This improves our capacity for ensuring resource security.



## More reserves discovered for resource sustainability

We continue to adjust the sequence of the mineral species portfolio. Based on the general minerals portfolio formed in 2022, we clarify key niche mineral species according to the latest requirements of the CPC Central Committee and our capabilities. We insist on early planning, deployment, and action and accelerate metal and mineral prospecting, with significant breakthroughs in mine exploration that contribute to resource sustainability.

- ◆ In 2023, the MCCT Siah Diq copper mine added **3.78 million tons** of copper
- ◆ The Las Bambas copper mine added **2.6 million tons** of copper
- ◆ The century-old Shuikoushan mine in Hunan Province discovered medium and large-sized lead and zinc ores with gold and silver and a thick and large iron-rich copper ore, adding **140,000 tons** of zinc, **140,000 tons** of copper, and **7.6 tons** of gold
- ◆ Xianglushan added **80,000 tons** of tungsten trioxide
- ◆ Minmetals Non-Ferrous successfully acquired the Khoemacau copper mine

### Mine development and production advance smoothly

- ◆ The Chentaigou iron ore mine, Nihe iron ore mine, and Zhaopingfang iron ore mine advance in order
- ◆ The technical upgrade project of the Kangjiawan lead and zinc mine is carried out on schedule
- ◆ The mining and processing expansion project of the Saindak Copper-Gold Mine is in trial production ahead of schedule
- ◆ The graphite mine of Hegang Luobei Yunshan and the Kinsevere cobalt plant are completed and put into production

### Acquiring the Botswana Khoemacau copper mine

In November 2023, China Minmetals acquired the Botswana Khoemacau copper mine, with an equity purchase agreement signed at USD 1.875 billion, which was delivered in April 2024. Located in the Kalahari Copperbelt in Southern Africa, the Khoemacau copper mine holds mineral rights over an area of more than 4,000 km<sup>2</sup>. The project was completed and commenced production in June 2021 with a designed capacity of 60,000 tons copper and 1.6 million ounces silver per year and a mine life of more than 20 years. With solid competitiveness and great resource potential, the expanded copper mine is expected to increase copper production by 135,000 tons to 155,000 tons per year. It is one of the largest offshore copper mining M&A projects by a Chinese-funded enterprise since 2018.

### China Minmetals Chentaigou Iron Mine project commences construction

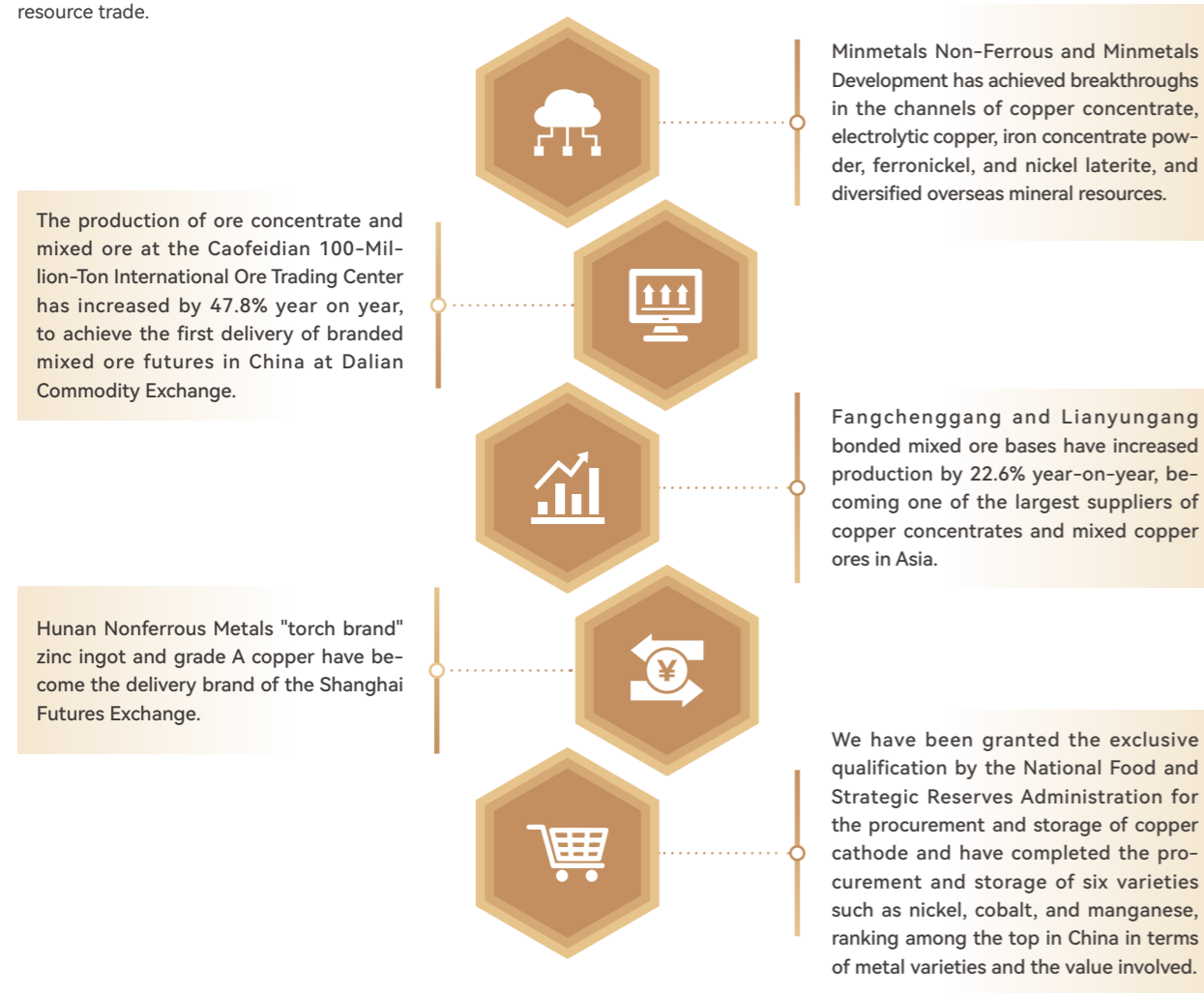
On June 26, 2023, the groundbreaking ceremony of China Minmetals Chentaigou Iron Mine was held in Anshan City, Liaoning Province. With a total investment of more than CNY 10 billion, the first phase of the project is designed to produce 11 million tons of iron ore and 4.7 million tons of iron ore concentrate per year with a super-deep shaft on a super-large scale. The project innovatively adopts the joint development method of "vertical shaft + inclined shaft + auxiliary ramp", which solves the problem of transferring huge volume of ore in a 1,000-meter-deep shaft, improves energy efficiency, and ensures the security of national strategic metal and mineral resources.



Chentaigou Iron Mine project groundbreaking ceremony

## More resources for dynamic trade and resource procurement

We maintain the trade requirements of "large-scale risk-controlled import and export in a closed loop" and broaden the channels of resource trade.



### ▶ Delivering China's first branded mixed ore futures deal at Dalian Commodity Exchange

On August 25, 2023, China Minmetals Caofeidian Company completed the delivery of 20,000 tons of Minmetals standard fines with Cangzhou China Railway Equipment Manufacturing Materials Co., Ltd. Based on its self-developed integrated ore blending technology, Caofeidian International Ore Trading Center processes a variety of raw materials to produce Minmetals standard fines with an iron content of 61.5%. This is the first time for domestic mixed ore products to be allowed in iron ore futures delivery. The delivery marks that Minmetals standard fines combine both futures and spot features, setting a practical example in creating a new supply chain of iron ore.

## Engineering Construction

China Minmetals has obtained more qualifications, forged our market strengths and project delivery in iron and steel metallurgy and basic construction, and improved our competitiveness in undertaking sophisticated and large-scale projects, striving to create more benchmark projects.

### Obtaining qualifications

The Company stands out in obtaining new qualifications. 4 new special qualifications for metallurgy and highways, 2 comprehensive first-class supervision qualifications, and 5 first-class electric power qualifications have been granted to MCC Group. By the end of 2023, the Company had obtained 47 construction special qualifications, 5 comprehensive grade A design qualifications, 3 comprehensive grade A survey qualifications, and 8 comprehensive grade A supervision qualifications, ranking among the top of construction central SOEs. As our market competitiveness rapidly improves, we witness a steady increase in our influence and market share in key provinces.

In 2023  
Value of new contracts CNY  
**1.4** trillion  
Year-on-year increase  
**5.5**%

### Leading the development of metallurgy

China Minmetals leads green, low-carbon, intelligent, and efficient development of iron and steel metallurgy through world-class core technologies and an irreplaceable position in the integrated metallurgical business. Driven by sci-tech innovation, we improve the manufacturing of metallurgical core equipment, deepen the "R&D – manufacturing" integrated pattern, and develop green and low-carbon equipment, championing advanced technology in the industry.

#### ▶ Casting the first frame of the world's first 5,600mm rolling mill, known as the "King of Rolling Mill"

Henan Zhoukou Iron and Steel Base wide plate 5600mm rolling mill project is key to HBIS Group's structural adjustment, business transformation, and high-quality development. As a full-range system supplier offering technology, equipment design and manufacturing, electric control systems, process models, and MES systems for thick plate production lines, Capital Engineering and Research Incorporation has enabled the mill to obtain world-class parameters. On October 9, 2023, the first frame of the world's first 5600mm rolling mill, known as the "King of Rolling Mill", designed and supplied by Capital Engineering and Research Incorporation was cast, which ensured the delivery of the rolling mill on schedule.

### ▶ Winning the bid for the Xinjiang Huoshaoyun lead and zinc mine smelting project

On November 22, 2023, China ENFI won the bidding of the 600,000-ton/year smelting project of Xinjiang Huoshaoyun lead and zinc mine EPC project. The project, covering an area of 1 km<sup>2</sup>, handles raw materials from the world-famous Xinjiang Huoshaoyun lead and zinc mine. It processes 2.5 million tons of oxidized lead-zinc ore each year and will form a lead-zinc smelting production base producing 560,000 tons of zinc ingots and 110,000 tons of lead ingots each year in Hetian, Xinjiang upon completion.

The resource development of Huoshaoyun lead and zinc mine follows the on going trend of reform and development in the autonomous region and China, translates resource endowment into economic benefits, and strongly supports the rapid economic development of Hotan. Meanwhile, the project effectively drives the overall development of Hotan, new industrialization, social progress, and employment. As a new growth driver, the project will contribute to the social stability and long-term peace and security of the whole Hotan area and even Xinjiang.



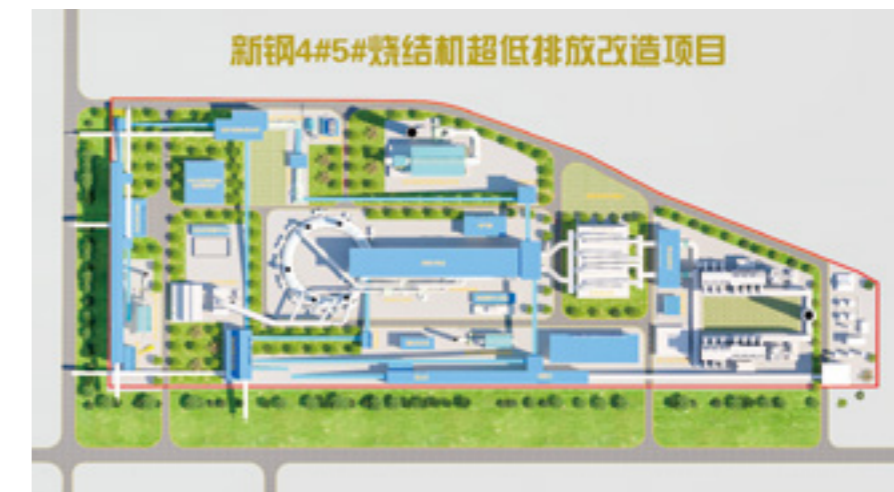
### ▶ Building a 20-million-ton full-process intelligent manufacturing demonstration plant

On October 8, 2023, Rizhao Steel Holding Group Co., Ltd. commenced construction of a full-process intelligent manufacturing demonstration plant with a production capacity of 20 million tons. Adopting MCC CISDI's new architecture of the industrial internet platform, the project applies advanced technologies such as artificial intelligence, machine vision, and big data algorithms, realizing integrated ironmaking, steel rolling, and management and control on the unified industrial internet platform. Rizhao Steel Holding Group Co., Ltd. has developed thousands of intelligent application modules connecting different processes and utilized data to achieve production and management control for greater efficiency. The annual productivity per capita reaches 2,000 tons of steel.



### ▶ Building one of the world's largest sintering systems

In April 2023, Zhongye Changtian won the bid for the main sintering structure of Xinyu Iron & Steel Co., Ltd.'s 4#5# sintering system ultra-low emission project. Following the design concept and principle of "high efficiency, low consumption, high quality, long service life, and cleanliness", Zhongye Changtian adopted advanced technologies and equipment such as efficient sealing, micro-negative pressure control, intelligent sintering, gradient utilization of hot exhaust gas from the circular-type cooler, and near-zero emission. It is an intelligent sintering system featuring high quality, efficiency, and eco-friendliness with world-class process, equipment, automation control, and performance indicators. Upon completion, it is expected to become one of the largest sintering systems in the world.



### ▶ Developing a proprietary gas-based direct reduction ironmaking device

Through integration and innovation of existing technologies at home and abroad as well as consideration of China's energy conditions, Capital Engineering and Research Incorporation has developed a proprietary gas-based direct reduction ironmaking H-RIF™ device featuring stability, high efficiency, safety, eco-friendliness, adaptability to multiple gas sources, and low costs. On April 6, 2023, Capital Engineering and Research Incorporation's H-RIF™ gas-based shaft furnace test platform had all equipment and pipelines in place for trial use.



## Undertaking mid-to-high-end projects

The Company is committed to serving major regional strategies and regional coordinated development strategies, making intensive efforts in key areas such as Beijing-Tianjin-Hebei, the Greater Bay Area, the Yangtze River Delta, and the Yangtze River Economic Belt. In the area of basic construction, the proportion of mid-to-high-end projects is increasing. We have been granted multi-billion projects in China, such as the comprehensive development of Beijing Subway Line 22 area, the integrated industrial and urban development in Heping Bay, Shenyang, the comprehensive development of the Wuhan Yangtze River New City, and the Xiong'an International Trade Center. We have built and put into production the Paleozoological Museum of China, the Baoshan Renewable Energy Utilization Center, Zibo's municipal express road network, and other landmark buildings or environmental and municipal projects. The Company has signed contracts for high-end housing and infrastructure projects overseas, such as the Bo Lai International Hotel in Cambodia, Kuwaiti road interchanges, and the parliamentary building in Guinea.

In 2023



### Winning the bid for the comprehensive development of the Beijing Subway Line 22 area

In November 2023, Shanghai Baoye Group secured the contract for the Beijing Subway Line 22 vehicle base overbuild and Shenwei area comprehensive development project, with a total investment of approximately CNY 12.337 billion. The vehicle base overbuild development project includes land leveling and development, small garages, infrastructure, public service facilities, and resettlement housing. The Shenwei area comprehensive development project involves land leveling, infrastructure, public service facilities, and resettlement housing. The integrated design of the vehicle base overbuild and Line 22 (Pinggu Line) comprehensive maintenance base is an important initiative to improve core land utilization and urban quality and save space for future development.



### Winning the bid for the Xiong'an International Trade Center

On October 17, 2023, a consortium led by MCC5 and composed of MCC Great Wall Investment Co., Ltd. and Chengdu Construction Engineering Group Co., Ltd. won the bid for the International Trade Center project, an urban landmark in Xiong'an New Area. Located in the core of the start-up area of Xiong'an New Area, the project serves as the urban gateway and a TOD (transit-oriented development) commercial complex, with a total investment of about CNY 12.5 billion and a total construction area of about 1.06 million m<sup>2</sup>. Up completion, the project will integrate urban functions into the terminal building and transit infrastructure and become the new landmark in the Beijing-Tianjin-Hebei region and the Xiong'an New Area.

### Building the Asian Games Hangzhou venue

When building the Shooting, Archery, and Modern Pentathlon Venue in Fuyang Yinhu Sports Center of the Asian Games Hangzhou, Shanghai Baoye Group uses BIM and other advanced technology to integrate modern construction with classical aesthetics. The 34,000 louvers on the exterior wall were coded with a rotating angle between 15 degrees and 85 degrees. As the sun moves, the louvers also change their angles, altering the image of the exterior wall. At night, the embedded lamps light up the wall, creating a visual effect similar to the renowned work of *Dwelling in the Fuchun Mountains*, with its flowing light and shadow.

Following more than one hundred lighting experiments at night, Shanghai Baoye Group constructors have ensured that the illumination, uniformity, and glare of different parts of the venue meet higher international standards. This precision has been recognized by the international shooting organization.



### Building Montego Bay, a high-quality coastal residential project in Hong Kong

Hong Kong Montego Bay project is the first high-end residential project by Minmetals Land in Hong Kong. It is located in the core area, Yau Tong new planning area of East Kowloon, with a total construction area of 62,400 m<sup>2</sup>. The building features a glass exterior wall, offering a 270-degree view of the Victoria Harbour. The project integrates the three major elements of "health, eco-friendliness, and nature", driving regional improvement and infrastructure optimization. It has created a shared waterfront corridor and received the international WELL Building Standard certification and the "2021 Best High-Rise Building Project of the Year". The project has upgraded the living standards in the district. This is a significant initiative to implement the HKSAR Government's development plan and is a crucial measure of the Central Government and the State to promote economic growth in Hong Kong.

### Building the Paleozoological Museum of China

For the Paleozoological Museum of China (Baoding Nature Museum) project located in Baoding City, Hebei Province, China MCC22 Group undertakes its 12,000-ton steel structure fabrication and installation. The project was completed at the end of July 2023, making it the first natural science museum in the city to diversify the types of museums in Baoding. The museum aligns with Baoding's development strategy of enhancing its culture and tourism, thereby contributing to the regional tourism industry.

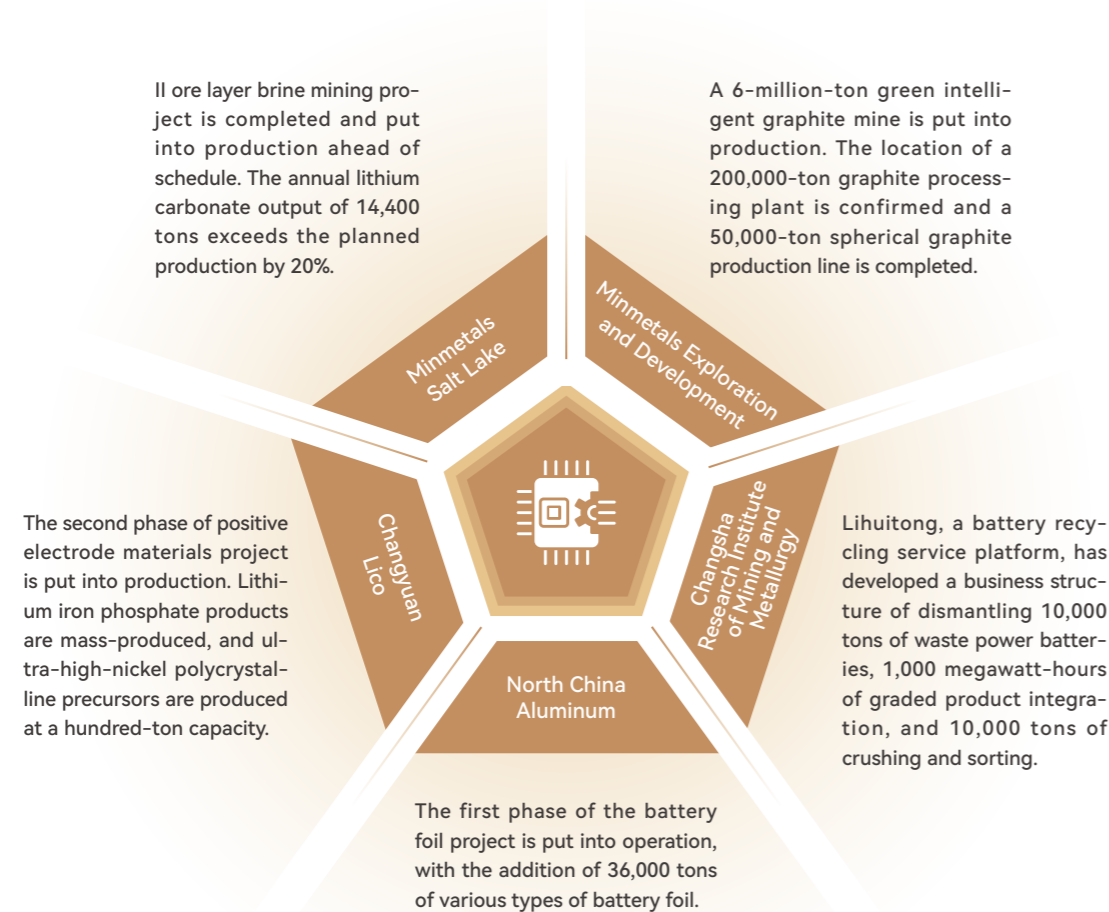


# Strategic Emerging Industries

Following the direction of national strategic emerging industries, China Minmetals has accelerated the development of the high-tech materials industry and the supporting business of new energy and new materials and improved our capabilities. We explore paths to build up our strengths in a specific industry with an "incubation-fostering-consolidation" system for strategic emerging businesses. A list of key business sectors in different categories is determined and kept up to date. We are catching up with our competitors and seeking our niches in battery materials, cemented carbide, silicon-based materials, special materials, environmental protection, and inspection and testing.

## Battery Materials

To make ourselves an industry-leading battery materials provider, China Minmetals has built, shored up, extended, and consolidated the supply chain of new energy battery materials. We work to secure more upstream resources, maintain our industry position in positive electrode materials, and extend the application of negative electrode materials. We strengthen internal collaboration in resources, technologies, and customers to improve the competitiveness of a closed-loop business ecosystem.



### ► Breakthrough in waste power battery recycling business

The Lihuitong battery recycling platform developed by Changsha Research Institute of Mining and Metallurgy integrates battery trading, testing and processing, and data service and puts in place three sets of management systems, namely, recycling center, trading center, and data center. By combining Internet big data service and offline operation, it provides industrial services such as recycling outlet setting, testing and evaluation, sorting and crushing, and online trading to the new energy industry.



In 2023

New recycling centers

34

Recycling outlets

209

Covering

23 provinces nationwide

Transaction balances CNY

10.8 billion

Three regional processing centers in Hunan, Anhui, and Hebei provinces were built

Forming an annual capacity of handling

25,000 tons of used batteries

## Cemented Carbide

Committed to the goal of "becoming the No.1 or No.2 player", we stabilize our production scale and adjust our structure to reinforce our position as one of the biggest producers of cemented carbide in the world. We increase the proportion of high-value-added high-tech products such as CNC cutting tools and micro drills. With a high-end product R&D system in place, we address technology bottlenecks in aerospace, chip packaging, industrial mother machines, and other applications and try to create domestic versions. In some niche areas, we aim to create a group of "specialized and sophisticated" subsidiaries to strive for global leadership.

### ► Commencing the construction project of the state key laboratory for cemented carbide

The state key laboratory of cemented carbide is the only one of its kind in the industry, having achieved significant world-class landmark results in key areas such as cutting tools, IT precision tools, and wear-resistant materials. The construction project of the state key laboratory of cemented carbide is a major initiative for Zhuzhou Cemented Carbide Group Co., Ltd. to implement the innovation-driven development strategy, build a high-level original technology cradle, and enhance transformation momentum. With a total construction land area of about 22510.85 square meters, the project will put in place a well-equipped state key laboratory in nice surroundings, forming a perfect hardware platform and software system for innovation. The project groundbreaking ceremony was held in April 2023.

## Silicon-based Materials

Based on the national engineering research center for silicon-based material preparation technology, we have set up a two-layered innovation system of "self-dependent innovation + cooperative development", shaping three major product categories of zone-melting grade polysilicon, silicon-based electronic special gas, and silicon-based functional materials. We also accelerate transformation projects and improve the capacity to offer supporting services to build an important electronic functional materials innovation center and production base in China.

### ▶ Winning the first prize of the 2023 Henan Provincial Sci-tech Progress Award

The project "Key Technology and Application in Ultra-high Purity Silicon-based Electronic Material Preparation", a joint effort by China Silicon Corporation Ltd., ENFI China, and Central South University, won the first prize in the 2023 Henan Provincial Sci-tech Progress Award. This achievement consolidates the leading position of China Silicon Corporation Ltd. in the field of key technology of silicon-based materials. It also strongly supports the building of a cradle of basic materials and technology with international influence.

## Special Materials

By emphasizing both resource and material supply, we improve our ability to provide beryllium resources and beryllium-based materials to create a world-class beryllium enterprise. We expand channels to import beryllium ores and store them for later use. Key projects are advanced, bottlenecks in beryllium ore beneficiation and smelting as well as beryllium in-depth processing are addressed, and green automation and large-scale production are realized. On April 13, 2023, China Minmetals Beryllium Co., Ltd. was officially recognized as a specialized and sophisticated SME of Hunan Province.

## Environmental Protection

The Company puts water environment treatment at the core while venturing into ecological restoration, mine reclamation, solid waste treatment, air pollution treatment, industrial energy saving, and other fields. Relying on the service capacity of the whole engineering and construction industry, the Company expands business through an EPC+F model that aligns with development and policy requirements and internal control standards.

### ▶ Building the Daobei Road sewage pipe project in Dangshan, Anhui Province

On October 26, 2023, the Daobei Road sewage pipe of the comprehensive water environment remediation project undertaken by China MCC17 Group in Dangshan County, Anhui Province was put into use. The Dangshan County urban water environment improvement project is an initiative by Dangshan County to accelerate urban construction, enhance the development zone, and achieve leapfrog development. The pipe is expected to address the issue of stranded rainwater and sewage, as well as inadequate flood control, in the development zone.

### ▶ Building the Stung Sen sewage treatment and drainage project in Cambodia

On September 15, 2023, the Stung Sen sewage treatment and drainage project in Cambodia, constructed by CFMCC, was completed and put into operation. The project includes an urban stormwater drainage system, a sewage collection system, 2 sewage pumping stations, and a sewage treatment station. Once completed, the stormwater drainage system will upgrade Stung Sen's flood prevention capacity and reduce troubling flooding in urban areas. Meanwhile, the project can process 3,500 m<sup>3</sup> of sewage per day. Local sewage is collected and discharged when standards are met, solving the challenges in urban sewage collection and treatment and improving the urban environment.



Stung Sen sewage treatment and drainage project

## Inspections and Testing

Based on the national center, we concentrate on construction engineering and materials testing, building structure performance evaluation, certification and consulting services, and environmental testing and monitoring to build a focused and distinctive business system. We deepen cooperation with industry leaders and provide customized inspection and testing solutions for metal and mineral products, equipment and instruments, and construction materials.

### ▶ Serving nuclear power with sci-tech innovation

Adhering to the development concept of sci-tech innovation and nuclear power services, MCC Testing and Certification Co., Ltd., as the chief editor, has led the drafting and implementation of two nuclear power standards: *Code for Evaluation of Durability of Concrete Buildings and Structures in Nuclear Power Plants* and the *Code for Graded Management of Preventive Maintenance of Nuclear Power Plant Structures*. The two technical codes establish an aging management and durability assessment system for concrete structures of nuclear power plants and standardize existing rules in nuclear power building preventive maintenance. The standards will ensure safe and stable operations of power plant units and provide a technical basis for the periodic safety review and service life extension review of nuclear power plants.

### ▶ Contributing to carbon management of iron and steel enterprises

An Environmental Product Declaration (EPD) is a transparent, comparable, and highly recognized environmental information document that carries the whole life cycle of a product. As one of the first third-party verification organizations appointed by the EPD platform for the iron and steel industry, MCC Testing and Certification Co., Ltd. is able to verify written EPD reports and provide comprehensive technical services and training, such as preparation of Life Cycle Assessment (LCA) reports, assistance in EPD verification, carbon footprint evaluation, carbon labeling certification, and the building of carbon management systems for enterprises. So far, MCC Testing and Certification Co., Ltd. has verified nine EPD reports. In 2023, MCC Testing and Certification Co., Ltd. entered into a contract with Zhongxin Iron & Steel Group to together apply the EATNS carbon management system in the iron and steel industry, which lays the foundation for EATNS carbon management system to be rolled out across the whole industry with specific standards.

# 2

## Cementing Foundation through Robust Development

Pooling various resources, China Minmetals cements the industrial chain, builds the innovation chain, optimizes the supply chain, explores the talent chain, harnesses the capital chain, and reshapes the value chain to facilitate the construction of a modern industrial system. Through comprehensive reform, unwavering commitment to ethical practices, and innovation, we endeavor to evolve China Minmetals into an SOE that meets the requirements of modernization, and consolidate the foundation for high-quality development.



# Driving Technological Innovation

Fully unleashing the strategic scientific and technological strength as an SOE, China Minmetals continuously pushes the boundaries of technology, and fosters indigenous innovation. We have made significant breakthroughs in original technologies that fill domestic gaps, and position us at the forefront of international competition. We play a pivotal role in industry-university-research collaboration, as well as in the integration and coordination of technology and industry to drive comprehensive industrial revitalization through cutting-edge technological advancements.

## Driving technological R&D with industrial demands

In response to national demands, and challenges facing the industrial and supply chains, China Minmetals stays committed to driving innovation in fundamental and advanced technologies. We are dedicated to the industrialization of cutting-edge technologies and the advancement of key strategic sectors in line with the "9+6" strategic initiative for SOEs. Actively participating in the national science and technology innovation framework, we eagerly embrace major national science and technology projects, thereby expediting the maturation of indigenous technologies. By strategically aligning our objectives with specific projects, we have successfully overcome a multitude of technological bottlenecks. Our portfolio now includes nine domains of significant industrial technologies in four areas addressing critical bottlenecks and pain points, underscoring our competitive strengths and paving the way for the future. These achievements enable us to further cultivate a set of key technologies, anchor pivotal projects, and set up exemplary scenarios.

In 2023  
**33**  
 national science and technology projects approved

Around CNY  
**500** million  
 national funding for the projects



We undertake the second phase of four "1025" special projects, including "scandium based materials" and "crystalline graphite", and actively participate in eight innovation consortia projects, including "high-end analytical instruments" and "carbon fiber composite materials".

Six original technologies such as side and deep prospecting, deep sea, strategic metal materials, new energy, iron and steel metallurgy, and industrial digitalization have been included in the first batch of construction lists by the State-owned Assets Supervision and Administration Commission of the State Council.



### ▶ Removing a barrage of obstacles in side and deep mining

In a new round of strategic mineral exploration, Minmetals Exploration and Development carried out "smart mineral exploration", based on metallogenic principles and bolstered by theoretical research and technological innovation. With advances in philosophy, theory, and digital technologies, we have discovered large-sized lead-zinc, gold and silver mines, and a medium-sized copper mine in the central and southern regions of China. These discoveries have significantly increased the reserves and production capacity of Chinese mining enterprises.

### ▶ Innovating key technologies in deep sea mining

As a milestone achievement, in April 2023, the deep-sea sampling and drilling rig, independently developed by the Changsha Institute of Mining Research, achieved a record-breaking drilling depth of 16 meters and a complete sulfide core length of 4.95 meters during the 78th survey voyage in China's polymetallic sulfide seabed mining zone in the southwest Indian Ocean. This marks a significant advancement in China's deep-sea drilling capabilities for polymetallic sulfides. The 10-meter and 20-meter deep-sea sampling rigs, equipped with 100% domestically produced core components and boasting fully independent intellectual property rights, have become a formidable tool for evaluating deep-sea polymetallic sulfide resources and demarcating mining territories for China.



Deep sea polymetallic nodule mining 1,000 meter integrated linkage test team

### ▶ Significant breakthrough in "efficient, clean, intelligent technology and equipment for recycling and reusing metallurgical low heat value exhaust"

After more than a decade of dedicated research and development, MCC China City Environment Protection Engineering Company (CCEPC) has achieved significant breakthroughs in the field of "efficient, clean, intelligent technology and equipment for recycling and reusing metallurgical low heat value exhaust". The outcome has been widely applied in over 200 projects across nearly 40 steel enterprises both in China and internationally. As a result, it has facilitated the generation of over 140 billion kilowatt-hours of electricity annually, translating into direct power generation revenue of approximately CNY 90 billion, while also slashing carbon dioxide emissions by roughly 80 million tons. In 2022, CCEPC successfully created the world's first supercritical gas power generation unit, which markedly enhances the efficiency of gas-based power generation. At an evaluation meeting in May 2023, an esteemed review committee of academics and industry experts formally recognized this achievement, and they determined that the technology as a whole has reached a leading international level. These advancements have contributed to the sustainable development of the steel industry and are instrumental in achieving China's "dual carbon" goals. These developments have not only solidified China's position in the international gas utilization sector but have also yielded substantial results in reducing carbon emissions.



Guangxi Fangchenggang Shenglong Metallurgical Gas Power Generation Project undertaken by MCC China City Environment Protection Engineering Company

## Promoting the commercialization of scientific achievements through industrial applications

China Minmetals integrates fundamental research, applied research, technology commercialization, and industrial application to translate technological achievements into tangible products and economic outcomes. Guided by practical application scenarios, we proactively explore market-oriented approaches to technology commercialization. We reinforce the development of commercialization platforms and service ecosystems, thereby fostering closer alignment between supply and demand within our organization and enhancing the marketability of our technological innovations, which promotes the swift and extensive application and iteration of cutting-edge technologies. We focus on critical stages of the innovation chain by securing policy support for pilot-scale testing facilities, industrialization experiment platforms, and the application of prototypes. Additionally, we establish centers for original technology exploration and key equipment manufacturing, leveraging our internal industrial expertise to showcase demonstration projects.

As of the end of 2023

**57,000**

patents owned



In 2023

**2,588**

new invention patents, showing a year-on-year increase of

**28.6%**

**61.4** billion

CNY from the commercialization of scientific

Leading the release of

**3** international standards

**19**

scientific and technological achievements included in the promotion catalogue of the State-owned Assets Supervision and Administration Commission and Ministry of Industry and Information Technology of the State Council

The development and application of technologies such as "efficient and comprehensive recovery of iron and molybdenum ore" and "waste heat recovery from converter gas in steel mills" have reached an internationally leading level.



Major projects on silicon nitride and crystalline graphite have overcome the technical difficulties in key materials in China.

### Changsha Research Institute of Mining and Metallurgy celebrates two internationally leading technological achievements

In September 2023, the Changsha Institute of Mining and Metallurgy celebrated two significant technological advancements, namely the "high-pressure ammonia leaching technology for extracting molybdenum and rhenium from molybdenum concentrate" and the "development and industrial application of key technologies for the efficient recovery of complex siliceous carbonate copper-hematite mixed iron ore", which were highly acclaimed by the China Nonferrous Metals Society as reaching world-class standards.

The "high-pressure ammonia leaching technology" addresses the challenges of the conventional microwave roasting-ammonia leaching process, including its high raw material consumption, complex operational procedures, low recovery rates of molybdenum and rhenium, environmental pollution from sulfur dioxide emissions, and difficulties in wastewater treatment. This innovative technology efficiently and comprehensively recovers not only molybdenum but also associated metals such as rhenium, copper, and sulfur. It has been successfully implemented at Anhui Huaxi Rare Metal Materials, where it has demonstrated stable production and operation, and delivered impressive economic outcomes.



The "high-pressure ammonia leaching technology for extracting molybdenum and rhenium from molybdenum concentrate" has been successfully applied in Anhui Huaxi Rare Metal Materials

## Fueling innovation through strong systems

China Minmetals has steadfastly optimized and restructured the National Key Laboratory, studied and formulated supporting policies to bolster the Laboratory's development, and built technology hubs. We harness the full potential of Academia Sinica's innovation prowess in reshaping the innovation system, and coordinating scientific researches.

China Minmetals launches "nine major implementation plans", promising to build science and technology think tanks, innovate project mechanisms, cultivate innovative talents, optimize financial systems, share science and technology resources, empower scientific achievement commercialization, establish evaluation systems, upgrade disciplines, and build digital platforms. We are committed to more investment in research and development, an increase in the size of the special fund for science and technology, stronger functions of the innovation fund and entrepreneurship fund, and a refined technology finance system for sustainable investment. We also adopt supporting policies such as budgeting, total salary control, performance incentives, talent acquisition and training, compensation and benefits guarantee, and fault tolerance and exoneration to build a sound environment for innovation and talent training.

In 2023

**46**

national science and technology platforms

The National Enterprise Technology Center of Changsha Research Institute of Mining and Metallurgy has been approved for establishment. The construction plan of the National Strategic Rare Minerals Development and Technology Innovation Center has been reviewed and approved by experts from the Ministry of Science and Technology.



Each year, we grant an additional CNY 50 million research and development fund to four National Key Laboratories, and set up 30 funds for special science and technology projects, science and innovation, and young talents. To further expand the science and technology innovation fund, we have kick-started its second phase.

### The construction plan of the National Strategic Rare Minerals Development and Technology Innovation Center has been approved

In February 2023, the National Strategic Rare Minerals Development and Technology Innovation Center was approved for construction by the Ministry of Science and Technology. The Center, headed by China Minmetals, meets the strategic positioning of the National Technology Innovation Center, and bears great significance to the security of China's mineral resources, their green, intensive and intelligent development and utilization, and high-quality industrial development. Focusing on the challenges faced by the entire industrial chain of rare minerals, the Center is tasked to tackle major technologies, and create "three hubs and one base", namely a national technology R&D innovation hub, an industrial resource hub, a technology innovation service hub, and an advanced technology incubation base, to facilitate the construction of a strong resource security technology innovation system.



The consultation conference on the construction plan of the National Strategic Rare Minerals Development and Technology Innovation Center

# Creating Values

Adhering to a goal-oriented approach, China Minmetals spearheads a series of major projects for building world-class enterprises. With an emphasis on high-quality development, we effectively strengthen our value creation ability through core indicators control to cement the foundation of value generation, and strive for innovation-driven development to create new momentum for more values. We focus on industrial upgrading to explore new paths to value creation, uphold sustainable development to enhance the long-term value creation ability, and deepen reforms to provide institutional guarantees for building world-class enterprises and solid outcomes.

## Transforming development mode

Value creation is inevitable for any company operating in a competitive market, and seeking transformation in development modes. China Minmetals has launched a "special action to benchmark against world-class enterprises in value creation" to establish a value management mechanism that discovers, creates, and enhances value.



# Establishing a sound market-oriented operation mechanism

Conforming to the principles of market economy, we work hard to stimulate vitality and improve efficiency, continuously deepen the reforms of three systems, and mobilize employees' initiative. Our efforts have harvested early results reflected in the "progress index" assessment. Our subsidiaries have overcome the "wait and see" mentality, and shown strong initiatives in pursuing independent development.

<p><b>Vigorously cultivating independent market entities</b></p> <ul style="list-style-type: none"> <li>• We foster the growth of our subsidiaries into market entities that operate independently in accordance with the law, bear their own profits and losses, manage risks, follow the rules, and develop independently to ensure a proportionate distribution of rights, responsibilities, and benefits.</li> <li>• After analyzing the challenges faced by our subsidiaries in development environment, strategic positioning, institutional mechanisms, and operational management, we implement targeted measures to mitigate losses, cultivate competitiveness, and improve resilience to fluctuations.</li> </ul>	<p><b>Accelerating the construction of a new business responsibility system</b></p> <ul style="list-style-type: none"> <li>• We upgrade and expand the tenure and contract system of managers, with a strict accountability to assessment results.</li> <li>• We implement a market-oriented mechanism that benchmarks against performance and compensation, and establish a more precise, flexible, standardized, and efficient income distribution mechanism.</li> <li>• We earnestly promote the competition system for managerial positions based on performance, capability and market requirements to make timely adjustments to job responsibilities and phase out underperforming managers.</li> </ul>	<p><b>Applying the progress index in assessment</b></p> <ul style="list-style-type: none"> <li>• We integrate strategic objectives, operational goals, and assessment indicators to promote efficiency, progress, and overall improvement in all aspects of work.</li> <li>• We implement a scientific and precise assessment mechanism that evaluates progress through benchmark results and market performance to ensure a more balanced, comprehensive and effective evaluation.</li> <li>• We strengthen the assessment and guidance for significant undertakings, including resource sustainability, scientific and technological breakthroughs, and strategic innovation, and we examine the mechanism of post-specific and real-time assessment to highlight special contributions or constraints.</li> </ul>
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## Setting up industrial models

Actively responding to the requirements of the "Double Hundred Action for Science and Technology Reform", China Minmetals has held a meeting on building a "Science and Technology Reform Enterprise" and a "Double Hundred Enterprise". We are committed to cultivating more model enterprises for SOE reform, and contributing to building a world-class enterprise.

As of the end of 2023, China Minmetals owned

<p><b>7</b> enterprises recognized as "Double Hundred Enterprises"</p> <p>China Tungsten and High-tech Materials, MCC CISDI Group, Minmetals Development, China MCC 17 Group, China MCC 5 Group, China MCC 22 Group, and China Minmetals Non-ferrous Metals</p>	<p><b>6</b> enterprises recognized as "Science and Technology Reform Enterprises"</p> <p>Changsha Research Institute of Mining and Metallurgy, MCC CERI, MCC ACRE, MCC WSGRI, China Nonferrous Metal Mining Group, and MCC WISDRI</p>
<p>MCC CISDI Group and Zhuzhou Cemented Carbide Group</p>	
<p><b>2</b> enterprises successfully shortlisted as world-class leading demonstration enterprises by the State-owned Assets Supervision and Administration Commission of the State Council</p>	

# Improving Governance

China Minmetals tirelessly improves the modern corporate governance of SOEs with Chinese characteristics and targeted management of risks and hidden hazards. We empower enterprises to deepen reform through digital technology to continuously improve the level of corporate governance.

## Enhancing corporate governance capabilities

We fully implement the "two major political principles" to effectively improve corporate governance and build a modern governance system. In response to the reform of state-owned assets and enterprises, we have formulated a *Differentiated and Precise Authorization and Delegation Plan for Subsidiaries* for decentralized management.



### Modernizing the governance system and capability

- Taking into account factors such as laws and regulations, equity structure, development stage, and management and control, we promote the establishment of board of directors at our subsidiaries, and continue to enhance the ability to exercise power of the board and the management.
- We select and hire full-time board members who are decent, talented, responsible, and highly professional to strengthen capacity building, and optimize capital management. We aim to achieve scientific and effective management through better governance.
- We closely align major systems such as the Company's Articles of Association, rules of procedure, "three lists and one process" and authorization management to streamline the decision-making process, improve the decision-making quality, and build a corporate governance mechanism that is characterized by legal rights and responsibilities, transparency, coordination, and effective checks and balances.

### Implementing differentiated and precise authorization management

- The headquarters is tasked with setting strategies, upgrading business layout, allocating resources, boosting capital operation, controlling risks, and carrying out assessment and incentives to ensure the balance between decentralized and centralized governance.
- By building a scientific, impartial, and efficient board of directors, we aim to promote the high-quality exercise of power and performance by the board members at subsidiaries. The board of directors, with outside members taking the majority of the seats, shall improve the mechanisms of talent selection, job performance, assessment and incentives.
- For tighter compliance management, we implement an internal control system with comprehensive coverage, rigorous supervision, and robust restraints.
- We optimize the overall supervision system through "policy and technology" to effectively supervise the exercise of power.



## Strengthening risk prevention

To build a safe China Minmetals, we continue to strengthen risk management, and ensure the full coverage of the "1+N" risk management system. We have released the *Guidance of China Minmetals on Strengthening Risk Management in 2023*, which clearly defines the division of responsibilities and targeted measures for major risks, and sets further requirements on goal setting, accountability, and efficiency.



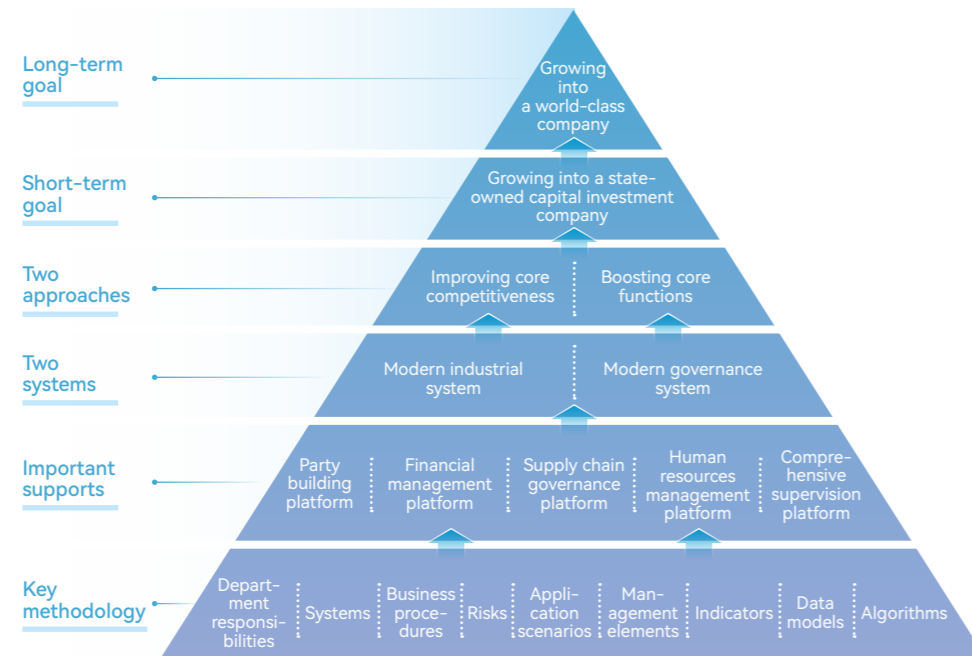
## Compliance management



## Building a "digital brain"

In response to General Secretary Xi Jinping's thoughts on building "a country with strong cyber technology", China Minmetals works towards the goal of building a state-owned capital investment company that empowers the modernization of the governance system, accelerates digital-based development, and propels our transformation from a traditional enterprise to a smart and eco-friendly enterprise.

Based on existing systems, the "digital brain" is a strong tool for mobilizing business procedures, application scenarios, management elements, operational indicators, and algorithm models in line with the risk control requirements. With important supportive platforms for Party building, financial management (including the treasury system), supply chain governance, human resources management, and comprehensive supervision, we strive to build a modern governance system that enhances our core competitiveness, and lays the foundation for power delegation to build a state-owned capital investment company.



**Treasury System**

The treasury system welcomes new functions such as account management, centralized fund management, capital settlement, and borrowings and guarantees. The system has initialized the sets of books for 2,575 organizations and 10,392 individual accounts, achieving 100% coverage.

**Procurement Monitoring**

The procurement monitoring platform with a built-in risk warning system boasts excellent system and technology support. According to the platform, in 2023, the procurement cost saving was 2.6%, with a year-on-year increase of 0.2%, and risk disposal rate was over 97%.

**Human Resources Management**

The human resources management platform operates in accordance with the *Human Resources Data Standard*, which covers nine major business areas, including personnel management, talent introduction, employee deployment, and cadre management to better manage and supervise relevant personnel, and enhance salary and incentives based on seven major aspects involving 52 core human resources data.

**Operational Management**

The directly managed subsidiaries have witnessed significant progress in their operational management competence by applying intelligent scenarios. Hunan Nonferrous Metals' core mines achieved a 31% increase in per capita mining capacity. Minmetals Capital achieves dynamic risk monitoring, process tracking and disposal, and emergency response of 7 major financial businesses. The average occupancy rate of commercial buildings of the Asset Management Company is 18% higher than the regional average level, showcasing our strong core functions and competitiveness.

## Building smart mines and ensuring equipment safety

The design and planning of the global backbone network under China Minmetals Non-ferrous Metals Company's MMG smart mining project have been completed. The Las Bambas fleet management system and digital tire system for digital transportation scenarios have been put into operation, and the construction of the MMG's global digital process management system and remote mining operations center progresses as planned. When completed, the system will send automatic warnings to reduce the risk of equipment failure due to shovel teeth entering the crusher, and reduce the unexpected shutdown of the primary crusher by 96 hours per year.



MMG smart mining digital operation center

## Building a smart factory of lean production

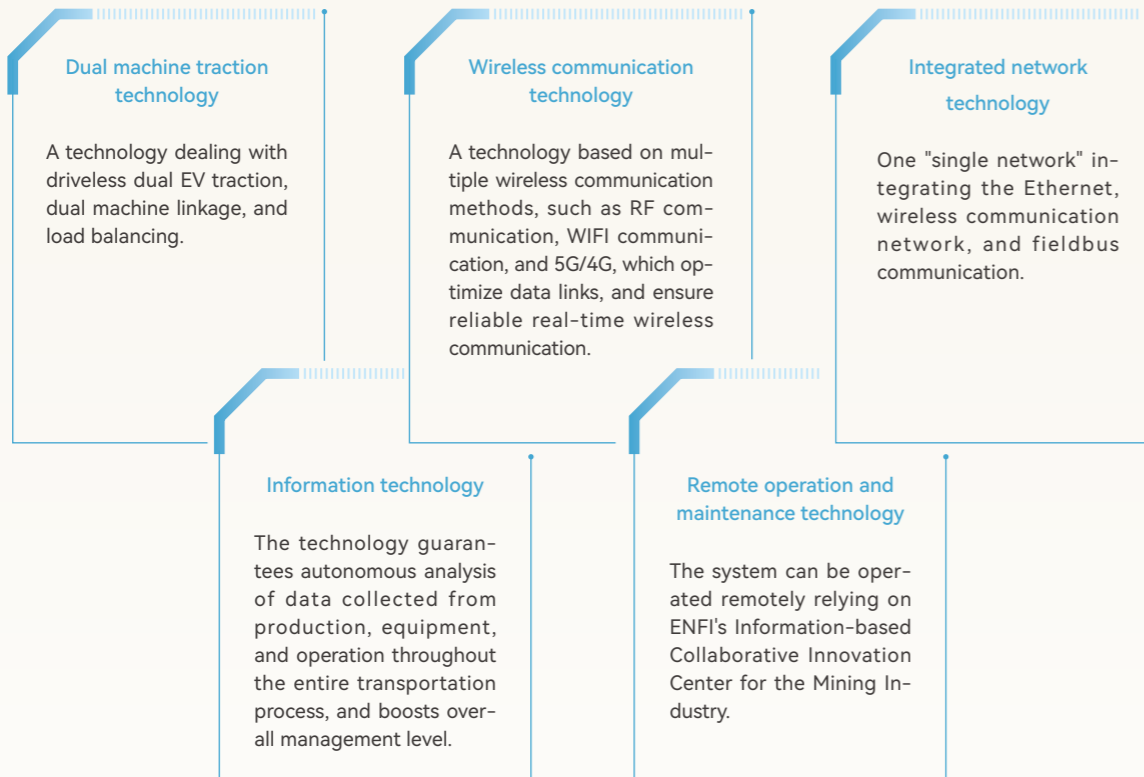
With the increasing demand for cutting tools with high-precision and complexity in domestic industries such as aerospace, automotive, and medical equipment, Zhuzhou Cemented Carbide Cutting Tools, a subsidiary of China Tungsten High-tech and Materials, integrates advanced technologies such as digital technology and the Internet of Things into its entire production chain in a bid to accelerate its digital transformation and platform-based business layout. Through its continuous efforts, the Company has achieved lean and efficient production and processing. In June 2023, Zhuzhou Cemented Carbide Cutting Tools completed the construction of a high-precision tool production line as an effort to perfect its product mix, and boost its core competitiveness.



The indexable hard alloy blade production line of Zhuzhou Cemented Carbide Cutting Tools of China Tungsten High-tech and Materials

▶ Building smart systems to improve production efficiency

ENFI has developed an unmanned electric vehicle transportation system covering the entire mining transportation route, and a corresponding fully digitalized control platform to ensure safe and efficient transportation during mining production. ENFI improves its management through digital means, which has been applied in numerous mines such as Chambishi Copper Mine, Dongguashan Copper Mine, Hongniu Copper Mine, and Dexing Copper Mine. In 2023, ENFI's system was recognized by the Ministry of Industry and Information Technology of the People's Republic of China as one of the "Top Ten Hard Core Technologies" at the 6th Digital China Summit and a typical case of IoT empowerment.



Unmanned EV control center of ENFI's Dexing Copper Mine



# Integrating Industry and Finance

China Minmetals reinforces industrial development through finance by exploring more potential application scenarios of industry-finance integration to upgrade internal services, drive capital growth, and support high-quality development.

## Improving financial services for our core businesses

In line with the requirements of the Central Financial Work Conference, China Minmetals aims to underpin the core businesses through financial services, and firmly transforms towards "industrial finance, technology finance and green finance". With a flexible and efficient combination of financial instruments, we provide professional, specialized, and customized financial service solutions. We plow on investment research, investment banking and investment. We support industrial planning through investment research, facilitate mergers and acquisitions through investment banking, and guarantee capital flow through investment in a bid to effectively boost our financial business competence.

▶ China Minmetals Research Institute for Finance releases mining finance research results and industry-finance integration cases

In September 2023, China Minmetals Research Institute for Finance released two mining finance outcomes, the *White Paper on High Quality Development of Lithium Resource Industrial Chain and Supply Chain*, and the *Metal Industry Ecosystem*. The Institute also announced it will launch the China Lithium Carbonate Index, which serves as a solid tool for industrial chain research and price discovery. Four industry-finance integration cases were also released in three areas, namely resource guarantee, technological upgrading, and trade circulation to channel social capital into forward-looking strategic and emerging industries, and shore up, extend, and strengthen local industries.



China Minmetals Research Institute for Finance releasing research outcomes

## Enhancing asset, capital, and fund operation

Through the top-level design of capital operation, China Minmetals fully leverages the capital market, and establishes platforms that optimize our financing and industrial layouts. As a responsible listed SOE, we improve the quality of listed companies, consolidate business foundation, and strengthen market value management and evaluation. We also research and upgrade the layout of listed assets, and list high-quality assets on more valuable platforms to build a highly-regarded flagship listing platform with industrial influence and purchasing power. Through the treasury system, we strengthen capital management, share financial resources, mobilize funds, visualize fund information, and control risks.

# 3

## Fortifying the Foundations of Safety and Environmental Management

By fully implementing Xi Jinping Thought on Ecological Civilization and the General Secretary's important statements and directives on work safety, China Minmetals adheres to the principles of safe and green development. The Company strengthens the management and control of safety and environmental risks and continuously promotes the green and low-carbon transformation and upgrading of the industry. We have further consolidated the foundation of safety and environmental protection, and effectively achieved safe, green, and high-quality development.



# Enhancing Safety and Environmental Management

China Minmetals integrates the objectives and principles of green, safe, and efficient development into the entire process, from mining and beneficiation to tailings management and reclamation. This integration encompasses all areas, from ferrous to non-ferrous mines, and spans the entire lifecycle, from mines under construction to those in production, as well as other business segments. Focusing on the three-year drive to address the root causes of workplace accidents and ensure production safety, we strictly prevent and control safety risks to ensure high-quality and sustainable development through the "Safe China Minmetals" initiative.

## Building a robust foundation for safety and environmental management

We have continuously strengthened our safety and environmental management systems, improved safety and environmental regulations, and promoted the use of digital technologies in safety and environmental management, thereby solidifying the foundation of our safety and environmental protection efforts.

### Enhancing top-level design of safety and environmental management

- We have issued the Notice on Enhancing the Implementation of Safety Measures, urging our subsidiaries to enforce the "Ten Iron Rules" for construction safety and the "Measures to Prevent Three Types of Typical Accidents".

### Enhancing safety and environmental management systems

- We have compiled the "three lists" for safety and environmental compliance management.
- We have acquired over 400 laws, regulations, rules, and standards related to safety production to improve compliance.
- We have thoroughly reviewed our safety and environmental protection systems, and revised seven management regulations.

### Enhancing the dual prevention mechanism

- Focusing on the major risks of shaft hoisting in mines and working at heights in construction, we have developed two implementation guidelines for risk assessment and hierarchical control: "Mine Shaft Hoisting System" and "Working at Heights in Building Construction." These guidelines aim to reinforce the hierarchical control of work safety risks and the identification and management of potential hazards.

### Enhancing safety and environmental management capabilities

- Leveraging activities of the Work Safety Month, we have implemented comprehensive safety awareness and education initiatives.
- Throughout 2023, subsidiaries at all levels organized 4,117 sessions on the fifteen hard measures for work safety and conducted 2,715 specialized studies on the same topic.

### ▶ Conducting the "Safety Knowledge Cloud Classroom" online training

In June 2023, the Company organized an online training session named "Safety Knowledge Cloud Classroom". The training covered various topics including fire safety management, the three-level responsibility system for positions, daily hazard inspections and fire prevention in office areas, emergency self-rescue methods in different scenarios, and safety precautions. These topics were presented through theoretical explanations, case analyses, and courseware demonstrations. This training fostered a safety culture where everyone speaks about safety and is proficient in emergency response, and effectively created a firewall for the Company's safe development.

## Preventing safety and environmental risks

We will further concentrate our focus on various key domains, enhance the prevention of major risks in work to proactively mitigate these risks from the source, and continuously build a strong defense line against safety and environmental risks.



### Strictly controlling and managing mine safety risks

- We have carried out thorough inspections of all domestic mining enterprises and conducted video inspections of overseas mines.
- We have collaborated with institutions like the China Academy of Safety Science and Technology to conduct risk assessments for relevant safety risks of Hecheng Mining, Huangshaping Mining, and Yaogangxian Mining.



### Strengthening risk management in construction

- We prioritize tunnel and road bridge construction projects, and have intensified oversight of high-risk operations such as lifting machinery dismantling and hot work operations.
- MCC Group has implemented special inspections to address core risks by selecting the best personnel, cross-checking responsibilities across zones, and conducting thorough self-assessments across projects. A total of 555 key ongoing projects across 30 subsidiaries have been inspected, with 6,081 potential hazards identified and addressed.



### Enhancing risk control of hazardous chemicals

- We have conducted comprehensive supervisory inspections at subsidiaries such as Yunnan Fluorine Chemical, Hengyang Fluorine Chemical, and China Silicon Corporation Ltd. (SINOSICO). These endeavors are directed towards continuously optimizing risk control measures for key regulated hazardous chemical processes, monitored hazardous chemicals, and major hazardous sources.



### Systematically managing risks in other industries

- We have strengthened safety management in critical areas, as well as important equipment and facilities across sectors including warehousing and logistics, geological exploration, metal processing, and property management.

## Digital empowerment for safety and environmental management

We have advanced the application of technology by enhancing the development of the "digital brain" safety monitoring platform. Simultaneously, we have promoted the launch and operation of new systems for energy conservation and ecological environmental protection, and achieved risk monitoring and early warning through the tailings pond system.

### ▶ Enhancing the safety management of a century-old mine through technology

In August 2023, the intelligent cage hoisting system for the seventh shaft of the lead-zinc mine at Hunan Shui Kou Shan Nonferrous Metals Group Co., Ltd. was officially put into operation. This advanced system employs technologies such as non-contact long-distance wireless charging, long-distance LoRa spread spectrum wireless data communication, and IoT automatic control. As a result, it enables one-click cage operation, comprehensive monitoring of the cage's operation, and real-time communication between passengers in the cage and the ground. This system eliminates the safety risks associated with traditional cage operations that require personnel to perform external operations, effectively addressing the longstanding issue of information isolation in cage operations that has plagued mining enterprises. Ultimately, it significantly enhances the intrinsic safety level of the mine.

### ▶ Minmetals Mining enhances risk management through the newly launched digital platform

In September 2023, the digital platform of Minmetals Mining's command center was officially launched. The platform incorporates a flexible and precise risk warning system that analyzes risk factors and identifies appropriate countermeasures. This establishes a comprehensive cycle encompassing risk alerts, message notifications, actions taken, feedback on corrective measures, and updates on warnings. Safety-related data are displayed on the platform, such as mine ventilation, drainage, and environmental conditions, highlighting the work safety status of each mine and also the Company as a whole.

### ▶ Leading the way in applying underground vehicle fatigue detection technology

MMG has pioneered the use of underground vehicle fatigue detection technology at the Rosebery zinc mine. This technology employs Hexagon's Operator Alertness System (OAS), which installs cameras on vehicle dashboards to send alerts through sound and seat vibrations. By detecting vehicle fatigue and driver distraction in real-time during 12-hour shifts, it effectively reduces safety risks. Currently, 81 operators have registered to use this system.



The Operator is logging into the OAS at the Rothbury zinc mine

## Ensuring Safe Operations

China Minmetals has fully studied and implemented General Secretary Xi Jinping's important discourse on work safety. The Company has systematically and scientifically established and optimized a long-term mechanism to ensure work safety, while fully integrating a safety culture into all operations. By leveraging digital tools and intelligent equipment, the Company has enhanced mine development and operations, thereby minimizing the ecological impact of human activities and improving intrinsic safety.

In 2023, the fatality rate per CNY 10 billion of construction output, the fatality rate per million tons of mining output, the number of production safety accidents, and the number of fatalities all continued to decline, with zero major or severe work safety accidents.

## Strengthening supervision and inspection

In 2023, the Company organized 28 special supervision and inspection activities, including those for the resumption of work and production, and fire and gas safety. The headquarters directly conducted penetrating inspections of 49 subsidiaries (projects), covering all high-risk industries. We achieved "special inspections with expert participation on a monthly basis," comprehensive mine inspections, and significant improvements in both inspection quality and effectiveness.

Times of supervision and inspection activities conducted by directly managed subsidiaries and their affiliated sub enterprises:

**19,050**

Number of enterprises inspected by directly managed subsidiaries:

**2,482**

Rewards for reporting: CNY

**271,300**

## Eliminating safety and environmental hazards

The Company has conducted thorough investigations and rectifications of safety and environmental hazards by fully advancing the "Year of Strengthened Safety Management Action" and the "Special Investigation and Rectification Action for Major Accident Hazards." We have developed a comprehensive plan with a detailed list of 36 tasks, implemented these tasks in four phases, and regularly monitored progress. Through "list-based" management, we have ensured the effective execution of these special actions. For identified major accident hazards, we mandate immediate correction; those that cannot be rectified immediately have been assigned for supervised rectification at different levels. We have achieved significant results in our special investigations and rectifications.



# Addressing Climate Change

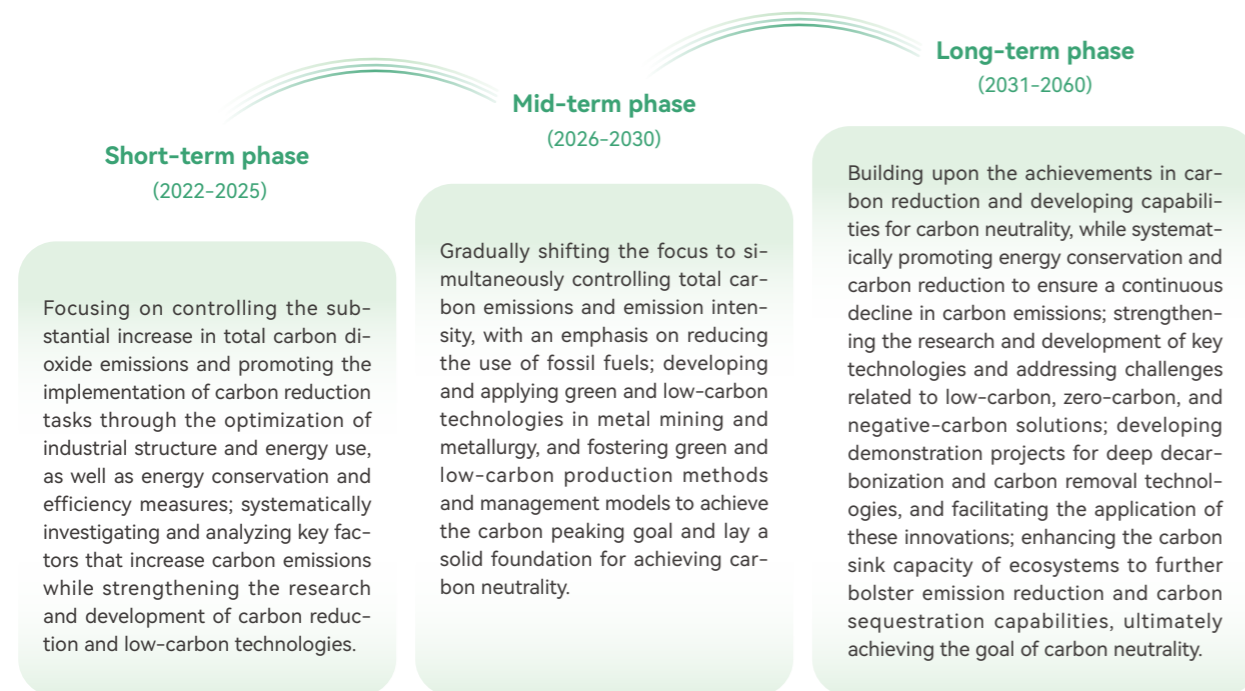
The Report to the 20th National Congress of the Communist Party of China stated, "A green and low-carbon economy and society are crucial to high-quality development." China Minmetals views addressing climate change as a vital approach to promoting ecological civilization and achieving high-quality development. The Company is committed to contributing to the progress towards China's carbon peaking and carbon neutrality goals and the Beautiful China Initiative.

## Developing a carbon peaking action plan

We have integrated carbon peaking and carbon neutrality into the Company's overall development strategy and set overall objectives, timelines, and roadmaps for achieving carbon peaking. By accelerating optimization and structural adjustments and deepening supply-side structural reforms, we aim to reduce carbon emission intensity and control total carbon emissions. This will expedite the Company's green and low-carbon transformation and high-quality development, thereby strongly supporting the country in achieving its carbon peaking and carbon neutrality goals on schedule.

### Overall objectives for carbon peaking

	General objectives	Industry-specific objectives
2025	<ul style="list-style-type: none"> <li>Comprehensive energy consumption per CNY 10,000 of output (at comparable prices) will be reduced by 13.5% compared to 2020.</li> <li>Carbon dioxide emissions per CNY 10,000 of output (at comparable prices) will be reduced by 18% compared to 2020.</li> <li>The revenue proportion from strategic emerging industries will be no less than 6.5%.</li> </ul>	<ul style="list-style-type: none"> <li>Achieving significant progress in the adjustment and optimization of the energy structure, with substantial improvement in energy resource utilization efficiency</li> <li>Making positive advancements in the research, development, and extensive application of green and low-carbon technologies, with R&amp;D expenditure intensity reaching 3%</li> <li>Ensuring that the consumption of non-fossil energy (including non-fossil energy used in electricity consumption) accounts for approximately 10% of the Company's total energy consumption</li> </ul>



## Carbon peaking strategic roadmap

Taking into account diverse industrial attributes and characteristics, as well as national and industry-specific requirements for carbon peaking and carbon neutrality, the Company has clearly outlined two major strategic tasks for carbon peaking and devised carbon reduction pathways for its primary business domains.

**The two major strategic tasks:**

- Persisting in focusing on ourselves to become a leader in green and low-carbon development.
- Persisting in concentrating on the industry to become an enabler of green and low-carbon development.

### Integrated financial services

Leveraging our role as a pilot state-owned capital investment company, we harness our strengths in capital and industrial cultivation to accelerate the industrialization and broad application of advanced technologies, while expanding our investment portfolio in the green and low-carbon sector. By utilizing our full financial licenses, we have developed a green financial business system that offers various forms of green financial services to meet the funding needs of decarbonization and emission reduction initiatives. This approach supports upstream and downstream customers in the industry chain, fostering coordinated emission reduction across the entire value chain. Moreover, we enhance model development and product innovation to advance green and low-carbon technological innovations and their applications. Through this, we fully leverage green financial innovation to facilitate structural adjustments in the real economy and transform economic development pattern.

### Metals and minerals

China Minmetals focuses on optimizing industrial structure and layout, transitioning to use green and low-carbon energy, conserving resources and improving efficiency, implementing green and low-carbon recycling transformations, enhancing digitalization and intelligence, innovating green and low-carbon technologies, and consolidating and enhancing carbon sink capacity. Through these efforts, we aim to build a green supply system for metal and mineral resources that follows a "resource-product-resource" cycle, and promote carbon reduction throughout the entire lifecycle of metal and mineral resource development.



### Metallurgical construction

With a focus on green development and intelligent manufacturing, we adhere to the principle of "emphasizing source control and synergistically reducing pollution and carbon emissions." This guides us in reshaping the new paradigm of the national green metallurgy team, known as the "one body, two wings," and establishing an ecological chain that offers full lifecycle services to the steel industry. These initiatives facilitate carbon reduction across the entire steel metallurgy process, enhance integrated innovation, and advance the green and low-carbon development of the non-ferrous metal industry. Through these endeavors, our goal is to lead in green metallurgy innovation and integrate modern metallurgical operational services.

### Bulk metal commodities trade and logistics

We have established a specialized logistics service network covering the entire process and created an intelligent logistics platform with multimodal transportation capabilities. Concurrently, we have developed high-standard iron ore blending centers and comprehensive logistics parks for bulk metal commodities. We are advancing the recycling of metal resources and expanding the trade of high-quality, high-value-added green products. Through these initiatives, we aim to build a modern circulation system for bulk commodities that is green, low-carbon, and promotes circular development.

### Infrastructure and real estate

We advance towards an integrated green building and construction industry system across the entire supply chain by developing industrialized construction and leveraging digitalization and intelligent upgrades. Our efforts include comprehensive advancements in green design, accelerated deployment of prefabricated construction industries, robust development of renewable energy buildings, and the full integration of green, digital, and intelligent applications throughout the construction process and building lifecycle. We are committed to supporting the construction industry in achieving energy savings and carbon reduction goals throughout its lifecycle through innovations and applications in energy-efficient and low-carbon technologies. This includes advancements in building materials, construction methods, smart operation and maintenance, and green recycling initiatives.

## Continuing the implementation of low-carbon initiatives

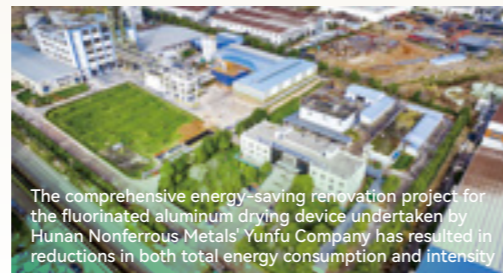
In response to China's carbon peaking and carbon neutrality goals, China Minmetals has defined twelve key tasks to achieve carbon peaking. Collaborating with all subsidiary institutions, we have continuously optimized our eco-friendly industrial system and comprehensively promote green and low-carbon development. In 2023, the Company achieved year-on-year reductions of 4.1% in comprehensive energy consumption, 3.9% in energy consumption intensity, and 8.4% in carbon dioxide emission intensity.

### Key tasks for achieving carbon peaking

- Optimizing industrial structure and layout
- Transitioning to use green and low-carbon energy
- Conserving resources and improving efficiency
- Constructing green and low-carbon infrastructure
- Implementing green and low-carbon recycling transformations
- Advancing digitalization and intelligence
- Managing green and low-carbon supply chains
- Consolidating and enhancing carbon sink capacity
- Innovating green and low-carbon technologies
- Developing capabilities for green and low-carbon initiatives
- Engaging in international cooperation on green technologies and economic trade
- Leveraging industrial and technological strengths to empower industry development

### Hunan Nonferrous Metals' multifaceted efforts to promote energy conservation and emission reduction

Zhuzhou Smelter Group, a subsidiary of Hunan Nonferrous Metals, has developed a plan to control total carbon emissions and intensity. Zhuzhou Smelter Group has completed the carbon footprint assessment for zinc ingots and zinc-based alloys, and implemented energy-saving upgrades for air compressors. In 2023, Zhuzhou Smelter Group eliminated 10 outdated air compressors, upgraded 5 high-energy-consuming motors, replaced 41 high-energy-consuming motors, and installed 5 new variable frequency drives. This initiative resulted in an annual savings of 918 tons of standard coal and a reduction of 3,900 tons of carbon emissions. In addition, Zhuzhou Smelter Group has undertaken comprehensive measures to reduce coke consumption throughout the entire production processes. The consumption of volatile furnace coke has decreased from 425 kilograms per ton of zinc to 410 kilograms per ton annually, saving 4,300 tons of standard coal and reducing carbon emissions by 12,600 tons. Furthermore, Hunan Zhuzhou Smelter Torch New Materials Co., Ltd. has constructed a carport photovoltaic power generation facility, with the current installed capacity reaching 2.9 MW.



The comprehensive energy-saving renovation project for the fluorinated aluminum drying device undertaken by Hunan Nonferrous Metals' Yunfu Company has resulted in reductions in both total energy consumption and intensity

### Changyuan Lico pursues product carbon footprint certification

In 2023, Changyuan Lico conducted an investigation into its current status of carbon peaking and carbon neutrality, and strengthened product carbon footprint management. Changyuan Lico completed a full lifecycle assessment at the plant, production line, and general equipment levels for major products such as ternary cathode materials LL5503, LY346, and LY318S. It established a foundational database and product carbon footprint report, ensuring transparency in product energy consumption and carbon footprint data. This effort laid the groundwork for carbon footprint accounting across the entire industrial chain and for future carbon reduction initiatives. Furthermore, Changyuan Lico actively promoted upstream carbon tracing efforts by encouraging over 20 suppliers to participate in the zero-carbon transition. It collected relevant carbon footprint data and built models to foster collaborative carbon reduction efforts across the supply chain to achieve the goal of carbon neutrality.



### Initiating a new era of eco-friendly hydrogen metallurgy

The hydrogen metallurgy demonstration project of HBIS Group Co., Ltd., consulted and designed by CERI, is one of the world's first to transition from laboratory research to a physical plant. The project has now achieved stable production, with a product metallization rate exceeding 94%. It can reduce carbon dioxide emissions by 800,000 tons annually and cut comprehensive energy consumption by 50%. The project spearheads a revolutionary shift in the global steel industry from carbon-based to hydrogen-based metallurgy. Hydrogen metallurgy is a metallurgical process that uses hydrogen as a reducing agent, producing metallic iron and water vapor as the primary byproducts. Unlike the traditional long process of "blast furnace + converter" in carbon metallurgy, the short process of "hydrogen metallurgy + electric furnace" eliminates high-emission and high-energy-consuming stages such as coking and sintering. This method replaces traditional coal with hydrogen for steel production, leading to a 70% reduction in carbon emissions, a two-thirds decrease in total flue gas emissions, and a 50% reduction in both comprehensive energy consumption and land use. It also cuts water consumption per ton of steel by 50%, with reductions in SO<sub>2</sub>, NO<sub>x</sub>, and particulate emissions per ton of steel by approximately 30%, 70%, and over 80%, respectively. Furthermore, the highly automated production process significantly reduces labor costs by 75%. This significant advancement in the core technological domain of hydrogen metallurgy represents a crucial milestone in the history of Chinese and global steel making industries, shifting from traditional "carbon metallurgy" to innovative "hydrogen metallurgy." It heralds the steel industry's entry into an era of producing "eco-friendly steel" through the substitution of coal with hydrogen.



The world's first 1.2 million-ton hydrogen metallurgy demonstration project overall consulted and designed by MCC CERI

### The 23rd Metallurgical Construction Group of Minmetals develops a model for sustainable building

On April 27, 2023, the main structure of the East Tower and the first Phase basement of Changsha Minmetals Plaza Project was successfully capped. The project introduces the concept of "dual controlling of energy consumption and carbon emissions while achieving a balance between comfort and low carbon," earning certifications from LEED, WELL, and Green Building standards. Sustainable design concepts have been integrated into site planning, architectural design, HVAC design, water supply and drainage design, and electrical design. This enhances the building's resilience to climate change, promotes harmonious development among the project and the environment, the project and people, and people and nature.



Changsha Minmetals Plaza Project

Annual electricity savings:

**2.37** MWh

Electricity cost savings:

CNY **1.89** million

Carbon emissions reduction:

**1,307** tons  
(equivalent to planting 70,000 trees annually)

## Mitigating Environmental Impact

China Minmetals is dedicated to developing and utilizing complex resources and recycling solid waste resources. We consistently implement precise, scientific, and lawful pollution control, rigorously managing the treatment of waste gas, waste water, and solid waste. Through these efforts, we continually contribute to safeguard clear skies, clean water, and unpolluted land.

In 2023  
Jinzhou Company, Nanchang  
Cemented Carbide, Ganbei Tungsten,  
Jinchi Energy Materials, and MCC-SFRE  
Heavy Industry Equipment  
were recognized as national  
"Green Factories"

### Pollution prevention and control

In our ongoing fight against pollution, we have intensified the investigation and rectification of discharge outfalls, wastewater treatment facilities, and sewage pipe networks. We have rigorously implemented measures for soil and groundwater pollution prevention, ecological restoration, and environmental monitoring, while also enhancing our hazardous waste disposal capabilities.

In 2023, we initiated special inspections and remedial actions targeting environmental risks in the Yangtze River and Yellow River basins. Following extensive research, we compiled management registries covering 127 production enterprises and 1780 construction projects. We also formulated 12 rectification plans aimed at enhancing the comprehensive prevention and control of air and water pollution.

#### ▶ Holding a national-level green construction observation meeting

On October 25, 2023, China MCC22 Group held a national-level green construction observation meeting for its delivery and maintenance capacity building project of the domestically produced Commercial Aircraft Corporation of China (COMAC) C919 aircraft. The event attracted over 200 experts, scholars, and business representatives from across the country specializing in green engineering and construction. The project undertaken by China MCC22 Group represents a significant effort aimed at supporting the operational and maintenance assurance tasks for domestically manufactured large aircraft and aligning with the national strategy for large aircraft development. Throughout the construction phase, China MCC22 Group extensively employed new energy excavators, dump trucks, and concrete pumps, thereby reducing reliance on fuel-powered equipment and effectively lowering carbon dioxide emissions. Operationally, China MCC22 Group deployed plastering robots, construction cleaning robots, and ground leveling robots that operate at efficiencies 5 to 8 times higher than manual methods. These robots boast a cleaning capacity exceeding 800 square meters per hour and maintain a flatness qualification rate of over 95%. By leveraging these advanced technologies, China MCC22 Group successfully achieved its objectives of efficient construction practices and significant energy conservation and emission reduction.

#### ▶ China Tungsten and Hightech Materials tightens hazardous waste management

China Tungsten and Hightech Materials has rigorously adhered to hazardous waste management standards by establishing dedicated storage facilities for hazardous waste and implementing measures to prevent dispersion, loss, and leakage. China Tungsten and Hightech Materials has developed comprehensive waste transfer plans and registered records in the solid waste information systems of relevant provinces. Strict compliance with the manifest system ensures transparent tracking of waste disposal. Employing tools such as scales and video surveillance, China Tungsten and Hightech Materials has automated its hazardous waste management processes. Moreover, it has introduced electronic tags for hazardous waste to enable precise identification and traceability. By integrating with environmental protection bureau management platforms, it promotes data sharing, thereby enhancing the standardization and efficiency of hazardous waste management.

#### ▶ Continuous enhancement of exhaust gas emission management

Changyuan Lico has implemented a rigorous exhaust gas emission monitoring system to ensure the accuracy and reliability of emission data. Throughout 2023, all exhaust gas treatment facilities under Changyuan Lico's management operated efficiently, maintaining complete operational records and meeting emission standards. To mitigate exhaust gas emissions, its subsidiaries have introduced advanced technologies and equipment for exhaust gas treatment. For instance, Jinchi Energy Materials replaced ammonia absorption tower water wash with acid wash, and Changyuan Lico New Energy upgraded its dust control facilities. These initiatives have significantly reduced their environmental footprint by further enhancing atmospheric pollution control measures. In 2023, Changyuan Lico's total emissions of exhaust pollutants amounted to 2.29 tons, reflecting a decrease by 0.45 tons compared with the previous year.

## Recycling

Following the principles of "reduction, reuse, and recycling," we allocate substantial funds and address technological challenges to significantly enhance mining recovery rates, ore selection rates, and beneficiation recovery rates. This enables more effective separation of valuable minerals from associated minerals and mutual separation among coexisting valuable minerals. We are committed to converting waste rock into resources, emphasizing resource recycling and efficiency improvement, thereby actively constructing a circular economy.

#### ▶ Overcoming the global challenge of beryllium residue disposal

Since 2018, over six consecutive years, Hunan Nonferrous Metals and China Minmetals Beryllium Co., Ltd. have jointly invested CNY 110 million. They collaborated with Central South University, Changsha Research Institute of Mining and Metallurgy, and the Hunan Research Academy of Environmental Sciences to address technological challenges in harmless treatment, resource utilization, and waste reduction. Their efforts led to the successful development of collaborative processing technology for beryllium-containing waste residue in cement kilns, marking significant technological advancements. On November 10, 2023, they disposed all historical beryllium residues and achieved dynamic clearance of the beryllium residue warehouse.

#### ▶ Maximizing comprehensive recovery advantages and achieving efficient material utilization

Zhuzhou Smelter Nonferrous, a subsidiary of Hunan Nonferrous Metals, has actively applied the new development philosophy. Within the China Minmetals copper-lead-zinc base in Shuikoushan, the company fosters "material sharing, public service sharing, joint environmental protection, and mutual management learning" among enterprises. This collaborative approach harnesses the synergistic effect of "1+1+1>3," maximizing the comprehensive recovery advantages across three systems and achieving optimal resource synergy. The company recycles more than 16 types of metal elements and processes over 400,000 tons of non-ferrous solid waste annually, demonstrating efficient material utilization. For three consecutive years, Zhuzhou Smelter Nonferrous has been honored as an environmental integrity leader in Hunan Province. In 2022, it was awarded as "Green Factory" and "Water-saving Enterprise" in Hunan. Furthermore, Zhuzhou Smelter Nonferrous's outstanding initiative in energy conservation and carbon reduction have received commendation from the Ministry of Industry and Information Technology (MIIT).



Zhuzhou Smelter Nonferrous achieves zero discharge of industrial wastewater through advanced technologies

# Enhancing Ecological Conservation

We strategically commit to continuous efforts in ecological conservation, seamlessly integrating them into our high-quality sustainable development goals. Our aim is to achieve a harmonious balance among ecological, economic, and social benefits, and to leverage the successes of ecological governance as catalysts for high-quality development.

## Green mines

We prioritize ecological conservation and pursue green development throughout our entire production and construction processes, aiming to establish eco-friendly mines. Concurrently, we diligently implement feedback from inspections and strive to construct a comprehensive framework for ecological and environmental conservation and governance.

### ▶ A new era for the century-old tungsten mine in Yaogangxian

In Yaogangxian, over a century of tungsten mining has left more than 20 million tons of blocky tailings on steep slopes and in valley waterways. China Tungsten and Hightech Materials has prioritized addressing issues highlighted by central environmental inspectors as its foremost political task, and planned from a high starting point. The company has engaged national-level professional institutions to develop technical solutions and established a comprehensive long-term plan with risk control measures. The plan involves implementing steps from easy to difficult while balancing restoration and control. China Tungsten and Hightech Materials has conducted restoration in three phases, dedicating substantial resources and effort to progressively achieve the goal of preserving lush mountains.

From May 2020 to December 2023, a total of **62.16 million** CNY was invested

**1.62 million** cubic meters of waste rock were removed  
**3,534** meters of flood interception ditches were constructed

**110,000** square meters of land were restored  
**466** meters of road were built

	Difficult points	Solutions
Transportation challenges	Blocky tungsten tailings from Yaogangxian Mining are excellent construction materials that should be fully utilized. However, its remote location and high altitude pose significant challenges. It is connected to the outside by only a narrow, winding, and steep county road, making transportation extremely difficult.	<ul style="list-style-type: none"> <li>Enhancing transportation infrastructure: China Tungsten and Hightech Materials has invested over CNY 14.65 million to construct 7,102 meters of new mining transport roads and to straighten and widen 7 sections of county roads.</li> <li>Improving transportation operations: The company has mobilized Party members to form service teams for traffic management, while actively seeking multi-party support and cooperation for the disposal of blocky tailings.</li> </ul>
Restoration challenges	Many of the areas requiring restoration consist of cliff faces and steep slopes plagued by seepage issues and instability, frequently leading to landslides.	<ul style="list-style-type: none"> <li>China Tungsten and Hightech Materials has constructed a 60-meter-long, 18-meter-high gravity dam on the sheer cliff, along with three debris retention dams. These four structures securely contain the blocky tailings on the steep slope.</li> <li>In the eastern part of Simaoping, the company has used anchor cables and grid beams for reinforcement, installing a total of 527 anchor rods (with a combined length of 5,537 meters) and 92 steel pipe piles (with a combined length of 557 meters).</li> </ul>
Challenges of vegetation survival	The areas requiring restoration lack water retention capability, making it extremely difficult for planted vegetation to survive.	<ul style="list-style-type: none"> <li>Bermuda grass, bahiagrass, tickseed, and other alpine grass and tree species have been selected for vegetation restoration. Methods such as laying sod, planting grass seeds, and planting shrubs are employed, along with special techniques like netting and hydroseeding to aid vegetation in taking root and sprouting.</li> <li>To address the challenges of watering under special geological conditions, China Tungsten and Hightech Materials has established nine maintenance water tanks on high slopes and utilizes both sprinkler and drip irrigation systems.</li> </ul>



Comparison of Yaogang County before and after ecological restoration

▶ Outstanding achievements in green mine construction

China Minmetals Graphite Industry Co., Ltd. is committed to green, low-carbon development, energy conservation, and environmental protection. It has innovatively introduced the concept of carbon offset. The company prioritizes intelligent production, clean energy transformation, electrification of transportation, and optimizing resource utilization. Its goal is to establish a world-class green, low-carbon, and intelligent mine in Hegang, Heilongjiang Province.

China Minmetals Graphite Industry actively explores a green and intelligent mining development model. It has proactively deployed 5G+ industrial internet communication infrastructure early on and developed technologies like intelligent ore blending to minimize waste from the source and enhance mining resource efficiency. This initiative results in an annual reduction of approximately 600,000 tons in waste rock.

China Minmetals Graphite Industry has developed a "zero-carbon" energy recycling system, and installed multiple wind and solar power generation facilities within the mining areas to enhance the use of clean energy.

China Minmetals Graphite Industry has made great effort to promote green transportation. By implementing technologies such as battery swapping for heavy-duty electric trucks, 5G communication, and new energy replenishment, China Minmetals Graphite Industry has enabled low-carbon operation of transport vehicles and optimized transportation routes with a "heavy load downhill, empty load uphill" strategy. These measures have significantly reduced energy consumption in the mining transportation system, resulting in an annual reduction of 2,400 tons of carbon dioxide emissions.

China Minmetals Graphite Industry has embarked on the high-quality utilization of graphite solid waste. Targeting the solid waste materials generated during mining and beneficiation processes, it has independently developed and produced innovative building and heating materials. These products have been successfully applied in its office area. A demonstration project capable of processing 10,000 tons of graphite solid waste annually has been completed, with efforts underway to vigorously expand into other application areas.

Adhering to the principle of "concurrent mining and reclamation," China Minmetals Graphite Industry has swiftly launched mining restoration initiatives. These include safety management, soil covering, vegetation restoration, landscaping, reshaping, reclamation, and specialized management. The total area of reclaimed land has exceeded 250,000 square meters, with an investment exceeding CNY 6 million in reclamation and geological environmental management expenses.



The green and zero-carbon industrial square built by China Minmetals Graphite Industry Co., Ltd.

## Biodiversity conservation

Through initiatives such as biodiversity conservation, rational land use planning, and ecological restoration, China Minmetals minimizes land disturbance and mitigates environmental impact as much as possible. The Company steadfastly follows the path of green development that prioritizes ecological conservation.

▶ Las Bambas releases 600,000 trout fry

Las Bambas Copper Mine has launched a landmark environmental restoration project in seven nearby communities, including Pamputa. This initiative has successfully released over 600,000 trout fry, demonstrating a dual commitment to environmental stewardship and community development. By increasing the number of trout fry, the project aims to protect the aquatic ecosystem, enhance regional biodiversity, and support ecological balance. Fully funded by Las Bambas, the project seeks to revitalize the local trout industry, improve food security for community members, and stimulate local employment and economic growth.



Las Bambas releases trout fry in nearby communities

▶ Conserving endangered wildlife to build a Beautiful China

China Minmetals has consistently prioritized environmental protection and green development as key missions, and dedicates itself to the Beautiful China Initiative. Leveraging Minmetals International Trust as a key platform, we have established the "Minmetals International Trust - Sanjiangyuan Siyuan Charity Trust," with a total investment exceeding CNY 6 million. The trust has funded impactful projects such as the "Live Streaming of Bar-headed Geese," "Yangtze River Source Scientific Expedition," "Yellow River Source Scientific Expedition," and "Lancang River Source Scientific Expedition." These initiatives have garnered significant attention and extensive coverage from major central media outlets, including China Central Television and Xinhua News Agency.

In 2023, the documentary Snow Leopards and Friends portrayed the lives of snow leopards in the Sanjiangyuan (Source of Three Rivers) region in northeast China. It featured the encounters of a female and male snow leopard, the birth of their cubs, and intimate moments of reproduction among other wildlife such as bar-headed geese and Tibetan foxes. The film also captured the heartfelt concern of the director and nomadic photographer for the survival of the snow leopard family, illustrating genuine human-nature connections.



# 4

## Building a Dedicated and Entrepreneurial Team

China Minmetals firmly implements the decisions and directives of the CPC Central Committee regarding talent work. Committed to the mission of vigorously implementing the strategy of empowering the corporation with talents, we maintain an integrated approach with overall plan and focused breakthroughs to actively build a proper talent structure, providing broad development opportunities for employees. We continually promote democratic management, safeguard employees' legitimate rights and interests, and support their well-being and development.



# Empowering the Corporation with Talents

China Minmetals has thoroughly implemented the "Action Plan for Empowering the Corporation with Talents". By improving the foundational human resources management system and optimizing talent selection, training, management, and utilization, we cultivate, attract, and utilize talents in all aspects. In this way, we strive to provide strong organizational assurance and talent support for building the Company into a world-class metal and mining enterprise with global competitiveness, thus creating a "talent highland" in the industry.

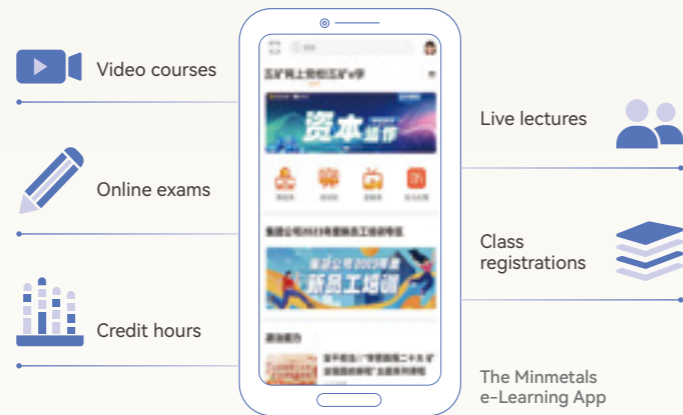
## Cultivating excellent talents

China Minmetals emphasizes industry-specific talent training and enhances professional training and practical exercises to improve the quality and capability of the workforce, aiming to build a world-class talent team.

In 2023  
We organized training sessions with  
**1,161,446** person-time

### ▶ Establishing the "Minmetals Four-Season, Year-Round Excellence" Training System

China Minmetals has deepened the construction of a learning organization. We launch the China Minmetals online Party courses (Minmetals e-Learning) with multi-terminal learning platform App and PC, covering over 88,000 employees. We have established the *Minmetals Four-Season, Year-Round Excellence Training System* and launched over 2,000 high-quality courses, offering branded columns, themed special trainings, expert livestreamings, knowledge competitions, and community learning, helping broaden employees' horizons and enhance their skills.



<b>Political capability</b> Enhancing ideological education with theory	<b>Personal development</b> Accelerate individual growth with career essentials	<b>Minmetals Four-Season</b> Igniting employee enthusiasm with high-quality activities	<b>Year-Round Excellence</b> Supporting strategic implementation with professional advancement

The "Minmetals Four-Season, Year-Round Excellence" Training System for all employees

### ▶ Building an excellent engineer training system

Focusing on national strategic emerging industries and future industrial layouts, China Minmetals emphasizes core business areas of the Company and key disciplines development of Central Research Institute of China Minmetals Corporation. Based on the key factors of students, tutors, courses and projects, we deepen the cooperation between universities and enterprises, strengthen the integration of industry and education, striving to build an excellent engineer training system with Minmetals characteristics.



China Minmetals and University of Science and Technology Beijing hold a meeting on joint training program of master's and doctoral engineering students

### ▶ Strengthening the high-skilled talent team building

China Minmetals has continuously intensified efforts to build a high-skilled talent team. We host the first High-Skilled Talent Exchange Conference, and deliver lectures on high-skilled talent team building in the new era within the labor union and the Company, interpreting policies systematically and improving the competency of employees in their business lines.



China Minmetals hold a lecture on high-skilled talent team building in the new era

▶ **Launching the "International Leading Mining Talent Team Program"**

China Minmetals aims to cultivate a batch of mining talents proficient in both professions and languages to address the structural mismatch between professional skills and job requirements. We have preliminarily constructed the portraits of international mining talents, clarifying the key experiences and competencies required to manage business challenges, and conducted targeted systematic training and exchange training programs at home and abroad.

▶ **Enhancing employer branding and expanding recruitment channels**

Responding to the call of the country, China Minmetals has effectively conducted university recruitment and employment initiatives. In 2023, we integrated campus recruitment promotions for subsidiaries at or above the third level of the Company. After surveying the needs of 83 subsidiaries, we organized job fairs for mutual selection for 48 enterprises at 5 universities, including Tsinghua University and the University of Science and Technology Beijing. These events attracted over 2,000 students and received more than 30,000 resumes online. We also advanced the "Mining New Talent" high-potential talent recruitment program. By organizing a unified summer internship program at directly managed subsidiaries in Beijing, and leveraging a unified recruitment platform, we continually optimize the recruitment process to support and boost employment stability.



Campus recruitment presentation at Tsinghua University

▶ **China Minmetals Employees win medals at the National Vocational Skills Competition**

In September 2023, the second National Vocational Skills Competition, themed "Achieving Success through Skills, Serving the Nation with Expertise", was held in Tianjin. 12 employees from 6 China Minmetals subsidiaries and 1 technical college were selected to represent 7 provincial (municipal) delegations and the delegation of the Ministry of Housing and Urban-Rural Development. They won a total of 2 gold medals, 3 silver medals, 1 bronze medal, and 5 merit awards. 4 employees were selected for the national training team for the 47th World Skills Competition, and 6 employees were honored with the title of "National Technical Expert".

## Building development platforms



China Minmetals adheres to a systematic approach in developing a comprehensive talent selection, cultivation, management, and utilization mechanism. The Company emphasizes a clear orientation in selecting and employing talents, and diligently carries out the selection and appointment of personnel, continuously strengthening the talent team building and helping employees realize their own values.

Relying on digital approaches, the Company analyzes and provides early warnings on the development of secondary leadership teams, board of directors, and young cadre teams, gradually proposing plans for the development of secondary leadership teams based on task priorities. We improve the regular working mechanism for cultivation and selection of outstanding young cadres and promote talents from the primary level, with an emphasis on cross-regional, multi-level, multi-position, and multi-professional experience in the selection of cadres.



To strengthen training for cadres, especially young cadres, we conduct specialized trainings through the "Qingma Project" demonstration class to hone their political integrity and professional skills. Besides, we carry out 39 online training sessions across 10 themes throughout the year, helping numerous cadres truly understand the Company's strategic objectives and pathways, thereby enhancing their capabilities. A total of 127,000 employees/times participated in the training sessions.



## Practicing Democratic Corporate Management

China Minmetals deeply practices the concept of whole-process people's democracy, continuously improves democratic management system of the Company with Staff Congress as the basic form, and fully protects employees' legitimate rights and interests, including the right to know, the right to participate, the right to vote and the right to supervise. In this way, we strive to inspire the sense of ownership among employees, and actively promote the in-depth development of democratic corporate management.

We strengthen the full lifecycle management of staff representatives' proposals.

We have integrated these proposals into the long-term mechanism of "Serving the People with Practical Actions", and all the 9 proposals filed during the 5th plenary session of the 1st Staff Congress were successfully implemented in 2023.



We take solid steps to disclose information on the Company's administration affairs, and safeguard the entitled rights of employees at the primary level.

By holding staff representatives' symposiums and youth employees discussion meetings at various subsidiaries, we maintain transparency of relevant corporate affairs, effectively protecting employees' right to information.



# Protecting Legitimate Rights and Interests

China Minmetals strictly complies with the *Labor Law of the People's Republic of China and the Labor Contract Law of the People's Republic of China*. We prohibit the employment of child labor, forced labor, and harassment or abuse, and oppose discrimination based on race, gender, age, etc., fully protecting employees' privacy, remuneration, and welfare benefits, so as to create a fair, diverse, and inclusive working environment.



## Las Bambas protects women's lawful rights and interests

Las Bambas opposes any form of sexual harassment in workplace. It optimizes relevant policies and systems, carries out campaigns to resist workplace harassment, organizes annual investigations of violations, increases penalties for misconduct, and establishes a more transparent complaint mechanism. In 2023, Las Bambas formed a Workplace Sexual Harassment Intervention Committee composed of staff representatives, striving to create a healthy and safe working environment for all employees.



# Caring for Employees

China Minmetals places high importance on addressing the diverse needs of its employees. With genuine concern and dedication, the Company provides multiple levels of support, conveys its care and affection to employees, and enriches their leisure cultural lives, thereby promoting harmonious and stable labor relations.

## Multiple guarantees

In strict accordance with national policies and regulations, China Minmetals guarantees employees' primary rights, including wages, working hours and vacations, and social insurance. Besides, the Company offers various benefits such as enterprise annuities and supplemental medical insurance based on its own conditions, continuously improving the talent incentive and guarantee mechanism.

Implementing the "partition system" for total wages



We set a partition system for the total wages of directly managed subsidiaries, directing salary resources towards front-line positions to protect labor income.

Increasing income of front-line positions



We carry out special survey on income issues of front-line employees in mining enterprises, tilting salary resources towards these challenging positions.

Enhancing enterprise annuity management



A model linking annuity contribution ratios with corporate labor cost efficiency has been established. We initiate new corporate annuity plans for Minmetals Salt Lake and Changyuan Lico, expanding the coverage to about 83%. We also optimize the performance management of enterprise annuity investments, guiding investment managers to scientifically manage annuity funds to ensure profitability, safety, and liquidity of annuities.

Exploring supplemental medical insurance reform



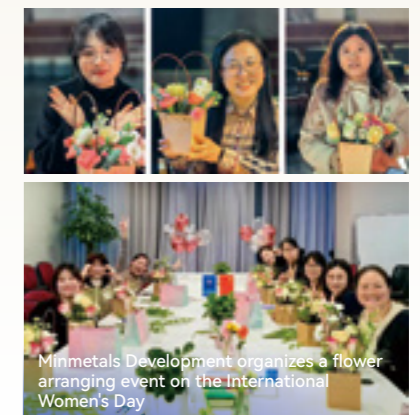
We study and formulate the *Research Report on Long-Term Supplemental Medical Mechanism*, which comprehensively reviews supplemental medical policies and industry practices, enhancing medical protection for employees and retirees.

## Multi-faceted care

Beyond traditional care activities such as holiday greetings, assistance for employees in difficulty, care for female employees, and summer and winter subsidies, China Minmetals innovates its employee care system, constantly enhancing employees' sense of gain, happiness, and security.

## Celebrating International Women's Day with a series of activities

To celebrate the International Women's Day and enrich the cultural life of female employees, all subsidiaries of China Minmetals organize various activities, such as female health lectures, themed seminars on female growth, fun sports games, eco-fashion shows, cultural performances, flower arranging, and DIY cake making. These activities showcase the healthy, positive spirit and vibrant demeanor of the Company's female employees.



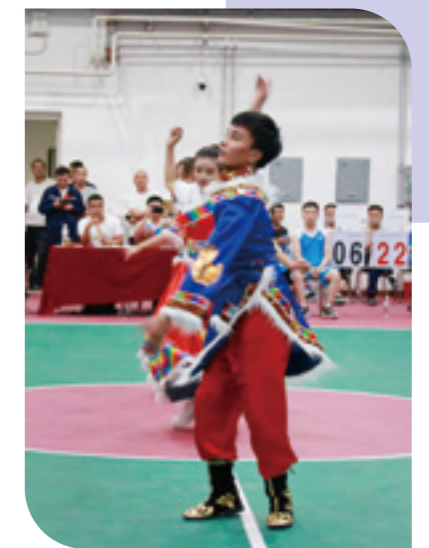
Minmetals Development organizes a flower arranging event on the International Women's Day

### Colorful entertainment activities

China Minmetals actively organizes various cultural and entertainment activities, such as basketball, table tennis, and badminton tournaments, single youth social gatherings, art exhibitions, book sharing sessions, and fun sports games. These activities, well-received by employees, foster corporate culture integration and enhance employee cohesion.



Conducting a variety of cultural and entertainment activities



5

## Undertaking Responsibility for Inclusive Sharing

China Minmetals always bears in mind the matters of national significance, actively integrating into the broader agenda of the Party and the country and guaranteeing the well-being of the people. The Company participates in disaster relief, public welfare, and charitable activities, alleviating burdens for the Party, fulfilling responsibilities for the nation, and benefiting the people. Upholding its duty as a global citizen, China Minmetals adheres to the principle of win-win cooperation, and embraces its social responsibilities as a central SOE.



# Improving People's Livelihood

China Minmetals consistently channels resources into public services, housing, and elderly healthcare sectors that are vital to people's welfare, further improving people's livelihood.

## Ensuring a better life

As a housing contractor with professional expertise and a leading comprehensive urban construction solution provider in China, China Minmetals has extensively involved in the construction of affordable housing and resettlement housing for urban renewal, as well as the people's wellbeing infrastructure projects, thereby meeting the people's aspirations for a better life.

### Phase II of the urban village resettlement housing project in Baoding

The Phase II resettlement housing project in the main urban area of Baoding, Hebei province, undertaken by MCC Group, was delivered in June 2023. The project, constructed in two phases, includes 8 resettlement areas with a total construction area of approximately 1.27 million square meters. Phase I project has been delivered and put into use. Phase II project encompasses 4 areas with 16 high-rise buildings and supporting facilities, covering a total construction area of about 400,000 square meters and providing 2,505 residential apartments. This project effectively meets local residents' needs to improve their living conditions and enhance their quality of life, so as to promote social harmony and stability.



Delivery ceremony of phase II resettlement housing project in Baoding city

### "One Park, Two Centers" PPP project in Yiyang - Citizen Service Center

The "One Park, Two Centers" PPP project in Yiyang, Hunan province, is a key initiative in advancing the "Greater Yiyang City Circle" and realizing Yiyang's "Eastward Infrastructure Connectivity" strategy. The Citizen Service Center, constructed by MCC Tiangong, comprises four parts: the Government Affairs Center, Human Resources and Talent Exchange Center, Public Resource Transaction Center, and Service Supporting Center. Through meticulous planning, precise process control, and standardized document management, MCC Tiangong has created a premium project that provides Yiyang citizens with comprehensive, efficient, and intelligent one-stop services.



The "One Park, Two Centers" PPP project in Yiyang - Citizen Service Center

## Demonstrating central SOE's responsibility

Upholding the concept of "putting the people first and putting life first", China Minmetals acts swiftly upon orders and makes urgent deployment to aid in flood and earthquake relief in the affected areas, ensuring the safety of people's lives and property, and fully embodying the social responsibility of a central SOE.

### Emergency support for flood relief in Zhuozhou

In July 2023, Zhuozhou in Hebei experienced an unprecedented flood disaster due to Typhoon Doksuri. In response to the flood, China Minmetals firmly implemented the decisions and deployment of the CPC Central Committee and efficiently dispatched rescue teams to offer crossregional support to Zhuozhou. The Company participated in rescuing stranded residents, transporting daily necessities, and properly resettling affected people. A rescue team was promptly established and rushed to various areas of Zhuozhou to repair power supply facilities, clear roads, and remove silt and debris. Emergency rescue forces were swiftly mobilized to guarantee the restoration of major livelihood projects, focusing on repairing the damaged sewage treatment plant in Zhuozhou. On average, 1,635 personnel were deployed each day, with a peak of 2,040 people. An average of 312 sets of equipment were put into use daily, with a peak of 395 sets. Remarkably, China Minmetals restored the operational function of the sewage treatment plant within ten days, which would typically requires four to six months, turning the "impossible" into the "possible" and fully ensuring the safety of people's lives and property as well as the stability of the overall social order. As of August 17, 2023, the Zhuozhou sewage treatment plant had achieved functional recovery.



China Minmetals technicians conduct house tilt detection



China Minmetals rescue personnel are clearing road mud



China Minmetals rescue personnel participate in rescuing stranded residents

▶ Donating over CNY 18 million in funds and materials for earthquake relief in Gansu and Qinghai provinces

On December 18, 2023, a 6.2-magnitude earthquake struck Jishishan County in Linxia Prefecture, Gansu Province, resulting in over a hundred casualties in Gansu and Qinghai provinces and damaging water, electricity, transportation, and communication infrastructure. In response, China Minmetals promptly organized a special meeting for earthquake relief work, coordinating with subsidiaries such as Minmetals Salt Lake, China 17th Metallurgical Corporation, and Minmetals Steel to arrange material donations and emergency rescue operations. The Company donated over CNY 18 million in funds and supplies to support earthquake relief and post-disaster reconstruction efforts. Specifically, CNY 5 million was donated to Gansu and CNY 7 million to Qinghai, totaling CNY 12 million. Additionally, 300 prefabricated houses worth over CNY 6 million were donated to Qinghai. Through these actions, China Minmetals upheld the concept of "putting the people first and putting life first", demonstrating its commitment to fulfilling corporate social responsibilities and contributing to the safety and well-being of the affected people.



Minmetals Steel delivers disaster relief supplies to Jishishan County, Gansu



China 17th Metallurgical Corporation completes the installation of prefabricated houses overnight

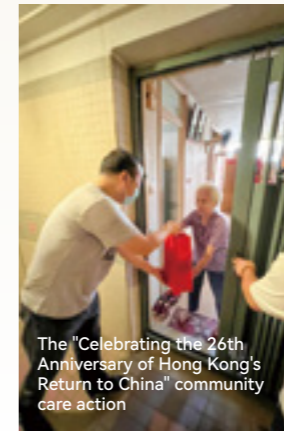
Participating in public welfare and charity activities

China Minmetals deeply understands the actual needs of the people. The Company gathers community resources, integrates various forces, and organizes employee volunteer service activities, actively engaging in public welfare and charity activities.

▶ Engaging in community welfare activities in Hong Kong

In 2023, China Minmetals H.K. (Holdings) Limited organized 3 large-scale and impactful community activities. Prior to the Dragon Boat Festival, the "Community Care - Rice Dumplings for the Elderly" event was held in the Kowloon Yau Tong com-

munity, where over a thousand elderly residents received welfare packages. The "Celebrating the 26th Anniversary of Hong Kong's Return to China" community care action involved visits to nearly 400 households of solitary elderly and families in need. Before National Day, the "Mid-Autumn Festival Mooncakes for the Elderly" event was organized to celebrate the National Day and the Mid-Autumn Festival, distributing over a thousand mooncakes and other food items, enhancing community welfare in Hong Kong.



The "Celebrating the 26th Anniversary of Hong Kong's Return to China" community care action



"Mid-Autumn Festival Mooncakes for the Elderly" event to celebrate the National Day and the Mid-Autumn Festival

▶ Conducting volunteer services at the grassroots level

In April 2023, the Minmetals Development Public Welfare Volunteer Service Team participated in volunteer service activities at Yuyuantan Park in Beijing for the third consecutive year. Volunteers assisted visitors with online ticket reservations, provided directions, guided visitors to enjoy the flowers in an orderly manner, and prevented their improper picking of cherry blossoms. During this event, the Volunteer Service Team provided a total of 47 service posts, with over 100 hours of services.



Employees of Minmetals Development are conducting volunteer services at Yuyuantan Park in Beijing

# Promoting Overseas Community Development

China Minmetals actively responds to the UN Sustainable Development Goals. Taking into account the characteristics of local communities, the Company leverages its professional advantages to provide comprehensive support such as funds, human resources and technology, fulfilling its corporate social responsibility.

## Fostering heart to heart friendship

By strengthening the "public interest" management, China Minmetals actively contributes to the economic and social development of hosting countries and communities, and promotes the integration of workforce, culture, and development.

### Ramu NiCo explores cross-cultural integration and development

In 2023, Ramu NiCo made substantial progress in promoting cross-cultural integration in Papua New Guinea (PNG). It sets up and operates overseas social media accounts, and takes proactive actions to engage with PNG's mainstream media, think tanks, and universities. By participating in various national-level economic and trade investment activities in PNG, Ramu NiCo strives to enhance its corporate image and makes China Minmetals' contributions to the cultural exchange and mutual understanding between China and PNG.



Ramu NiCo held the Enterprise Open Day, and invited 29 local students to visit the Ramu NiCo Matang base, enabling them to experience the unique corporate culture of a Chinese-funded enterprise.



Ramu NiCo attaches great importance to the integration of festival cultures. It organized Mid-Autumn Festival activities to share the charm of Chinese culture with PNG employees.



Ramu NiCo also actively supports the development of sports and cultural undertakings in PNG. It sponsored the rugby team of Divine Word University with PGK 10,000 and the Madang Provincial Football Club with PGK 50,000, helping both teams participate in significant national competitions. Additionally, it provided PGK 65,000 for the "Ambrose" Charity Golf Tournament and dispatched four teams.



PNG employees celebrate the Mid-Autumn Festival together

### DRC Kinsevere Mine fulfills commitment of community construction project

In 2023, DRC Kinsevere Mine held the completion and handover ceremony for 3 construction projects in the Kifita community: a secondary school, a medical center, and an administrative office. These community construction projects will significantly enhance the infrastructure for education and healthcare in the community, providing a solid foundation for the community's long-term sustainable development. These efforts have been acknowledged by several local government officials.

According to the social responsibility agreement signed with the local communities in 2021, DRC Kinsevere Mine will implement 18 social development projects by July 2025. As of now, 41% of the total USD 6 million budget has been invested, with 5 community infrastructure projects and 6 solar-powered water pumps well projects completed. The remaining projects are progressing well as planned. In addition, since 2021, DRC Kinsevere Mine has implemented 10 projects of the year in the fields of agriculture and education in the surrounding communities.



### "Heart of Las Bambas" Program leads local enterprises to achieve leapfrog development

In 2023, under the guidance of the "Heart of Las Bambas", Las Bambas Copper Mine's community sustainable development program, local community enterprises achieved leapfrog development. 63 local enterprises' development plans underwent rigorous evaluation and were submitted for bidding. 41 local enterprises successfully improved their management capabilities, and 20 enterprises made significant progress in business cooperation and contract management. Meanwhile, through a series of supportive activities such as lectures, the management level of community enterprises was further enhanced, ensuring the successful completion of 42 development plans by the end of 2023. The total local procurement amount significantly increased in Las Bambas, reaching USD 209 million for the year, accounting for 7.4% of the total procurement amount, with an annual growth rate of 159.94%.

Furthermore, Las Bambas Copper Mine is about to launch a "Entrepreneurship" system, a supplier management platform for local enterprises. This initiative will enhance the transparency of the entire subcontracting process and the directory of local enterprises, further improving the market competitiveness of local enterprises. The "Heart of Las Bambas" program has become a key driver for the steady growth and outstanding achievements of regional enterprises, and its profound impact will continue to unfold.



## Sharing happiness and prosperity

China Minmetals focuses on key areas of responsibility fulfillment in overseas communities, such as industrial development, infrastructure construction, healthcare, and educational environments. We have intensified efforts to continuously provide targeted and effective assistance.

### ▶ DRC Kinsevere Mine supports agricultural development in surrounding villages

In 2023, MMG's DRC Kinsevere Mine launched a farmer assistance program. Through the "New Agriculture Action", the Mine provided comprehensive support, such as supplies and technologies, to villagers in the surrounding areas, helping them increase crop yields and diversify crop varieties, thereby improving their income. Over 191 tons of fertilizer and nearly 12 tons of corn seeds have been distributed to 336 farmers. In addition to material support, DRC Kinsevere Mine collaborated with DRC National Service Urban Horticulture and Peri-urban (SENAHUP) to offer technical support to villagers managing micro-farms, ensuring the supply of local produce.

DRC Kinsevere Mine also worked extensively with local governments and communities. With further investment in the "Cahier de Charge" project, it assists in local community infrastructure construction and freshwater supply. This social investment project, totaling USD 6 million, will benefit up to 26 surrounding villages.



DRC Kinsevere Mine conducts agricultural technology training for local villagers

### ▶ Las Bambas signs cooperation agreement with the Asociacion de Ayuda al Niño Quemado

In 2023, MMG's Las Bambas signed an inter-organizational cooperation agreement with the Asociación de Ayuda al Niño Quemado (ANIQUEM), meaning the Association for Assistance to Burned Children, and the waste recycling organization ALMI. The agreement pledges that discarded electronic equipment from mining operations will be handed over to ALMI for recycling and the raised funds will be donated to ANIQUEM for the physical, psychological, and occupational therapy of burned children in Peru, helping them recover and reintegrate into society.



Las Bambas signs a cooperation agreement with ANIQUEM

### ▶ Las Bambas builds a bridge to dreams

MMG's Las Bambas Mine invested PEN 43 million (approximately CNY 80 million) to help construct the Kutuctay Bridge in Cotabambas Province. The aspiration of the Cotabambas residents over 50 years will be a reality. The bridge connects the Cusco and Apurímac regions. Upon completion, it will improve transportation conditions between the two regions, reducing travel time between several communities by over two hours. This project will benefit more than 50,000 local community residents, promote local community development and integration, and establish an important infrastructure milestone for the region. As of April 2024, the Kutuctay Bridge has been successfully completed.



Kutuctay Bridge under construction

# Building a Responsible Supply Chain

China Minmetals has accelerated efforts to become industrial chain "monitors" and "leaders". By building and strengthening chains based on resources, fortifying and supplementing chains through expansion and upgrading, and integrating and consolidating chains through coordinated operations, we promote multi-chain integration and specialized consolidation among related enterprises within the system. This enhances the efficiency of upstream and downstream collaboration and connectivity. We engage in extensive cooperation and communication with stakeholders, providing high-quality products and services to customers, building long-term stable relationships with partners, and striving to create a responsible supply chain that shares development achievements in the industry.

## Providing quality service

Focusing on "meeting customers' demands and improving effective supply", China Minmetals continues to improve its quality management. By providing high-quality products and services, we enhance the effectiveness of customer services and safeguard customers' rights and interests.

### MCC Group wins multiple quality technology awards from the China Association for Quality

MCC Group, with its commitment to excellence, vigorously promotes the application of new technologies and processes in engineering. It cultivates high-quality technological innovation and practical results and firmly advances quality technology progress, enhancing quality innovation and competitive abilities. In 2023, 12 quality technology innovations and practical achievements of MCC Group won Quality Technology Award from the China Association for Quality, including 8 second prizes and 4 excellence awards, marking a 71% increase in the number of awarded achievements compared to the previous record.

## Deepening strategic cooperation

### Government-enterprise cooperation

China Minmetals engages in in-depth exchanges with the people's governments of Beijing, Shanghai, Chongqing, Liaoning, Fujian, Heilongjiang, and other provinces and cities to strengthen government-enterprise cooperation, broadening cooperative areas, elevating cooperation levels, and assisting in high-quality regional development.



China Minmetals cooperates with the People's Government of Beijing Municipality

### Enterprise-enterprise cooperation

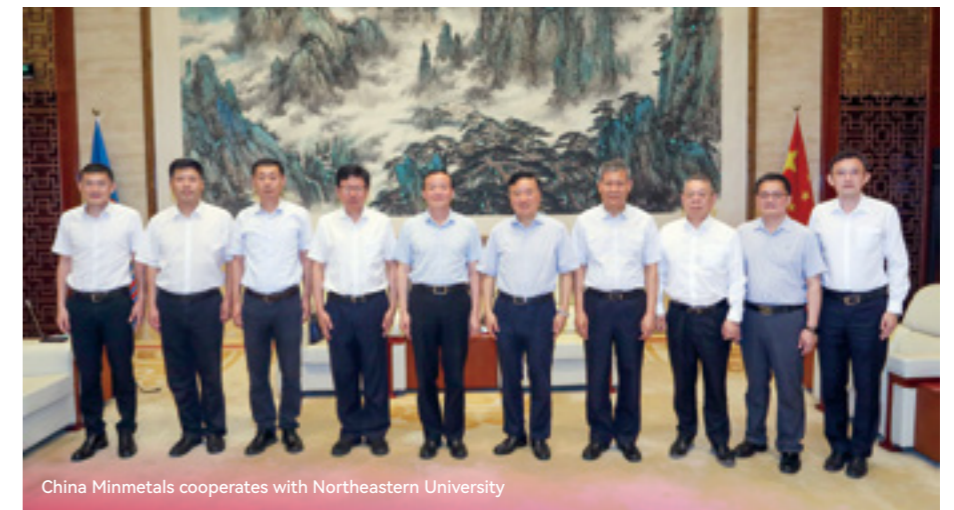
China Minmetals establishes strategic cooperation relations with several enterprises, including CRRC, China Baowu, Zijin Mining, and the Import and Export Bank of China, leveraging each other's core business strengths to achieve mutual development.



China Minmetals signs a strategic cooperation agreement with China Baowu

### University-enterprise cooperation

China Minmetals collaborates with renowned universities to explore the development of a sustainable academic ecosystem, creating a new model of university-enterprise cooperation.



China Minmetals cooperates with Northeastern University

### International cooperation

China Minmetals continues to deepen cooperative relations with international companies such as KGHM, Epiroc, Vale, Rio Tinto, and UBS, achieving resources collaboration, complementary advantages, and common growth.



China Minmetals holds a business meeting with Vale

## Ensuring supply security

China Minmetals revises and releases the *Measures on Supplier Management*, further optimizing the procurement platform functions. Supported by the platform, we realize the full lifecycle management of suppliers in sourcing, admission, utilization, assessment, and exit.

### Promoting automatic admission of suppliers

We upgrade manual reviews with machine audits for suppliers, achieving intelligent approval for supplier entry. This standardizes the supplier entry process, and significantly improves the efficiency of supplier onboarding. As a result, we can comprehensively evaluate and monitor suppliers' qualifications, credit, social reputation, technical product levels, and service capabilities from the source.

### Establishing a scientific supplier evaluation indicator system

We have achieved a 100% assessment rate for suppliers, covering 51,000 contracted suppliers from the previous year. For non-contracted suppliers, we also conduct comprehensive review on their validity of qualifications. This system, aimed at improving customers' satisfaction, reflects overall supplier performance based on contract fulfillment, comprehensive strength, and active participation in procurement bidding, ensuring the survival of the fittest.

### Advancing the supplier "blacklist" mechanism in an orderly manner

In 2023, 708 suppliers were added to the "blacklist", bringing the total to 1,708. This initiative maintains a clear and fair procurement bidding and sound procurement management environment.

### Gradually forming a stable supplier cooperation relationship around major customers

The Company signed contracts with 51,000 suppliers throughout the year, with the top 500 suppliers accounting for CNY 213.4 billion, or 31%.

### Introducing credible third-party data and constructing multi-dimensional risk profile for suppliers

By deeply associating data information and automatically matching model rules, it highlights high-risk information regarding commercial reputation and conducts in-depth screening for "blacklisted" connected companies that rebrand themselves to try to escape from being identified.

## ▶ Building a digital supply chain management platform

Aiming to "increase efficiency, reduce costs, control risks, and create value", China Minmetals builds a digital supply chain management platform. Firstly, it establishes core supply chain functions, covering procurement and sales, contracts and fulfillment, logistics and warehousing, and suppliers and customer operations. These are visualized through a big screen display that shows the full data flow of the supply chain, enabling "one-screen oversight and comprehensive management". Secondly, it connects and integrates with the Company's treasury system and the business management systems of subordinate enterprises through unified data standards, achieving mutual empowerment and unified management. Thirdly, by constructing application scenarios based on business scenarios, it covers risk monitoring at key supply chain nodes and across the entire business chain, enabling real-time risk detection and closed-loop management, thus comprehensively enhancing sound development of the supply chain. Fourthly, utilizing advanced technology and credible third-party data, it identifies risks of suppliers and customers in multiple dimensions and establishes a comprehensive profile, realizing intelligent supplier entry approval and comprehensive application of evaluation results across the entire chain, thus providing multiple layers of security for the supply chain.

## Promoting industry progress

China Minmetals focuses on industry hotspots, actively participates in the work conferences arranged by central government, industry conferences, and high-end forums, and involves in the drafting of multiple group, industry, and national standards. We adhere to innovation-driven strategies and strengthen research and development, leading industry progress through technological spillovers.

## ▶ Deepening global cooperation through the CIIE platform

As a metal and mineral enterprise group committed to global operations, China Minmetals actively participated in the forum activities of the 6th China International Import Expo (CIIE) under the motto "New Era, Shared Future". Minmetals Development attended the Expo. The Company made full use of the CIIE platform, which serves as an important venue for "international procurement, investment promotion, people-to-people exchanges, and open cooperation", to conduct in-depth exchanges with global partners. China Minmetals Non-ferrous Metals Company signed a five-year cathode copper procurement framework agreement with KGHM and China Tungsten and Hightech Materials signed a strategic cooperation agreement with Epiroc China, sharing development opportunities in the Chinese market.



## ▶ Participating in the China Mining 2023

On October 26, China Minmetals was invited to the China Mining 2023. At this event, we set up an exhibition booth to showcase the Company's measures and achievements in resource continuity, new rounds of mineral exploration, and resource control capability improvement. It presented world-class cutting-edge products and breakthroughs in critical technologies, systematically demonstrating the Company's role in serving national strategies through technological innovation, industry control, and safety support. This highlighted the Company's strong commitment to the original aspiration of "serving and reinvigorating the country through mining", promoting high-quality development in the mining industry.

# Appendix

## Sustainability Performance

Economic performance	2020	2021	2022	2023
Operating income (RMB 100 million)	7,039	8,502	8,983	9,346
Total taxes (RMB 100 million)	219	248	254	232
Investment (RMB 100 million)	146	187	218	227
Number of new patents	6,778	8,477	9,598	7,203

Environmental performance	2020	2021	2022	2023
Year-on-year decline in energy consumption (%)	13.5	5.9	13	4.1
Year-on-year decline in COD emissions (%)	24.5	10	17.1	-6.6
Year-on-year decline in SO <sub>2</sub> emissions (%)	37.5	35	22.9	-4.5
Number of environmental training sessions	7,674	6,001	5,328	4,429
Number of environmental training participants	210,000	232,594	276,321	310,501

Social performance	2020	2021	2022	2023
Number of employees	200,000	193,965	174,336	170,779
Number of female employees	32,699	>30,000	36,000	35,863
Work safety investment (RMB 10,000)	638,600	902,585	1,106,627	1,185,300
Number of employee training participants	608,382	1,234,518	1,196,793	1,161,446
Proportion of contracts executed (%)	100	100	100	100

## Outlook 2024

At present, the worldwide changes of a scale unseen in a century are presenting both significant opportunities and challenges. Meanwhile, China's economy continues its long-term trend of recovery and improvement without wavering.

In 2024, China Minmetals will rally more closely around the CPC Central Committee with Comrade Xi Jinping at its core. We will consistently focus on economic development as our central task and prioritize high-quality development as our foremost objective, while concurrently advancing efforts to deepen reforms. We will dedicate ourselves to strengthening our core business, methodically laying solid foundations, and enhancing the autonomy and control of the entire metal and mining industry chain. These efforts will solidify our position as a world-class national team leader in metallurgical construction and operations, and empower the new energy and materials industry chains. Our ongoing objective is to grow into a leading enterprise within the modern industrial chain, dedicated to serving the interests of our nation.

We will actively leverage technological innovation, industrial leadership, and safety protocols, while maintaining lawful and compliant operations. We will conduct thorough investigations to address and prevent key risks, and fulfill our responsibilities with practical initiatives. We will expedite to grow into a world-class enterprise, progressively turning the ambitious vision of Chinese modernization into a remarkable reality.



## Assurance Statement

**TÜVNORD**

Verification Statement Number: No.CN-202406-CSR-01

### Verification Statement of Sustainability Report

TÜV NORD (Hangzhou) Co., Ltd. (hereinafter referred to as 'TNHZ') has been commissioned by the management of China Minmetals Corporation Limited (hereinafter referred to as 'China Minmetals') to carry out an independent third-party verification of China Minmetals's 2023 Sustainability Development Report (hereinafter referred to as 'report').

China Minmetals is responsible for the collection, analysis, aggregation and presentation of information within the Report. TNHZ carries out this work (verification of the report) within the terms of reference agreed in the agreement with China Minmetals. China Minmetals is the designated user of this statement.

This statement is based on the 2023 Sustainability Report prepared by China Minmetals. China Minmetals is responsible for the integrity and authenticity of the information and data in the Report.

### Verification Scope

The verification statement is based on the following:

- ✧ The Report discloses key sustainability performance and related information that happened in 2023.
- ✧ We evaluated the management process of collection, analysis, inspection of the information and data.
- ✧ Due to the economic data had been audited by the third party, we did not do double audit this time.

The verification was done on 28-29.04.2024.

### Verification Methodology

The verification process includes the following activities:

- ✧ Review the document information which is provided by China Minmetals.
- ✧ Interview the person who collected the report information.
- ✧ View the related websites and media reports, verify the data and information through sampling method.
- ✧ Refer to GRI Sustainability Reporting Standards (GRI Standards) for sustainable development reporting on balance, comparability, accuracy, timeliness, clarity and reliability requirements, we evaluate the Report.
- ✧ Refer to AA1000 Assurance Standard (V3).
- ✧ Verification activity is based on TNHZ Rules for the Implementation of Report Verification (SP-C-A015, Rev.00).

### Verification Level

AA1000 Assurance Standard (V3): type 1, medium verification.

### Verification Conclusion

The 2023 Sustainability Development Report prepared by China Minmetals Corporation Limited comprehensively disclosed the actions and performance of China Minmetals in fulfilling its environmental, social and governance in 2023. The data in the Report is reliable and objective and TNHZ found no systemic or substantial errors.

- ✧ Balance: The Report discloses the data such as the number of large and above production safety accidents, and the total emission of waste gas pollutants of Hunan Changyuan Lico Co., Ltd. etc., with a certain degree of balance.
- ✧ Comparability: The Report discloses the four-year performance of several indicators in the economic, environmental and social fields, such as research and development costs, year-on-year decline in comprehensive energy consumption, and production safety input in the form of "sustainable development performance table", which is comparable.

**TÜVNORD**

Verification Statement Number: No.CN-202406-CSR-01

- ✧ Accuracy: Sampling verify finds that cases and data disclosed in the Report are generally objective and accurate.
- ✧ Timeliness: The disclosure period of the Report is sustainable development performance in 2023. The company has released reports for 17 consecutive years. The Report is timely.
- ✧ Clarity: The Report uses various formats such as pictures, charts, etc., making the information in the Report comprehensible.
- ✧ Reliability: The social responsibility management team of China Minmetals is responsible for collecting, recording, compiling and analyzing the information and processes used in preparing the Report. Sample data could be traced back to their sources, ensuring the quality and materiality of the information to a certain extent.

### Recommendation for Improvement

Through verification and evaluation, we have following improvement suggestions on sustainable development practice and management:

- ✧ Clarify the statistical caliber, statistical method, statistical frequency, responsible department, etc., for the relevant sustainable development performance indicators, so as to facilitate the rapid and accurate collection of relevant data during the project.
- ✧ Increase the disclosure of negative performance indicators in reporting to improve the balance of reporting.
- ✧ Compare the ESG reports of foreign outstanding peers and domestic outstanding cross-industry enterprises, learn from their excellent practical experience, and comprehensively improve the company's sustainable development (ESG) management level.

### Special Statement

This statement excludes:

- ✧ The activity outside information reveal.
- ✧ The position, ideas, beliefs, goals, future development direction and commitment which stated by China Minmetals.

### Statement of Independence and Competence

TÜV NORD is the world's leading Certification Body in inspection, testing and verification, operating in more than 100 countries throughout the world and providing services which includes management systems and product certification; quality, environmental, occupational health and safety, social responsibility auditing and training; environmental, social responsibility and sustainability report verification.

TÜV NORD (Hangzhou) Co., Ltd. is an independent organization registered and established by TÜV NORD in China and ensure that there are no conflicts of interest with China Minmetals Corporation Limited or its branches and stakeholders during the implementation of the verification process of this report. All information in this report was provided by China Minmetals, and TNHZ was not involved in the report preparation process.

TÜV NORD (Hangzhou) Co., Ltd.



The team leader: ZHU Helen  
Date: 03.06.2024



The Authorized person: SONG Haining  
Date: 03.06.2024

Note: When there is a conflict between the Chinese and English versions of the statement, please refer to the Chinese version.

## Content Index

Chapters	Chapters GRI Index
About This Report	2-3
Chairman's Statement	2-22
<b>About Us</b>	
Company Profile	2-1, 201-1
Organizational Structure	2-2
Party Building	205-2
Corporate Culture and Brand Building	2-22
<b>Sustainability Management</b>	
Background Analysis on Sustainable Development	2-22
Communication Platforms	2-16
Materiality Analysis	3-1, 3-2
Stakeholder Engagement	2-29
Spotlight 1: BRI Cooperation Across Geographical Boundaries	203-1, 203-2
Spotlight 2: Dedication to Rural Areas for Common Prosperity	203-1, 203-2
<b>Serving National Strategies by Strengthening Core Business</b>	
Metals and Minerals	2-6
Engineering Construction	2-6
Strategic Emerging Industries	2-6
<b>Cementing Foundation through Robust Development</b>	
Driving Technological Innovation	203-2
Creating Values	2-6
Improving Governance	2-9, 2-12, 2-13
Integrating Industry and Finance	2-6

Chapters	Chapters GRI Index
<b>Fortifying the Foundations of Safety and Environmental Management</b>	
Enhancing Safety and Environmental Management	410-1, 416-1
Ensuring Safe Operations	416-1, 416-2
Addressing Climate Change	201-2
Reducing Environmental Impact	302-3, 302-4, 302-5
Enhancing Ecological Conservation	304-1, 304-2, 304-3
<b>Building a Dedicated and Entrepreneurial Team</b>	
Empowering the Corporation with Talents	404-2
Practicing Democratic Management	407-1
Protecting Rights and Interests	2-7, 401-1, 401-2, 405-1
Caring for Employees	403-3, 403-5, 403-6
<b>Undertaking Responsibility for Inclusive Sharing</b>	
Improving People's Livelihood	203-1, 413-1
Promoting Overseas Community Development	203-1, 413-1, 414-1
Building a Responsible Supply Chain	413-1
<b>Appendix</b>	
Sustainability Performance	2-7, 201-1, 302-1, 405-1
Outlook 2024	2-22
Assurance Statement	2-5
Content Index	-
Feedback Sheet	-

## Feedback Sheet

Dear readers:

Thank you for reading the report. Any constructive suggestions to improve our CSR program and the quality of our sustainability reports are welcomed. Thank you for your support.

1. To China Minmetals, you are a/an:

customer government agency employee supplier (in its broad sense, including contractor)

environmental protection organization/NGO charity media the public others

2. Your overall impression of the sustainability report:

Very good Good Fair Poor Very poor

3. What do you think of this report?

	Very good	Good	Fair	Poor	Very poor
Information quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layout and design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Readability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. What are the most important issues to you?

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5. If you have any comments or suggestions on our CSR program and sustainability report, please specify.

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