



2018

**China Minmetals
Sustainability Report**



Environmental considerations for the publication of the report

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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 the tag of "Social Responsibility" on the homepage of the CMC official website.

Official website: <http://csr.minmetals.com.cn/>

About This Report

● Reporting period:

This report covers the period from January 1 to December 31, 2018, and some parts may concern significant years in the development of the Corporation.

● Report publishing:

The Corporation publishes the sustainability report annually and this is the 12th one.

● Reporting Scope:

This report covers the information related to the headquarters and subsidiaries of China Minmetals Corporation. In view of the different business of subsidiaries, there will be slight differences in the boundary and range of specific topics and explanations will be provided in corresponding paragraphs of this report.

● Designations:

For readability, China Minmetals Corporation is referred to as "China Minmetals", "the Corporation", "the Company" and "we".

● References:

In compliance with the requirements laid down in such documents as Guiding Opinions on Fulfillment of Social Responsibilities by Central Enterprises released by the State-owned Assets Supervision and Administration Commission of the State Council (SASAC), this report is compiled according to the core guidelines of the GRI Sustainability Reporting Standards (GRI Standards) issued by the GRI Global Sustainability Standards Board (GSSB) as well as international standard Guidance Standard on Social Responsibility (ISO26000:2010), national standard GB/ T36000-2015 Guidance on Social Responsibility, the Ten Principles of the United Nations Global Compact, and Guidelines for Social Responsibility in Outbound Mining Investments issued by China Chamber of Commerce of Metals, Minerals & Chemical Importers & Exports.

● Data Sources:

All data contained herein are from the Corporation's official documents, statistics reports and financial statements as well as its sustainability management information system that collects information on sustainability practices of the Corporation's functional divisions and subsidiaries.

● Report availability:

This report is available in both Chinese and English. Please contact us for a hard copy. You may also view the PDF version of this report in Chinese and English as well as the dynamic information related to CSR activities of the Corporation under "Social Contribution" on the homepage of the China Minmetals official website.

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Statement

Centering on the sustainability philosophy of "cherishing limited resources and pursuing sustainable development", the 2018 *China Minmetals Sustainability Report* is to convey the message to the public that the Corporation is committed to creating the greatest value for stakeholders, and to make known what has been done and achieved in the Corporation's endeavor to build a valuable, innovative, safe, green, happy, win-win and harmonious image. Considering stakeholders as the most important resources for the Corporation's sustainable development and adhering to the main theme of "cherishing stakeholders and making every effort to create unlimited value for them", China Minmetals strives to disclose to the stakeholders its information about CSR practices and performance as much as possible in an accurate, truthful and objective manner, achieve most effective communication with its stakeholders on an equal, comprehensive and in-depth basis, and enhance mutual trust and cooperation with them for common progress.

An assurance engagement on this report has been performed by TUV NORD. The statement of assurance is attached hereto as an appendix.

China Minmetals Corporation
July 2019



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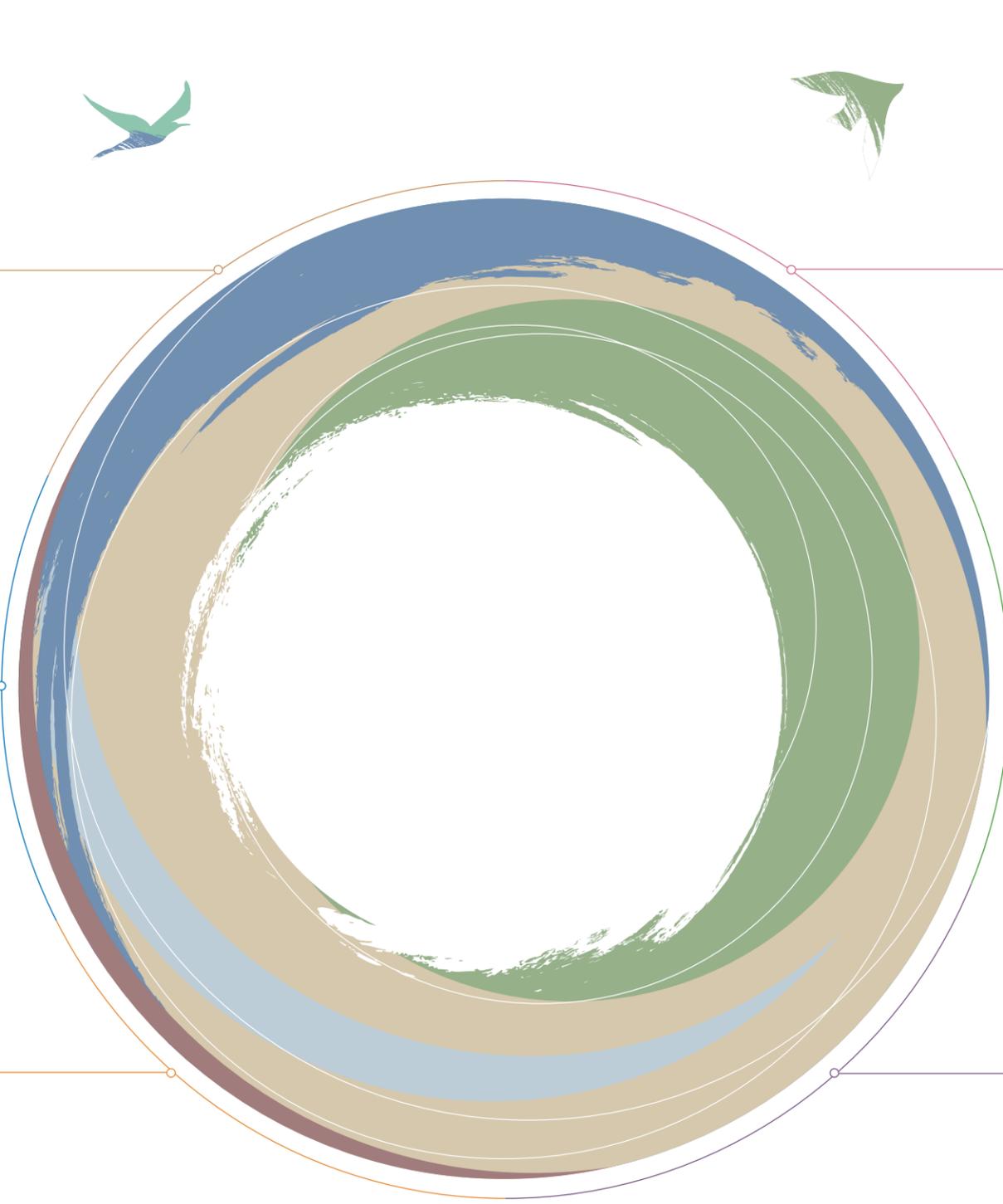
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Message from the Chairman



Over the past year, we have made great strides in the development trend of the new era; over the past year, we have taken the initiative and made great achievements to implement Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era and the spirit of the 19th National Congress of the Communist Party of China.



Tang Fuping

Chairman and Party Group Secretary
of China Minmetals Corporation

The 2018 China Minmetals Sustainability Report has been officially released, which is the twelfth report we have released in succession. As a globally operated and responsible metal mining group, we expect this report, as it always has done, to play an important role in communicating with stakeholders. With the key data disclosed about China Minmetals Corporation's performance in such fields as economic growth, innovative motivation, safety management and care for employees, we provides the community for real records of what we have experienced over the past year.

2018 was an eventful year with trials and hardships. Under the strong leadership of the CPC Central Committee with Comrade Xi Jinping as the core, hundreds of millions of Chinese people have written a new chapter of struggle. Enshrining Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, all members of China Minmetals at home and abroad, remaining true to our original aspiration and keeping our mission firmly in mind, consciously integrate enterprise development into the central strategic layout. We have taken a series of effective measures to fully implement the deployment requirements of the CPC Central Committee, the State Council and the State-owned Assets Supervision and Administration Commission of the State Council (SASAC), making remarkable achievements hitting the historical best business performance.

In 2018, we resolutely applying a new vision for development, focusing on the solid base and foundation, high quality and efficiency to eliminate all kinds of risks and hidden dangers smoothly and increase the development level steadily, and the company is now striding forward to pursue the notable quality, benefit and efficiency; just in this year, we constantly optimized the industrial structure to improve the supply-side structure and quality, and the company is now promoting more sustainable development with new growth drivers and structure; just in this year, we, around the positioning of state-owned capital investment company, reshaped the management system and readjusted the business layout to promote integration and assimilation, and the company is now exploring the Minmetals Model of deepening the SOEs reform with vivid practice; just in

this year, we, combining the national overall diplomatic strategy with the enterprise internationalization layout, actively put the Belt and Road Initiative into practice with the going-out strategies in terms of the resource development, the metal trade and engineering construction overseas, and the company is now becoming a major force in the implementation of the Belt and Road Initiative; just in this year, we, giving full play to the unique SOEs' advantages, vigorously improved the Party building from the strict administration to the in-depth development for the deep combination and integration of the party building with the enterprise management.

2019 is the 70th anniversary of the People's Republic of China, and the key year for building a moderately prosperous society in all respects and achieving the first centenary goal. It is also the crucial year of China Minmetals to achieve the goal of quadrupling in three steps. In this sense, we, under the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era and the spirit of the 19th CPC National Congress, will persist in the strong Party's leadership, the firm SOEs' reform and the high-quality development to continuously perfect the systematic mechanism, vigorously optimize the industrial structure, and constantly enhance the competitive level, in full accordance with the spirit of the central economic work conference and the requirements of the CPC central committee and the State Council.

Arduous and glorious missions call for the innovation and struggle of our China Minmetals. In 2019, we need to struggle for the better future. United closely around the Party Central Committee with Comrade Xi Jinping as the core, we will start a new era with our China Minmetals' effort to build a world-class metal mineral enterprise and to win the first century goal of securing a decisive victory in finishing the building of a moderately prosperous society in all respects.

Message from the General Manager



Guo Wenqing
General Manager and Deputy Party Committee
Secretary of China Minmetals Corporation,
Chairman of China Metallurgical Group Corporation



Over the past three years of recombination, enshrining General Secretary Xi's instruction of putting the people in the most prominent place in our hearts, we have adhered to the Party leadership as the foundation, the economic construction as the center, and the mutual development of both the company and the employees as the goal, so as to successfully fulfill the missions entrusted by the CPC Central Committee, the State Council and the SASAC.



2018 was the beginning year for China Minmetals to fully implement the spirit of the 19th CPC National Congress. Under the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, we vigorously implemented the strategy of high-quality development, successfully overcame the challenges of internal and external risks, and constantly strengthen the business structure of "four beams and eight columns", with a new-recorded yearly business performance and an overall improvement in value creation, industry status and development quality.

This was a year of unity and forging ahead, stepping forward firmly and strongly. Through concerted efforts of our employees, we scored fruitful results in production, operation, reform, and innovation with operation revenue of RMB 529.7 billion and a total profit of RMB 14.1 billion in 2018.

Confronting the challenges and forging firmly towards the set goals, we attained the second-step target of the goal of "quadrupling in three steps", with continuous improvement in the operational efficiency and the asset structure.

Adhering to the metal mining industrial mission of guarding and serving the country, we vigorously promoted the operation management of the mines and constantly reinforced the ability to guarantee mineral resources with the commercial production of Dugald River Zinc Mine two months ahead of schedule, the copper concentrate production of Las Bambas Copper Mine steadily ranking in the World Top 10, and the nickel and cobalt production of the Ramu Nickel Mine hitting a record high.

We pushed SOEs for the complementary restructuring and accelerated the development of metallurgical industry with a large number of iron and steel projects at home and abroad, with the amount of signed contracts year-on-year increasing by 43.6%. We reshaped the trading system and made every effort to develop big commodities, big customers, and big projects. We maintained steady development of diversified industries to boom

the healthy finance and real estate with outstanding performance. We fostered the construction of new growth drives for the competitiveness of the whole industrial chain from resources to technology in advance, striving for the new growth areas of the future development. We made solid progress in deepening the reform of the system and mechanism for the further optimized group management. We persisted in the innovation-driven force with fruitful scientific and technological achievements including the first prize of National Science and Technology Awards.

2018 was the third year after the strategic recombination of the former China Minmetals and MCC, full of hardships and challenges. Over the past three years of recombination, enshrining General Secretary Xi's instruction of putting the people in the most prominent place in our hearts, we have adhered to the Party leadership as the foundation, the economic construction as the center, and the mutual development of both the company and the employees as the goal, so as to successfully fulfill the missions entrusted by the CPC Central Committee, the State Council and the SASAC.

As it was clearly pointed out by General Secretary Xi Jinping, China has come a long way, but it has to overcome new challenges on its way ahead. 2019 is the 70th anniversary of the founding of New China and marks the key year for building a moderately prosperous society in all respects. Arduous sense of responsibility and glorious sense of mission make us go all out for the 70th birthday of our motherland. We will fully implement Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, and uphold the spirit of "never delaying, never slacking" in the endeavor to create a powerhouse in the metals and minerals industry. It is sincerely hoped to have the support of all sectors as always, and work together with all stakeholders for mutual benefit and better future.

郭文清

About Us

Company Profile



the company had managed

RMB **1.85** trillion of assets

including

RMB **896.8** billion in total assets

RMB **949.7** billion in managed financial assets.

Overseas institutions, resource projects, and construction projects are located in more

than **60** countries and regions across the world.

China Minmetals Corporation (hereinafter referred to as China Minmetals) was established as the result of a strategic recombination of two Fortune Global 500 companies – the former China Minmetals and the Metallurgical Corporation of China (MCC). China Minmetals, an important state-owned backbone enterprise with metallic minerals as its core business, is directly managed by the central government. It is a pilot enterprise for state-owned capital investment companies. In 2018, it ranked 109th among the Fortune Global 500 companies. Headquartered in Beijing, China Minmetals has eight listed companies, including MCC (601618.SH, 1618.HK) publically listed on the Shanghai Stock Exchange and the Hong Kong Stock Exchange, Minmetals Capital (600390.SH), Minmetals rare-earth (000831.SZ), Minmetals Development (600058.SH), China Tungsten High-tech (000657.SZ), and Zhuzhou Smelter Group (600961.SH), as well as Minmetals Resources (1208.HK) and Minmetals Land (0230.HK). By the end of 2018, the company had managed RMB 1.85 trillion of assets, including RMB 896.8 billion in total assets and RMB 949.7 billion in managed financial assets. Overseas institutions, resource projects, and construction projects are located in more than 60 countries and regions across the world.

China Minmetals takes “the world-class powerhouse in the metals and minerals industry” as its vision. Strategically, it positions itself as “a main force to ensure security of resources; a national team to upgrade the metallurgical industry; an integrated service provider in the industry.” China Minmetals has taken the lead in operating across the whole industry chain from resource acquisition and exploration to project design, construction, operation, distribution, and further processing in the global metals and minerals sector. It has formed a business system featured by “four beams and eight columns.” The four beams consist of metals and minerals, metallurgical construction, trade and logistics, and finance and real estate. The eight columns are composed of mineral development, metallic materials, new energy materials, metallurgical

engineering, basic construction, trade and logistics, financial services, and real estate development.

In the field of metals and minerals, we possess rich reserves of metals and minerals. Overseas mines are located in Asia, Oceania, South America, and Africa. We own a number of world-class mines such as Las Bambas Copper Mine, Dugald River Zinc Mine, and Papua New Guinea Ramu Nickel and Cobalt Mine. The output of copper and zinc are among the global top 10, and the resources of tungsten, antimony, and bismuth are among the top list in the world.

In the field of metallurgical engineering construction, we, as the pioneers and main forces of China’s steel industry, have world-class metallurgical construction enterprises, which have successively undertaken the planning, investigation, design, and construction projects of major production facilities of large and medium-sized domestic steel enterprises. Since entering the beginning of the new century, we have entered the international market by relying on our strong technological advantages. We have undertaken the design and construction of main large and medium-sized greenfield steel projects in the world in recent years, such as the Formosa Ha Tinh Steel project in Vietnam, Malaysia’s Kuantan united steel project, India’s TATA steel project, and ArcelorMittal’s project in Ukraine. We have developed core technical advantages, design and construction capabilities throughout all links to make great strides towards the goal of building the world’s No. 1 national team of metallurgical construction. Meanwhile, relying on the advantages of high-tech construction developed in the field of metallurgical construction for many years, China Minmetals, one of the first batch of construction enterprises and design units designated by the country to support Shenzhen’s construction, has completed the first edition of Shenzhen’s urban design planning, created the “Shenzhen Speed” in the construction of China’s first public bidding project, and accomplished

the overall development and construction of several new urban areas. As such, it is a well-known domestic expert in all-round solutions of urban construction. In terms of emerging strategic industries, we have laid out six major business areas in advance, such as underground utility tunnels, sponge cities, and special-theme engineering, thus forming significant competitive advantages.

In the field of trade and logistics, we have a global network for trade flows, with global purchasing, global marketing, and the flowing scale of metallic and mineral products leading domestically.

In the field of finance and real estate, we have a number of financing licenses, with significant advantages in trust, leasing, securities, futures, finance companies, and funds. China Minmetals is one of the SASAC’s first batch of 16 central enterprises with real estate as their main business. Minmetals Land and MCC Real Estate under China Minmetals enjoy high popularity.

We have outstanding capabilities for technological innovation. By the end of 2018, we have 14 established research and design institutions, 37 state-level sci-tech and R&D platforms such as the national key laboratory, 27,000 sci-tech personnel, 3 academicians of the Chinese Academy of Engineering, and more than 80,000 professionals. We hold 27,187 valid patents in total and serve as editor-in-chief/editor to formulate more than 1,200 national and international standards accumulated. We are one of the top central enterprises in terms of scientific and technological strength.

Entering a new era, under the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, all staff members of China Minmetals are embracing the philosophy of cherishing limited resources and pursuing sustainable development, proactively practicing the enterprise spirit of “never delaying, never slacking”, and striving to play the role of a state-owned capital investment enterprise in the field of metals and minerals so as to make unremitting efforts to build a world-class metals and minerals corporation.



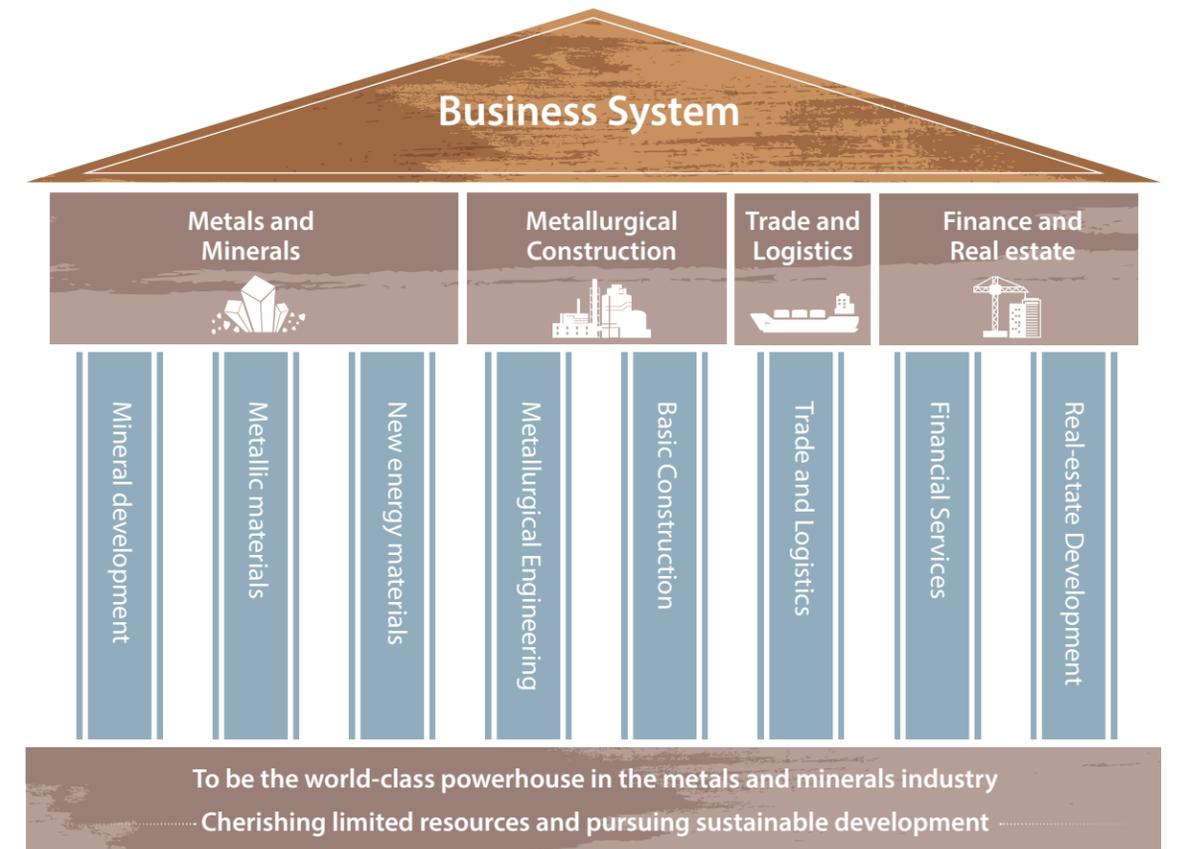
Organizational Structure



Our Strategy



Our Business System



Corporate Governance and the Party Building

Corporate Governance

China Minmetals led the revision of the Articles of Association of the wholly state-funded companies, the state-owned wholly-invested companies and the state-owned absolute holding companies (non-listed) affiliated to the corporation, so as to ensure the legal status of the Party Committee in the corporate governance. By the end of 2018, the group company and its subsidiaries level II and III sub-enterprises had all completed the inclusion of Party building in the articles of association. The Corporation formulated and modified the various systems in time, standardized the preparation of the meetings and accurately conveyed the meetings, so as to ensure the efficient operation of the "three meetings" (namely the Party Group Meeting, General Managers' Meeting and Board Meeting).



Party Building

Under the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, China Minmetals studies and implements the spirit of the 19th CPC National Congress and the national conference on Party building at SOEs, always puts Party building in the first place, strictly exercises Party discipline, upholds Party leadership, and strengthens Party building, so that the policies and major decisions of the Party are effectively implemented, and the leadership of the Party Group over enterprises is upheld.



The Corporation organized system-wide staff and cadres to watch the live broadcast of the Congress celebrating the 40th anniversary of Reform and Opening-up



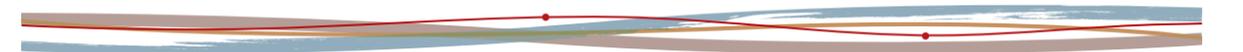
we promoted Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era into enterprises, workshops and shifts with the spirit of the 19th CPC National Congress as the theme of the Party course lectured by all-level leaders to the party organizations and branches at the primary level together with the thematic essay activities to form an active and fruitful atmosphere of public study; drafted the task breakdown list of the Party Building in the Spirit of the 19th CPC National Congress covering such 60 points of 8 party building aspects as Political Construction, Ideological Construction, Cadre-team Construction, Primary Organization Construction, Work-style Construction, Anti-Corruption Struggle, Supervision system Construction and Ability to govern, to clarify the details, leadership and requirements of the all-level party building.

we determined the evaluation mechanism of Party building for daily spot inspection, reporting and evaluation, and comprehensive inspection at the end of the year to constitute the closed-cycle Party building mode from the responsibility implementation to the evaluation and assessment to the feedback and improvement for a strict requirement of the Party building in the whole process; formulated the 2018 Party Building Evaluation Index of China Minmetals to optimize the Party building evaluation system for an overall coverage of the headquarter departments and the subsidiaries.

Building of Fundamental Party Branches: we fulfilled the establishment, adjustment and election of the fundamental Party organizations, establishing the Party branches (including Party committee preparatory group) in five subsidiaries and completing the general election of Party committee in three subsidiaries;

Building of Fundamental Party Teams: we fulfilled the development and educational of Party members and the training of Party affairs staff, guiding the subsidiaries party branches to develop the Party members and organizing training workshops for the Party membership applicants, with which 191 Party members were successfully developed during the year, and other training workshops including the thematic workshop for the Party building improvement of China Minmetals and the thematic workshop of the full-time deputy Party secretaries for the subsidiaries and affiliated enterprises.

Building of Fundamental Party System: we implemented the fundamental party system such as three lessons system, the regular activities of the Party organizations and the mutual evaluation on Party members; organized the various thematic Party day activities.



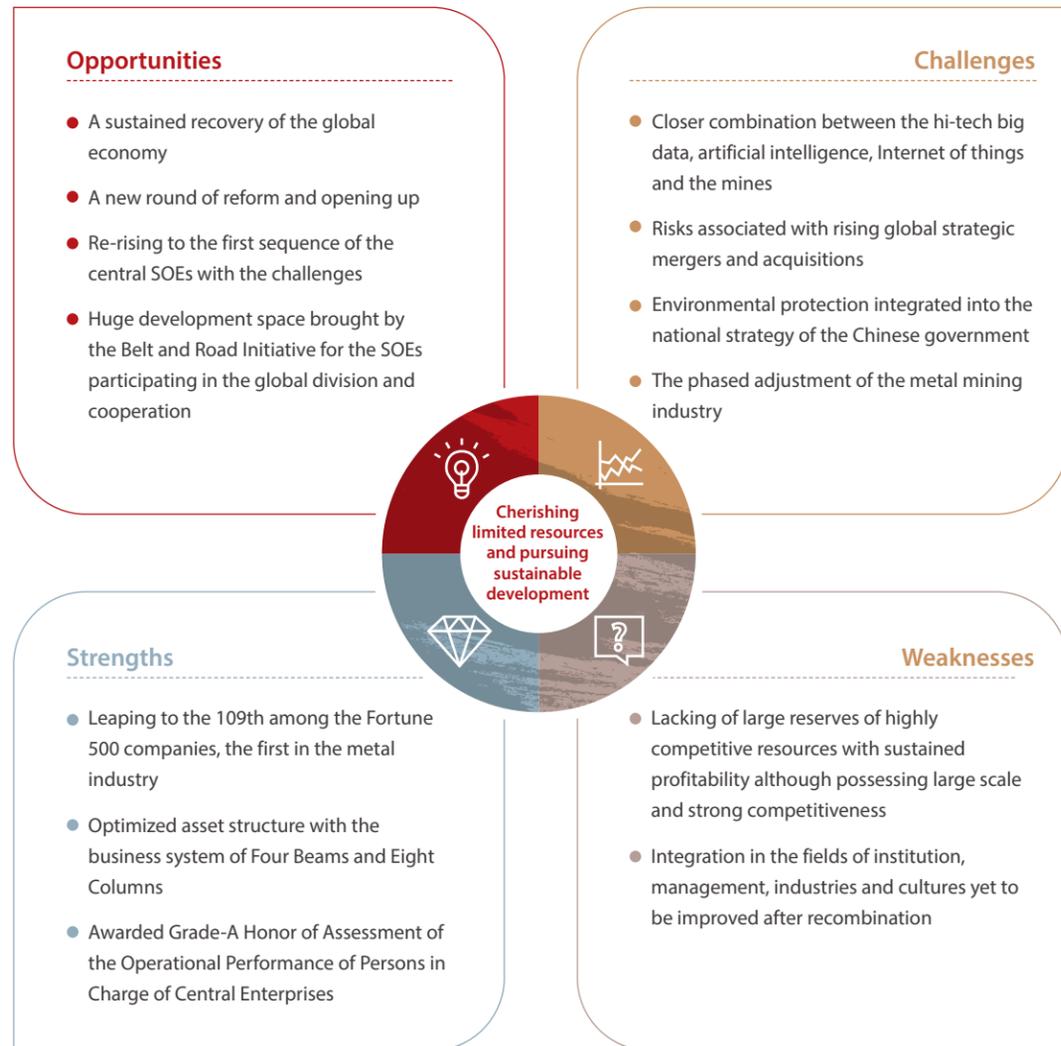
Leading cadres at or above the division level should learn and implement Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era and the spirit of the 19th National Congress of the CPC. At the Corporation level, three rotation training classes were held for the management cadres of the Corporation and the heads of the second-level divisions and offices at the headquarters. Subsidiaries should carry out the work of rotation training according to the requirements of their units and train them altogether. There were **6,205** trainees.



We built the brand of training demonstration workshops for Party Secretaries with three training demonstration workshops for **308** Party Secretaries. We won Party Building Project of the Year for the Central SOEs held by China Association for Executives Development.

In 2018, we covered the Party training of the **3,730** subsidiaries Party units of the employees.

Background of Sustainable Development



Our Action

We have fully implemented the Competitiveness Enhancement Act to shift the development mode from high speed to high quality and from low efficiency to high efficiency, to promote the company from quantitative growth to quality improvement and from improving business performance to strengthening industrial influence and global competitiveness, to lead enterprises at all levels to grow into the market entities of self-management, self-responsibility for profits and losses, self-assumption of the

risks, self-discipline, self-development from making high-level plans to intensive and meticulous implementation for a successful path of SOEs' reform characterized by a typical Minmetals Model, to step up efforts to develop into a world-class enterprise with strengthening industrial influence and global competitiveness for the lofty missions bestowed on us to safeguard the national interests and implement the national strategies for the contributions to China's comprehensive strength and powerful resources.

Sustainable Development Management

Mechanism of Sustainable Development Management

China Minmetals has set up a CSR Management Committee, which is mainly responsible for the leadership and decision-making of CSR. The CSR Office of the Committee, which located in the Corporation Culture Division, is responsible for the implementation of decision-making and daily work of the Committee. The functional divisions, business entities and subsidiaries of the Corporation set up a CSR working group, and formed a long-term mechanism for continuous social responsibility information disclosure and communication.



New Model of Sustainability Development

We seek to build a new model of sustainable development for the new era by gradually incorporating the 2030 Agenda for Sustainable Development into our CSR model featuring value creation, thus contributing to the effective implementation of the 2030 Agenda.

About the model

Implication: The diamond-shaped model epitomizes China Minmetals' relentless pursuit of sustainable development and firm commitment to creating the greatest possible integrated value for the economy, the society, and the environment.

Rationale: "Maximum integrated value for the economy, the society, and the environment = Maximum positive impact on stakeholders - Minimum negative impact on stakeholders"

Elements of the Model:

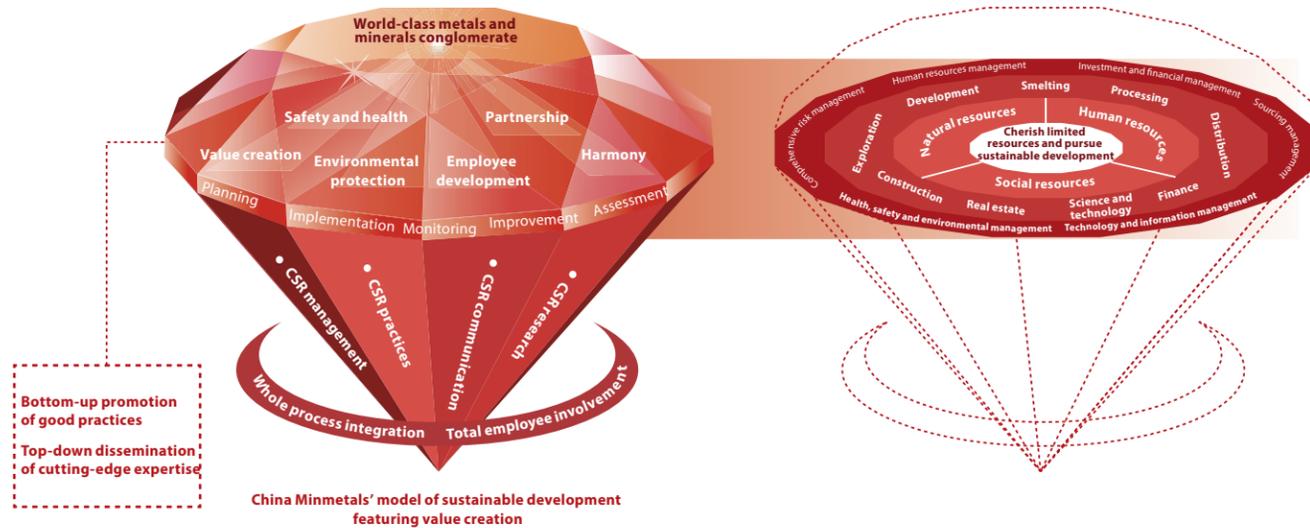
Means: Whole process integration and total employee involvement

Approaches: CSR management, practices, communication and research

Process: Application to all areas of business and management

The Value Creation Formula of CMC

$$\text{Max Comprehensive Value} = \sum_{\text{Max}} \text{Positive Effect} - \sum_{\text{Min}} \text{Negative Effect}$$

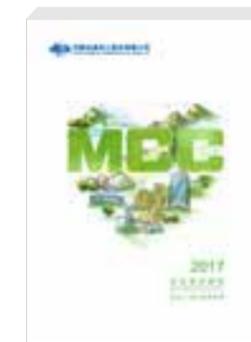


Transmission of Sustainable Development Information

China Minmetals has established a sustainable development reporting mechanism with 12 sustainability reports issued successively in accordance with the financial year since 2008. On the basis of the company's annual release of the sustainability report, such qualified subordinate units as MCC and MMG are encouraged to issue the independent reports, the overseas performance reports and the sustainability reports the major projects, for example, the Las Bambas Copper Mine, forming a three-dimensional reporting model of parent company, subsidiaries and project-oriented reports.



China Minmetals Sustainability Report 2017



MCC Sustainability Report 2017



MMG Sustainability Report 2017



Las Bambas Copper Mine Project Sustainability Report 2017

In addition to the annual issuance of sustainability reports, the social responsibility column is set up on the company's website to advertise the understanding of social responsibility at the top of the company, the management philosophy of the company, the relevant information about the CSR organizations and the stakeholders.



CSR Promotion and Communication

In terms of promotion and communication of the CSR management, the external communication of China Minmetals not only provides experience for Chinese enterprises to enhance their awareness of social responsibility and practice, but also improves the company's own capability to perform responsibility.

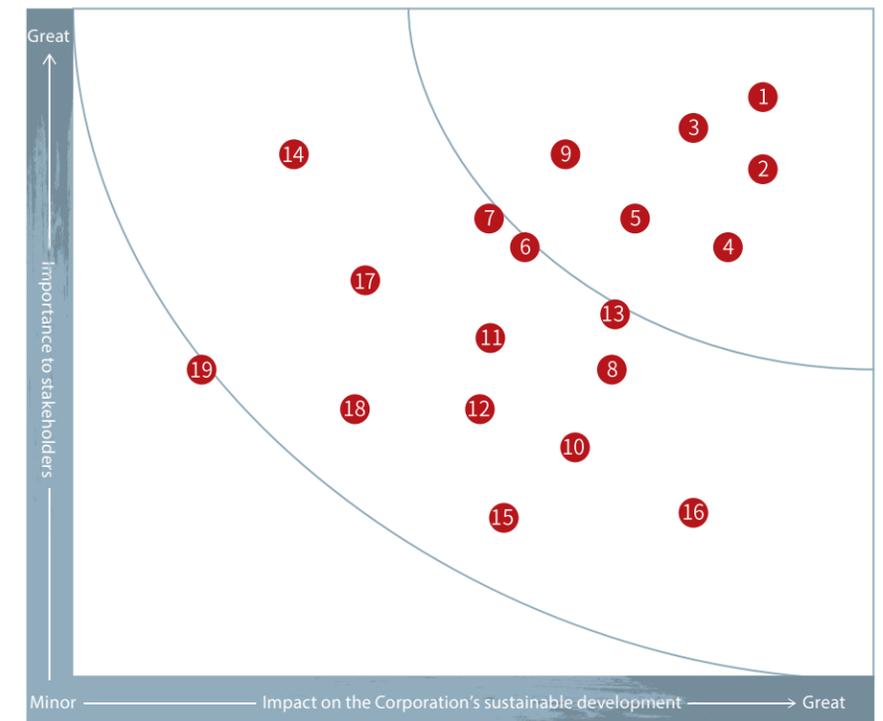
- We participated in the seminar on Research on CSR Information Disclosure of the State-owned Enterprises in terms of the in-depth communication of the concept and connotation, content norms, entities and requirements, mandatory and regulatory measures and capacity building of the information disclosure.
- We participated in the thematic forum on Strengthening the CSR Information Disclosure and Building Transparent SOEs of the New Era in the 11th International Conference on CSR Reporting in China and exchange the views on the present situation, challenges and solutions of the CSR information disclosure in state-owned enterprises with the guest participants.
- We participated in the first GoldenBee International Academic Seminar on Corporate Social Responsibility to share the CSR development and practical experience over years.
- We participated in the thematic sub-forum on A New path to Poverty Alleviation in the New Era of the 13th International Forum on Corporate Social Responsibility to share the poverty alleviation process and experience of China Minmetals.

Sustainability-related issues

Based on research on national macro-policy, domestic and international CSR standards, the Corporation's development strategy and planning, benchmarking, and stakeholder interviews and surveys, this report analyzes the "importance to stakeholders" and "impact on the Corporation's sustainable development," selects the major issues that should be disclosed, and develops a matrix of sustainability-related issues.



- 1.Safe Production
- 2.Technological Innovation
- 3.Sustainable Management
- 4.Performance Growth
- 5.Pollution Prevention
- 6.Engineering Quality
- 7.Poverty alleviation
- 8.Customer Service
- 9.Energy Conservation
- 10.Employee Health
- 11.Global Development
- 12.Partner Win-win
- 13.Resource Development and Utilization
- 14.Employee Rights Protection
- 15.Supply Chain Partnership
- 16.Career Development
- 17.Tax payment according to law
18. Protection of Employees' Rights and Interests
- 19.Biodiversity conservation



Stakeholder Engagement

Based on the Corporation's actual operation and business, we seek to creatively communicate and interact with stakeholders, proactively identify the CSR key issues, positively respond to their concerns, and keep improving our CSR performance to grow together with all stakeholders.

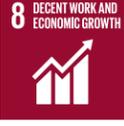
| | | |
|---|--|--|
|  <p>Expectations and requirements</p> <ul style="list-style-type: none"> Compliance operation Satisfactory market capitalization Safe production Green development Brand promotion <p>Communication response</p> <ul style="list-style-type: none"> Special report Increase profitability Safety management Energy conservation and emissions reduction Brand building |  <p>Expectations and requirements</p> <ul style="list-style-type: none"> Tax payment according to law Employment promotion Economic development <p>Communication response</p> <ul style="list-style-type: none"> Take the initiative to pay taxes Provide support and guidance Drive economic growth |  <p>Expectations and requirements</p> <ul style="list-style-type: none"> Contractual obligations High-quality products Quality service <p>Communication response</p> <ul style="list-style-type: none"> Carry out contracts Improve product quality Increase service capacity |
|  <p>Expectations and requirements</p> <ul style="list-style-type: none"> Good faith Openness and fairness Mutual benefit <p>Communication response</p> <ul style="list-style-type: none"> Honor agreements Disclose procurement information Seek common development |  <p>Expectations and requirements</p> <ul style="list-style-type: none"> Equal opportunities Career development Occupational health Employee care <p>Communication response</p> <ul style="list-style-type: none"> Open communication Education and training Provide protective appliances and labor protective products Care for employees |  <p>Expectations and requirements</p> <ul style="list-style-type: none"> Regular communication Long-term stable relationship <p>Communication response</p> <ul style="list-style-type: none"> High-level exchange of visits Strategic cooperation |
|  <p>Expectations and requirements</p> <ul style="list-style-type: none"> Fair competition Industry development <p>Communication response</p> <ul style="list-style-type: none"> Maintain business environment Participate in industry standard formulation |  <p>Expectations and requirements</p> <ul style="list-style-type: none"> Improve community environment Respect community culture Support the public good <p>Communication response</p> <ul style="list-style-type: none"> Help developing communities Protect aboriginal cultures Organize charitable activities |  <p>Expectations and requirements</p> <ul style="list-style-type: none"> Transparency <p>Communication response</p> <ul style="list-style-type: none"> Enhance information disclosure |

China Minmetals' Membership of Organizations

| Organization | Position |
|--|------------------|
| China Council for International Investment Promotion (CCIIP) | Deputy Chair |
| CCIIP China-Chile Business Council | Co-Chair |
| CCIIP China-Brazil Business Council | Co-Chair |
| China Federation of Industrial Economics | Presidium member |
| China Association of Work Safety | Deputy Chair |
| China Iron and Steel Industry Association | Deputy Chair |
| China Nonferrous Metals Industry Association | Deputy Chair |
| Nonferrous Metals Society of China | Deputy Chair |
| China Chamber of Commerce of Metals, Minerals & Chemicals Importers & Exporters | Deputy Chair |
| Association of China Rare Earth Industry | Deputy Chair |
| China Chamber of International Commerce | Deputy Chair |
| Accounting Society for Foreign Economic Relations and Trade of China | Deputy Chair |
| APEC China Business Council | Deputy Chair |
| China Institute of Internal Audit | Deputy Chair |
| Research Institute for Party Building, Ideological and Political Work of State-Owned Enterprises | Council member |
| China Charity Alliance | Member |
| Statistical Society for Foreign Economic Relations and Trade of China | Council member |
| National Association of Financial Market Institutional Investors | Member |
| China Occupational Safety and Health Council | Council member |
| China Environment News Council | Council member |

Implementation of the 2030 Agenda for Sustainable Development

Progress in implementing the 2030 Agenda

| | | |
|---|---|--|
|  | SDG1 End poverty in all its forms everywhere | Undertake the targeted poverty tasks in 6 counties, providing total aid funds of RMB 35.194 million, implementing 50 aid projects together with introducing free relief funds of RMB 11.641 million in 2018 |
|  | SDG2 End hunger, achieve food security and improved nutrition and promote sustainable agriculture | Invest in four industrial poverty alleviation demonstration bases, establish Pueraria Lobata Planting Base and Chinese Pepper Planting Base, and construct the drinking water project in Qiaoshan Town, Yiliang County of Yunnan, capable of irrigating 10,000 mu of cultivated land |
|  | SDG3 Ensure healthy lives and promote well-being for all at all ages | Construct the Medical center to improve the medical conditions in poor areas and carry out safety training activities to improve the safety awareness of employees |
|  | SDG4 Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all | Organize the donation activities to fund the impoverished students with more than RMB 8 million; subsidize 8 relieving facilities projects in primary schools and 4,268 impoverished students. |
|  | SDG5 Achieve gender equality and empower all women and girls | Abide by the relevant laws and regulations and the employment policy of equality and non-discrimination and care for the female, organize cultural activities to balance work and life of staff |
|  | SDG6 Ensure availability and sustainable management of water and sanitation for all | Carry out environmental protection business including solid waste treatment, garbage disposal and water treatment with 34 energy-saving companies and 8 clean-energy companies |
|  | SDG7 Ensure access to affordable, reliable, sustainable and modern energy for all | Build energy-saving and environmental-protection research and demonstration projects to improve energy utilization efficiency |
|  | SDG8 Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all | Pay attention to the career development of employees and provide all kinds of practical opportunities through employee training and talent pool to broaden the development channels |

| | | |
|---|---|---|
|  | SDG9 Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation ecosystems, sustainably manage forests, combat desertification, and halt and reverse | Focus on assembly building for the development of the new technology to develop beautiful countries, intelligent cities, sponge cities, utility tunnels |
|  | SDG10 Reduce inequality within and among countries | Assist overseas communities in the sustainable development and the improvement of the local living standards through community investment and public welfare |
|  | SDG11 Make cities and human settlements inclusive, safe, resilient and sustainable | Develop beautiful countries, intelligent cities, sponge cities, utility tunnels |
|  | SDG12 Ensure sustainable consumption and production patterns | Carry out heavy metal tailings, wastewater treatment and reuse to improve the effective utilization of resources |
|  | SDG13 Take urgent action to combat climate change and its impacts | Strengthen the energy-saving management and the emission reduction to fulfill the assessment missions of SASAC in an all-round way with non-pollution events for years and system construction of green standards |
|  | SDG14 Conserve and sustainably use the oceans, seas and marine resources for sustainable development | Set up International Joint Research Centre for the Exploitation of Marine Mineral Resources |
|  | SDG15 Protect, restore and promote sustainable use of terrestrial | Promote land and biodiversity management to protect the ecosystems and avoid the disturbed land impact on the environment and residents through the land management implementation as much as possible |
|  | SDG16 Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels | Carry out the democratic management system with the basic form of the people's Congress and the open system of factory affairs to further open up the channels of democratic management, supervision and decision-making of staff and workers |
|  | SDG17 Strengthen the means of implementation and revitalize the global partnership for sustainable development | Implement the international operation with 17 overseas mines in more than 60 countries (regions) of overseas institutions throughout the world. |

New Minmetals with New Revolution for New Development

On June 2, 2016, the former China Minmetals (one of World Top500) announced the recombination with the former MCC (also one of World Top500) into a brand-new China Minmetals for a mutual development era. Since the recombination, we have quadrupled our revenue in three years and made exciting achievements from the bottom of our business. On behalf of China's participation in the competition of the world metal mineral industry, we will play an important role in the process of high quality development and cultivation of world-class enterprises.

As General Secretary Xi Jinping clearly pointed out in the Report of the 19th National Congress of the CPC, China's economy has shifted to the high-quality development and it is necessary to cultivate world-class enterprises with global competitiveness.

New Minmetals Reflects New Revolution

After the recombination, the new China Minmetals has given full play to the unique advantages of complementary restructuring enterprises to effectively reduce the transaction costs, improve the operating efficiency, and promote the internal supply-side structural reform, for the further integration and the restructuring dividends, exploring a new paradigm, new model and new path for the central SOEs' restructuring.

At the beginning of 2017, starting from the realistic basis of the enterprise and the orientation of long-term development, we stood at the height for the great development of the enterprise, and put forward the goal of "quadrupling in three steps" as an overall important strategic guide.



The Positive Battery Electrode Materials "2+1" Project of Changyuan Lico



Step 1
By the end of 2017

We had doubled our profit of more than RMB 4 billion in 2016 to a profit of RMB 10 billion, attaining the transitional missions of stopping loss for profitability and restructuring for transformation.

Step 2
By the end of 2018

We had doubled the profit in 2017 to a profit of about RMB 20 billion and turned the losses into the overall profit with a uniformly accelerated development, growing into a state-owned capital investment company.

Step 3
By 2020

Our output of tungsten, antimony, indium, germanium and bismuth will have ranked first in the world together with the production of copper, lead, zinc and nickel leading in the world, realizing the goal of being the "China first, world-class" metal mineral enterprise to protect and safeguard the country with global allocation of mineral resources and the integration of production, supply and trade.



The 2018 voyage exploration work in the International Seabed Contract Mining area

New Revolution Inspires New Achievements

Over the past three years of reorganization, we have thoroughly implemented Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era and the spirit of the 19th National Congress of the CPC, vigorously practiced the requirements of high-quality development, and successfully overcome the challenges of internal and external risks, so as to extinct original debts, encounter tough problems, and accomplish major events, which has greatly enhanced our ability of value creation, the position of industry and the quality of development in all directions.

achieved net operating cash inflows of more than RMB **30** billion for four consecutive years

Achieving the second-step goal excellently beyond expectations

New China Minmetals strives to rise from the bottom of history and successfully completes the second step of "quadrupling in three steps", with operating revenue quadrupling in three years. Awarded Grade-A Honor of Assessment of the Operational Performance of Persons in Charge of Central Enterprises from Grade-D, and the World Top500 ranking from 198 up to 109.

By the end of 2018, the assets under management reached RMB 1.85 trillion, of which the total assets were RMB 896.8 billion and the financial assets

were RMB 949.7 billion. We have continuously improved the efficiency of asset operation and achieved net operating cash inflows of more than RMB 30 billion for four consecutive years as well as constantly optimizing the asset structure to reduce the group's asset-liability ratio to less than 80 per cent, which has significantly perfected the quality of management for the further solid foundation of development. The SASAC of the State Council spoke highly of the tremendous achievements of the restructured New China Minmetals.



Honored 1 First Prize of National Science and Technology Award

New Minmetals with New Revolution for New Development

Enhancing the comprehensive strength and market competitiveness remarkably

Reinforcing the ability to guarantee mineral resources

By 2018, our main metal resources total reserves are 30.42 million tons of copper, 12.79 million tons of zinc and 1.32 million tons of nickel, all ranking in the front of the world, 1.62 million tons of tungsten ranking first in the world as well as the total reserves of antimony and bismuth, and 4.3 billion tons of iron.



The metallurgical construction industry "higher, stronger, and more pioneering"

As the No.1 "national team" in the metallurgical construction field throughout the world, our business accounts for 60% of the global market and 90% of the domestic market which has almost covered all the global large and medium-sized green steel design and construction projects as well as undertaking all the domestic strategic projects of environmental protection relocation, energy conservation and emission reduction, and industrial upgrading. Meanwhile, we not only act as the main force of infrastructure construction, focusing on the projects characterized by "high end, high tech, high added value and large-scale to explore the high-end market; but also as a leader in emerging industries, enhancing our brand impact with unique technical advantages.



Reshaping the trading system steadily

We have steadily reshaped the trade business system, gradually solved the drawbacks of the traditional model, and constantly enhanced the control over upstream resources and the influence of downstream users.

In 2018, MMG historically broke through the trade volume of 1 million tons copper concentrate and entered the ranks of world-class traders; Minmetals Development deeply studied the top-level design, continuously optimized the distribution logistics network channel, constantly hampered the comprehensive service ability of the industrial chain, and increased the volume of iron ore and steel trade steadily; the overseas antimony ingots sales of Minmetals Rare-earth rose more than 200% year on year, making it the largest supplier of antimony products in North America.

Nearly RMB 100 billion of long-term procurement contracts have been signed with Codelco, KGHM, Sumitomo Metal while cooperation with the world mining giants such as BHP Billiton, Rio Tinto, Vale of Brazil, and FMG has been deepened and expanded.

In 2018, MMG historically broke through the trade volume of

1 million tons copper concentrate



Developing the diversified businesses including finance and real estate healthily

Adhering to the development principles of moderate pluralism, multi-industry and multi-point support, we have healthily promoted the diversified businesses including finance and real estate to effectively reduce the impact of mining cycle fluctuations for the further flexible development resilience and space of the company.

Minmetals Jingyi Futures has become the first batch of "copper options" market makers on the Shanghai Futures Exchange with the steady development of the financial businesses including trust, securities and futures; Minmetals Innovative Investment has successfully set up a new energy and new material fund of RMB 11.5 billion; MCC Jianxin Fund has implemented 47 PPP project financing with a total investment of more than RMB 100 billion since its establishment; MLL was awarded one of "China's influential Real Estate Enterprises of the year" at the 2018 Bo'ao Real Estate Forum; MCC Real Estate, listed as one of the "China's Top10 Most Valuable Real Estate brands", has upgraded to the city development operator.

MCC Jianxin Fund has implemented

47 PPP project financing



The Copper-lead-zinc Base Project of Shuikoushan, Hunan Nonferrous

New Achievements Lead to New Experience



General Secretary Xi's series of important judgments on economic development and the reform of state-owned enterprises have a high degree of accuracy and direction. In this sense, we thoroughly implement General Secretary Xi Jinping's two "consistent" and unwaveringly strengthen Party's leadership. The new vision for development has been firmly established in consistence with the important judgment put forward by the 19th CPC National Congress as well as the requirements of the high-quality development, the old growth drivers with new ones, the better and bigger state-owned assets, and the world-class enterprise with global competitiveness have been followed to meet the challenges of reform and improve the quality of development.

We have implemented General Secretary Xi's important instruction that more attention should be paid to simultaneously adding, subtracting, multiplying and dividing when adjusting the industrial structure. During the down-to-earth practice, we have striven to get rid of the deadlock, lose weight, and practice the internal skill to realize the asset optimization; we have streamlined the scale and increase the efficiency by simplifying the organization and diverting staff; we have taken major projects as a breakthrough to strengthen the stamina of development with the five major new projects launched one after another; we have created hundreds of billions of internal market to comprehensively promote the deep integration and collaborative complementarity of the whole industrial chain business for a new path of SOEs' complementary reorganization.

Due to the restructuring, eight business plates have been formed. Adhering to the development as the first priority, we constantly strengthen the problem-oriented, consolidate the foundation of the main business, clarify the development law and development path of each business, find the differentiated competitive advantage, and fundamentally support the enterprise to obtain excellent performance.



The primary task after the reorganization is to adhere to the strategy first, that is, to position as the world-class metal mineral enterprise, to do a good job of top-level design and 13th five-year plan to a high standard, and to lead the business development with a clear strategy.

We adhere to the combination of enterprise reality and industry laws and the connection of the main contradictions and stage characteristics, from the initial requirement of "two-year hemostasis and three-year hematopoietic", to the development goal of "quadrupling in three steps", and then to the business system of "four beams and eight columns", seamlessly, consistently and progressively.

New Minmetals with New Revolution for New Development

Upholding the development of integration and assimilation

Integration and assimilation are the most important new kinetic energy production factors of new China Minmetals in the past three years. We effectively integrate and share the resources of various enterprises, and take the lead in opening up the channel of the whole industrial chain from resource acquisition, exploration, design, construction, operation to circulation. By giving full play to the whole industrial chain, we creatively put forward with hundreds of billions of internal market to release the dividend of enterprise restructuring. After the reorganization, the original two enterprises have successfully completed the four parts from business coordination, business integration, personnel exchange and cultural assimilation.

The structural reform of supply side is an important strategic arrangement put forward by the CPC Central Committee focusing on the overall situation of China's Economic Development. We have seized the opportunity of the new round of reform, accelerated the supply-side structural reform, promoted the efficiency of internal resource allocation with external supply-side reform, and resolutely implemented the five tasks of cutting overcapacity, de-stocking, deleveraging, reducing costs and improving weak links, which has achieved solid results in removing the burden, clearing obstacles, and reshaping the competitiveness of enterprise.

Upholding the structural reform of supply side

Upholding the reformation of management system

Reform is the fundamental way to enhance the vitality, control and influence of the state-owned economy. We explore the management system reform for driving force and benefit, integrate the leadership of the party into all aspects of corporate governance and business management, and build a management system for the state-owned capital investment company.

New Experience Forge into New Development

The success of the second step for the "quadrupling in three steps" strategy claims that



The Corporation has created operating performance exceeding the sum of the best levels in the history of the two enterprises before the reorganization, that is to say, the integration of the two companies has achieved remarkable results, showing the great advantages of "complementary restructuring".



The Corporation already has RMB 20 billion value creation ability, ranking in the first echelon of central enterprises, that is to say, the company has fully had the function of state-owned capital investment company, and has firmly established the leading position of the industry.



The Corporation has basically solved the historical burden and hidden trouble problem, comprehensively enhanced the anti-risk ability, fully restored the hematopoietic ability, that is to say, we can take the main energy out of solving the problem, so as to recuperate after unloading the burden to build up strength and create a great cause.

We will continue to fully implement the deployment requirements of the CPC Central Committee and the State Council, persist in the leadership of the Party, deepen the SOEs' reform, and adhere to the high-quality development. In this way can we resolutely attain the third goal of "quadrupling in three steps" and move towards to the world-class metal mineral enterprise, contributing our force to finish building a moderately prosperous society in all respects and achieve the first centenary goal.

The Design of Caofeidian International Iron Ore Exchange Center



Shouldering the responsibility of the era and intensifying the Fight against Poverty

One of the iconic indicators of finishing building a moderately prosperous society in all respects and achieving the first centenary goal is that all the rural people living in poverty have been lifted out of poverty. Regarding of this issue why I have always been thinking and repeatedly emphasized is that I don't have a definite answer in my heart. That is why I stated when defining a moderately prosperous society, the key is to observe the condition of farmers, the key is whether to life them out of poverty.

Building a moderately prosperous society in all respects is our solemn promise of the CPC Central Committee to the people of the whole country which must be fulfilled and achieved in all respects, no room for bargaining.

Neither can we say that we haven't achieved this goal yet, and it will take a few more years by the committed time, nor can we announce that we have built a moderately prosperous society in all respects with tens of millions of people still living below the poverty line, which will inevitably affect both the satisfaction of the people and the recognition of the international community with moderately prosperous society in all respects, as well as the prestige of our CPC Communist Party among the masses and the image of our country in the world.

To win this battle against poverty, we should mobilize all forces of the Party and the nation to raise out of poverty all those defined by current standards as rural poor into a moderately prosperous society in all respects by 2020.

--Extracts from the Discourses on Poverty Alleviation by Xi Jinping

The targeted poverty reduction and alleviation has been not only an important governance principle under the strong leadership of the CPC Central Committee with Comrade Xi Jinping at its core since the 18th National Congress, but also one of the three tough battles for securing a decisive victory in finishing the building of a moderately prosperous society in all respects put forward clearly in the 19th National Congress.

In 2018, the Party Group of China Minmetals seriously studied the essence of General Secretary Xi Jinping's important statements on the targeted poverty reduction and alleviation, and resolutely implemented the decision-making and deployment of the CPC Central Committee on fighting against poverty. With taking the fixed-point poverty alleviation as the duty and responsibility, all the personnel on the front line of the poverty alleviation were pushed forward to provide the systematic and standardized assistance for the poverty alleviation under the guidance of characteristic, precise and prolonged principles. A sustainable development path of the SOEs' assisting the impoverished county has been explored to constantly strengthen the strength of alleviation and enrich the means of alleviation in the fixed-point areas.



Poverty Alleviation Efforts of China Minmetals

In consistent with the essence of the relevant documents issued by the State Council Leading Group Office of Poverty Alleviation and Development, China Minmetals has taken the fixed-point poverty alleviation work in Zhenxiong County, Yiliang County and Weixin County of Zhaotong City, Yunnan Province. After the strategic recombination of the Corporation, Huayuan County of Xiangxi Autonomous Prefecture, Hunan Province targeted poverty alleviated by Changsha Research Institute Of Mining And Metallurgy together with Yanhe Tujia Autonomous County and Dejiang County of Tongren City, Guizhou Province targeted poverty alleviated by MCC Group are also listed in the fixed-point poverty alleviation counties of China Minmetals, totally 6 targeted regions.



China Minmetals shoulders
6 fixed-point poverty-stricken counties



Tang Fuping, Chairman and Party Group Secretary of China Minmetals, attended Field Investigation at Water Diversion Project in Qiaoshan Town



Guo Wenqing, general Manager and Deputy Party Committee Secretary of China Minmetals, Chairman of MCC Group, visited the impoverished households in Yutang Village, Shazi Subdistrict, Yanhe County



Mr. Dong Mingjun's view-exchanging on planting cash crops such as grapefruit with Mr. Yang Cong (First right), First Secretary of Dujiang Village, Yanhe County and the impoverished households

Shouldering the responsibility of the era and intensifying the Fight against Poverty

In 2018, 11 dispatched officials of China Minmetals were sent to the targeted regions with one bureau-level dispatched official for the Deputy Mayor of Tongren City, Guizhou Province, 6 officials for the Deputy Magistrate and 4 officials for the First Secretary of the Village, which equipped all the severely impoverished counties with Deputy Magistrate and the First Secretary of the Village.



In 2018, China Minmetals:

Directly funded
RMB **35.194**
million in six counties

Implemented
50 assisting projects

Positively introduced the social fund of
RMB **11.641**
million

Trained six counties' **101** grass-root cadres and **265** technicians and wealth leaders

Trained **72** persons-times in terms of e-commerce

Actively carried out the consumption poverty alleviation with direct purchase of
RMB **259,800**

Assisting sales of
RMB **288,000** agricultural products from the poverty-stricken areas

Besides, China Minmetals has undertaken as well:

- The targeted poverty alleviation in Qilian County, Qinghai Province, Xinjiang and Tibet
- The poverty alleviation of 24 regions (areas, cities, counties) by the affiliated secondary enterprise
- The dispatch work of 75 officials and working teams
- 665 person-time training of grass-root cadres and technicians and 530 person-times of wealth leaders
- The total amount of RMB 115 million poverty alleviation fund in all aspects
- The total amount of RMB 1.533 billion introduced fund for the impoverished regions
- Direct purchase and assisting sales of agricultural specialties amounting to RMB 1.1049 million for the impoverished regions

Poverty Alleviation Layout of China Minmetals

In 2018, the Party group of China Minmetals led all the staff on the front line of battle against poverty to seriously study the essence of General Secretary Xi Jinping's important speeches on the poverty alleviation with a clear division of labor, clarified responsibilities, specific tasks to designated officials and a thorough evaluation of performance which not only defined the clear duties and responsibilities, but also ensured the coordination and cooperation.

The monographic study on the targeted poverty relief was held twice a year for the Party Group together with the General Manager's Office meetings held twice a year to deliberate the poverty alleviation plans.

Tang Fuping, Chairman and Party Group Secretary of China Minmetals, Guo Wenqing, General Manager and Deputy Party Committee Secretary of China Minmetals, Chairman of MCC Group, and Dong Mingjun, Deputy Secretary and Vice President in charge of the poverty alleviation, have been meeting in the headquarter to discuss the issues of poverty relief.



May 30

Met with Han Xianghui, Secretary of Qilian County, Tibetan Autonomous Prefecture of Haibei, Qinghai Province on May 30 and Guo said that China Minmetals will, as always, fully support the transformation and development of Haibei.

May 21

Attended the Promotion Conference for Central SOEs to Fight Against Poverty in Severely Poor Areas held by SASAC in Linxia, Gansu Province on May, 21 and participated in on-the-spot observation and discussion.

June

Attended the thematic seminar held by Theory Learning Group of China Minmetal's Party Group on General Secretary Xi's important discourses of the targeted poverty reduction and alleviation in June.



August 15-16

Paid a special visit to Yunnan Province to hold a working talk with the principals, survey on the promotion of the targeted poverty alleviation and extend regards to the dispatched officials from August 15 to August 16, during with Tang entered the village to investigate the poverty alleviation development in Yiliang County, Yunnan Province, and ahead of which Tang sent an expert team to conduct special research and guidance in the local areas, and listened to the special report of the expert team for a better targeted research work.



October

Led a delegation to investigate, guide and supervise the poverty relief work in Yanhe County and Dejiang County of Guizhou Province and expressed regards to the dispatched officials on behalf of the company in October when the 5th National Poverty Alleviation Day and the 26th International Day for the Eradication of Poverty were coming.

July

Met with the attachment cadres, listened to their work reports and suggestions, and gave instructions on their work at 2018 Symposium on Poverty Alleviation & 2018 Annual Training Conference of China Minmetals in July, Beijing.



September 7

Attended a work conference and signing ceremony for the Central SOEs to Aid Tibet in Fighting Against Poverty held in Lhasa and participated in the visit and discussions.



Shouldering the responsibility of the era and intensifying the Fight against Poverty

Innovative Model of Targeted Poverty Alleviation

China Minmetals resolutely implement the decision-making and deployment of the CPC Central Committee on eliminating Poverty with the full participation and targeted focuses on the priority relief work to enhance in all respects.

A distinctive targeted overall layout of poverty alleviation has been formulated after years of exploration:



The People's Wellbeing

We extended from the constructions of the healthcare spots, roads and bridges in the early stage to the current constructions of beautiful villages, convenient road bridges and installed houses

Education

We adhered to the support of the rural primary schools with the enhancement of the educational assistance facilities including playground, reading room, teaching staff dormitory and starting the targeted aid program for the high school and college students

Donation of Love Packages

We donated personal stationery packages and school sports packages with a total of RMB 8 million plus to the impoverished students in the three designated counties of Yunnan Province, jointly with China Foundation for Poverty Alleviation since 2011

One-to-one Love Donation

We donated RMB 3.465 million to 3,089 impoverished college and middle school students with the coverage of junior high school students and freshmen from Weixin, Yunnan Province and Huayuan, Hunan Province, fully affirmed by the State Council Leading Group Office of Poverty Alleviation and Development



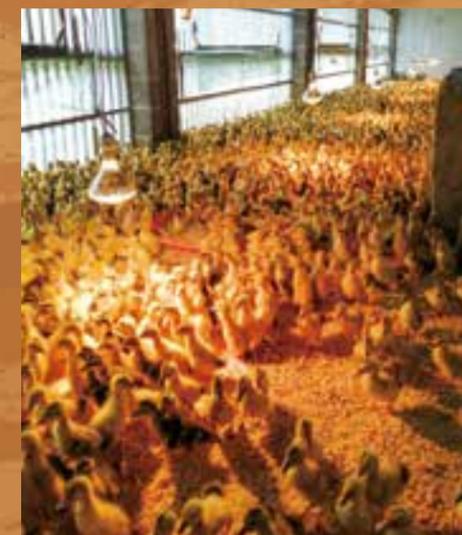
Poverty Alleviation of Livelihood and Education

- We built more than 20 projects of the convenient roads, bridges and drinking water, for example, the drinking water project in Qiaoshan Town, Yiliang County of Yunnan, benefiting 22,000 people and 4,280 students of 5 villages as well as irrigating 10,000 mu of cultivated land
- We equipped the installed houses of the relocated impoverished people in Weixin County, Yunnan Province with 500 sets of doors and windows as well as aiding 500 poor college students
- We subsidized 8 projects for the construction of supporting facilities in primary schools and aiding 4,268 senior high school students and university students

Poverty Alleviation of Industry and Employment

After years of active trials, China Minmetals has explored the industrial poverty alleviation model of enterprise funding, cooperatives operating and impoverished people participating, which is being carried out smoothly in Hunan, Yunnan and Guizhou. By the end of 2018,

- We have established 4 demonstration bases of industrial poverty alleviation in Huayuan County, Hunan Province and developed more than 200 person-time of technical training as well as the construction of beautiful villages covering 77 impoverished households.
- We have established 1 demonstration base of pueraria lobata planting in Weixin County, Yunnan Province.
- We have been now establishing 2 demonstration bases of Rabbit breeding in Zhenxiang County, Yunnan Province to raise 945 poor households in the surrounding areas out of poverty gradually.
- We have been now establishing 1 demonstration base of Chinese Pepper planting in Yanhe County, Guizhou Province to raise 454 poor households in the surrounding areas out of poverty gradually.
- We have developed a pilot project of labor export cooperation in Dejiang County, Guizhou Province with the model of enterprises employing the impoverished people, which provides jobs for 230 poor households.



Our Funded Duck-raising Base in Huayuan County, Hunan Province



Our Funded Ecological Lentinus Edodes Planting Base

Shouldering the responsibility of the era and intensifying the Fight against Poverty

Poverty Alleviation of Innovative Models

Explored Poverty Alleviation Model of Insurance and Futures

In 2018, such models as corn "income+insurance", sugar cane "order+insurance+futures", cotton "insurance+futures+bank" were operated one after another, and the innovative model of "insurance+futures+basis trade" was actively explored to improve the application of financial derivatives in the field of poverty alleviation, with a total premium of RMB 8.7352 million.

- In Ximeng Nationality Autonomous County of Yunnan Province, the sugarcane "Order+Insurance+ Futures" project was explored, covering 4,028 farmers with 32,908.34 mu of sugarcane planted.
- In Ximeng County, Yunnan Province, the model of insurance+futures covered 4,284 rubber growers and 90,005 mu of rubber forest in the county.
- In Fuyu County of Heilongjiang Province, the corn price insurance covered 3,143 impoverished households with a corn planting area of 30,355.79 mu.
- In the second and third companies of the 51st regiment of the third Division of Xinjiang Production and Construction Corps, the cotton price index insurance was implemented, covering 623 impoverished households with a planting area of 22,730.35 mu.

Large-scale Development Funds for Severely Impoverished Areas with Security Businesses

As the leading major underwriter, Minmetals Securities helped Guizhou Province successfully issue a bond of RMB 1.5 billion, the largest corporate bond issued in Guizhou Province in 2018.

Promotion of Internet plus and Big data for Poverty Alleviation

Under the guidance of Ministry of Agriculture and Rural Affairs (MOA), MCC-CISDI has developed the National Public Service Platform for the Production and Marketing of Primary Agricultural Products with RMB 45 million invested in the poverty alleviation. In 2018, MCC-CISDI participated in all seven series of activities sponsored by MOA for the production and marketing of agricultural products in impoverished areas of China, with a total turnover of RMB 15.735 billion.

Environmental and Ecological Protection of Qilian Mountain for Ecological Poverty Alleviation

Responding positively to General Secretary Xi Jinping's ecological concept of Lucid waters and lush mountains are invaluable assets, China Minmetals directed free financial assistance of RMB 7.509 million into Qilian County, Qinghai Province in 2018, of which RMB 6.5 million was used to build the monitoring system of ecological protection in Qilian Mountain.

Poverty Alleviation of Cross-sectoral Collaboration

Education-aided Love Package

The internal charity amounted to RMB 764, 800 with RMB 2.1669 million of social charity and 29,317 love packages donated to the primary students in the designated impoverished counties.



Specialty Agricultural Products Exhibition

The Specialty Agricultural Products Exhibitions were held in 4 rounds of 7 times to purchase and promote the Specialty Agricultural Products from the targeted impoverished counties collecting a total RMB 547, 800. The company also provided the partial funds for the well-known social charity Serve For China to implement the manufacturing and training of Miao embroidery in Huayuan County, Hunan Province.



One-to-one Love Donation

The one-to-one love donation was developed to the impoverished students in the designated 6 counties, including the Dream Project for every aid senior student with RMB 1000 per year and Lingyun Project for every freshman with RMB 2000 per year. The charity amounted to RMB 3.465 million benefiting 3,089 college and middle-school students, especially covering the impoverished senior high students and freshman of Weixin County, Yunnan Province and Huayuan County, Hunan Province.





Achieving High-quality Economic Growth

As an important state-owned backbone enterprise with metallic minerals as its core business and directly managed by the central government, China Minmetals is a pilot enterprise for state-owned capital investment companies. Taking “the world-class powerhouse in the metals and minerals industry” as its strategic vision, it positions itself as “a main force to ensure security of resources; a national team to upgrade the metallurgical industry; an integrated service provider in the industry” and embraces the philosophy of cherishing limited resources and pursuing sustainable development, proactively practicing the high-quality development so as to make unremitting efforts to build a world-class metals and minerals corporation with the reforms of quality, efficiency and motivation.

In 2018, it ranked **109th** among the Fortune Global 500 companies.

In 2017, it awarded Grade-**A** Honor of Assessment of the Operational Performance of Persons in Charge of Central Enterprises.

Operating income (RMB billion)



Total Profit (RMB billion)



Total Assets (RMB trillion)



Resource Advantages

China Minmetals has taken the lead in operating across the whole industry chain from resource acquisition and exploration to project design, construction, operation, distribution, and further processing in the global metals and minerals sector, with which the Company is capable of providing systematic solutions and the integrated life cycle of engineering construction and operation for metal mining enterprises, thus enhancing the competitiveness of the Company in the whole industry.

Mine Resources

Total quantity of major metal resources

Copper **30.42** million tons

Zinc **12.79** million tons

Nickel **1.32** million tons

Tungsten **1.62** million tons

Iron **4.3** billion tons



China Minmetals possesses rich reserves of metals and minerals with 17 overseas mines throughout Asia, Oceania, South America, and Africa and owns a number of world-class mines including Las Bambas Copper Mine, Dugald River Zinc Mine, and Papua New Guinea Ramu Nickel and Cobalt Mine with the output of copper and zinc are among the global top 10, and the resources of tungsten, antimony, and bismuth among the top list in the world.

Las Bambas Copper Mine in Peru

Las Bambas Copper Mine is located in south-central Peru, containing rich ore reserves such as copper, gold, silver, molybdenum, with 6.9 million tons of copper and 10.65 million tons of copper resources. Now it has completed construction and achieved commercial production as scheduled with 386,000 tons of copper in copper concentrate in 2018, firmly ranking in the world Top10.



Australian Dugald River Zinc Mine Ranking Among the World Top10

Dugald River Zinc Mine is one of the world's largest-scale and highest-grade known zinc deposits and also MMG's first mining built and put into production from the greenfield stage. On 1 May 2018, Dugald River Zinc Mine successfully achieved commercial production with an average 1.7 million tons per annum of ore and 170,000 tons plus of zinc by-products, estimated 25 years of mine life. In 2018, 150,000-ton zinc in concentrate was produced at full ramp-up.



Dugald River Zinc Mine

Papua New Guinea Ramu Nickel and Cobalt Mine

The Ramu Nickel and Cobalt Mine, located in Madang Province, Papua New Guinea, South Pacific Region, is one of the worldwide resource projects invested and developed by MCC. In 2018, the production of nickel and cobalt has hit a record high with the annual average yield of 108.44%, the cumulative production of nickel hydroxide 30,050tons, and cobalt hydroxide 2,784 tons, both ranking among the global Top10. The production costs are lower than the international similar projects with the significantly enhanced profitability.

Marine Mineral Resources

Marine mineral resources are an indispensable and important replacement resource for the sustainable development of human society and economy. In 2017, we signed a 15-year contract for the exploration of polymetallic nodules with the International Seabed Authority, acquiring exclusive exploration rights and propelling rights in 72,745 square kilometers of polymetallic nodule mining areas in the eastern Pacific Ocean for the development of the deep-sea mineral resources.

In 2018, China Minmetals established the International Joint Research Centre for the Exploitation of Marine Mineral Resources which is the only international research center identified by the Ministry of Science and Technology in the field of marine mineral development in China, and successfully organized the implementation of the 2018 voyage exploration work in the International Seabed Contract Mining area. The 500m Seabed Polymetallic Nodule Mining System Test and The 2000m Sampling Test of Cobalt-rich Crusts implemented by CRIMM (Changsha Research Institute of Mining & Metallurgy) and CIMR (Changsha Institute of Mining Research) breaks through a number of core key technology bottlenecks and ranks at the forefront of the international level.

► The 500m Seabed Polymetallic Nodule Mining System Test

The CRIMM-charged projects of The Development and Integration of Polymetallic Nodule Collector for Seabed Test and The 500m Seabed Polymetallic Nodule Mining System Test initiated by China Ocean Mineral Resources R & D Association were established in 2012 and entered into the seabed test phase which has been the first seabed test of the mining collector system since the completion of 130m lakebed test in 2001, as well as a new milestone in the development history of deep-sea mine technology in China. In September 2018, the projects successfully passed the acceptance of experts, which marked the full transfer of China's deep-sea mining system research and development from onshore testing to the seabed test.



Kunlong500 Seabed Test Team



Trade Resources

We have a global trade circulation network covering the procurement and marketing throughout the whole world with the metal ore product circulation scale firmly ranking first in the country. In accordance with the thought of "putting both ends of the production process on the world market, locking the risk in at both ends, large-volume import & export and closed cycle operation", the Company has built a trading system to revive the vitality of traditional trade business, achieving the goal of 1 million tons copper concentrate trade in 2018.

In 2018, the Company has achieved the goal of **1** million tons copper concentrate trade

We progressively promote the Caofeidian International Iron Ore Exchange Center, jointly building the billion tons of trading mixing center with the exchange delivery of bonded, warehousing, ore distribution, preservation, financing, spot, and futures to promote the transformation of trade business.



Guo Wenqing, General Manager and Deputy Party Committee Secretary of China Minmetals, Chairman of MCC Group, investigated in Caofeidian International Iron Ore Exchange Center

Engineering Construction

With the world-class metallurgical construction enterprises, China Minmetals has accumulated the core advantages in technology and the strength in design and construction capabilities throughout the chain as well as we have opened up from the high-end housing construction, highways, urban area development and transportation municipal infrastructure and other capital-building areas to a high level of high-end development, relying on the advantages of high-tech construction formed in the field of metallurgical construction for years.

Construction of Metallurgical Engineering

In 2018, the new contract amount of metallurgical engineering was up to

RMB **112.89** billion

In the field of metallurgical industry construction, we focus on capacity replacement, urban steel-plant relocation and the metallurgical energy-saving and environment-protection technical transformation, to achieve green and intelligent high-quality development with the irreplaceable advantages of metallurgical whole-industry integration and continuous innovation ability.

We have undertaken a large number of main metallurgical projects of the domestic key iron and steel enterprises, such as the EPC general contracting on blast furnace area of HBIS Group for the industrial upgrade and the capacity transfer of HBIS-XuanSteel Company, the general contracting on blast furnace body and auxiliary facilities of Fangchenggang Iron and Steel Base. With the expanding national-team brand awareness and international influence, China Minmetals has won a high degree of trust and good reputation from many international partners with the world's leading technical level. In 2018, the new contract amount of metallurgical engineering was up to RMB 112.89 billion.



The Industrial Upgrading of HBIS with Capacity Transfer of HBIS-XuanSteel Company

> The Samalaju Project of New Wu'an Iron and Steel Group in Malaysia

MCC signed the Phase I general contract of Samalaju Steel Project with New Wu'an Iron and Steel Group Wen'an Steel Company (Malaysia) which is a comprehensive steel project of great influence obtained by China MCC in countries involved in the Belt and Road Initiative once more after Ha Tinh Steel of Vietnam, Kuantan Steel of Malaysia and PT. Dexin Steel of Indonesia.



The Signing Ceremony of Samalaju Project

> Assisting HBIS Group for the industrial upgrade and the capacity transfer of HBIS-XuanSteel Company

MCC won the EPC general contracting project of blast furnace area for the industrial upgrading of HBIS together with capacity transfer of HBIS-XuanSteel, which is not only the implementation of the Beijing-Tianjin-Hebei coordinated development strategy of HBIS Group to meet the needs of blue water and blue sky for 2022 Winter Olympic Games, but also the realization of industrial upgrading and the capacity transfer of HBIS-XuanSteel to the coastal areas for a green, intelligent and branded excellent iron and steel base.

The project, located in Laoting Economic Development Zone of Tangshan City, Hebei Province, with overall planning and step-by-step implementation, is expected to be completed in two phases, the first phase to implement the scale of 8 million tons, and the second phase to implement a further scale of 8 million tons.

Construction of Fundamental Engineering

As the main force in fundamental construction, we focus on the "high-end, high-tech, high value-added, large-scale" projects to serve the major national strategies in terms of the Belt and Road Initiative, the Beijing-Tianjin-Hebei Coordinated Development, Yangtze River Economic Belt, Guangdong-Hong Kong-Macau Greater Bay Area.

In 2018, China Minmetals has undertaken the influential major projects abroad such as Saudi Arabia's Phase I Indemnificatory Apartment Project worth hundreds of billions of dollar and Singapore's Metro T311 project etc., as well as the domestic key projects including the National Sleigh Center, Lanzhou Chaijiaxia Yellow River Bridge, Guizhou highway PPP Project.

► Assisting Beijing 2022 Winter Olympic Games Venues Building

The Project Department of MCC has applied for **38** patents

The National Sleigh Center, undertaken by MCC Group, is the core key project of the Beijing 2022 Winter Olympic Games. It is the first high-strength hyperboloid shotcrete molding track in China and the third in Asia at present, the most challenging with the highest difficulty in design and implementation among all the projects constructed for Beijing 2022. In 2018, the test section of the module track passed the formal certification of the International Federations and the first acceptance of the expert inspection team. The Project Department of MCC has applied for 38 patents and 27 patents have been accepted. The project has been successfully selected as "Beijing BIM Application Demonstration Project".

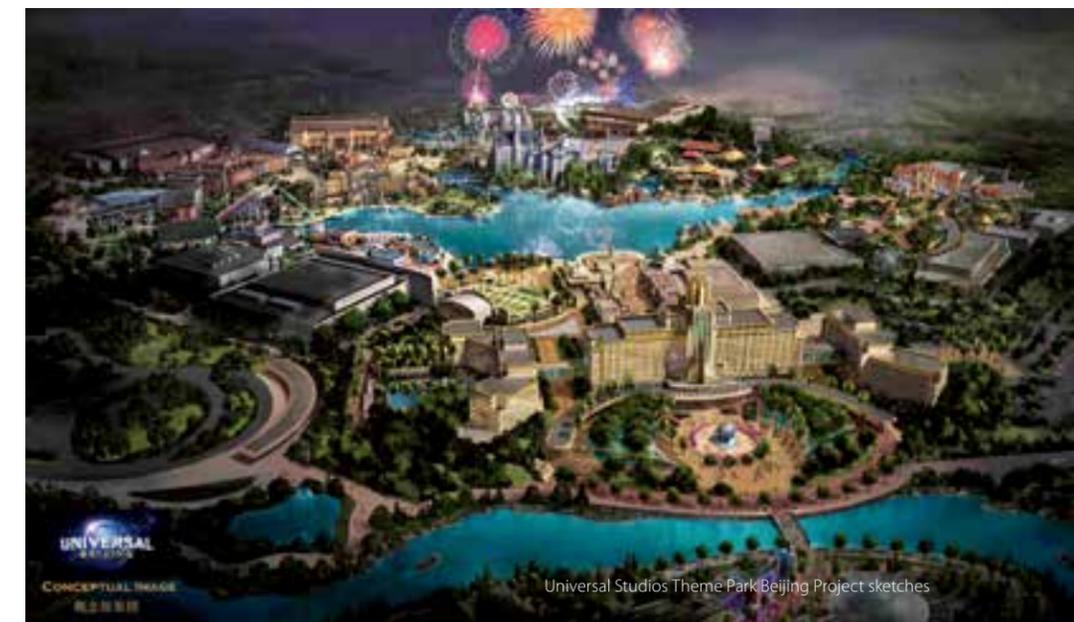


► Universal Studios Theme Park Beijing Project

In 2018, MCC won bidding for Universal Studios Beijing project including design, construction general contracting, supervision and inspection. Upon completion, the theme park will be the first in China, also the sixth in the world and the third in Asia, which is of great importance in shaping Beijing's international image, promoting economic development and cultural communication.



The National Sleigh Center project sketches



Universal Studios Theme Park Beijing Project sketches

Multivariate Development

China Minmetals optimizes the capital assets, which not only realizes the transformation and upgrading of the existing businesses, but also effectively responds to the cyclical fluctuations of the metal mineral industry for the sustainable and steady development of enterprise.

Financial business

We are committed to integrating the financial resources, coordinating the industrial investment, mergers and acquisitions, industrial integration and capital operation, building venture capital platforms and fund management companies, focusing on mineral products supply chain, new materials, energy conservation and environmental protection. Through the market-oriented operation of the fund, we have expanded the sources of funds and promoted the structural adjustment for strategically building the state-owned capital investment companies.



At the 2018 China Trust Industry Development Summit Forum and the 11th China Outstanding Trust Company Award Ceremony sponsored by Securities Times, Minmetals Trust won the award of "Regional Influence Trust Company of the year".



The industrial rating of Minmetals Securities has been upgraded from BB to BBB into a market maker of the inter-bank bond market.



Since its establishment, MCC Jingyi Futures Fund has implemented 47 PPP project financing, with a total investment of more than RMB 100 billion.

➤ Green Leasing Business Helps Urban New Energy Public Transport

In September 2018, China National Foreign Trade and Financial & Leasing Co., Ltd., invested by Minmetals Capital, and Wuhan Financial Holdings New Energy Vehicle Leasing Co. Ltd. signed an order worth RMB 500 million to carry out Wuhan clean energy bus rental project which marks the industrial development of green finance, energy saving and environmental protection through the implementation of national green development strategy with foreign trade leasing.

Real Estate

We are one of the first 16 central SOEs identified by SASAC to take real estate as the main business with the subsidiary Minmetals Land Limited (MLL) and MCC Real Estate enjoying a high reputation. In 2018, MLL was awarded one of "China's influential Real Estate Enterprises of the year" at the 2018 Boao Real Estate Forum while MCC Real Estate accelerates the transformation and upgrading to the city development operator which has become one of the "China's Top10 Most Valuable Real Estate brands".



➤ The Projects of Xinglong New City and Shilichunfeng Town of MCC Real Estate Group Won the Honors

The Xinglong New City project is the first project of MCC Real estate's strategic layout around Beijing which brings together urban government affairs, health care, cultural tourism, business core and educational vitality to create a living environment that is suitable for living, recuperation, entrepreneurship and tourism so as to enhance the regional value with diversified products and services in all respects.

In 2018, at the 15th China Digital Real Estate Festival and Big Data Annual meeting of Real Estate in China, the MCC Xinglong "One-City-One-Town" Gemini Star Project won two awards, namely, China's TOP100 Most Valuable Real Estate 2018-2019 and China's Five-star Property Service Community 2018.



Certificate of Honor

Industrial Upgrading

From resources to materials, China Minmetals has accurately grasped the development trend of the industry to set up a new material plate covering the whole industrial chain, and vigorously cultivate the new kinetic energy of the industry, based on the three new-power projects, namely, the ternary precursors of MCC Ramu, the battery cathode material of CRIMM, and the metals of Yiliping Salt-lake. In 2018, a total of RMB 10.6 billion was invested into the new energy and materials, which not only has realized the layout of the whole industrial chain from resources to technology ahead of schedule, but also has become a new growth point for future development.



Changsha Industrial Technology Research Institute for New Energy Materials

➤ The MCC new material project was put into production successfully

Under the background of the explosive growth of the new-energy automobile, raw materials have become the bottleneck restricting the development of this industry. Relying on the Papua New Guinea Ramu Nickel and Cobalt Mine and combining with the major shareholders, the MCC new material project realizes the integration of the whole industrial chain from raw mining to vehicle manufacturing.

It is planned that the first phase of the project will produce 40,000 tons of high nickel ternary cathode precursor materials (NCM622) and 20 tons of high purity SC oxide. The total production will amount to 60,000 tons of new high nickel ternary precursors (NCM811) and 40 tons of high purity SC oxide in the first and second phases. High nickel ternary precursor products were produced in December 2018 to achieve the goal of running through the whole process and bringing the main and by-products into line.

➤ National New-energy Materials Demonstration Base was put into production

As the major industrial construction project in Hunan Province, the construction of the base is divided into two phases, the first phase for an annual output of 20,000-ton lithium cathode materials of vehicles and 10,000-ton ternary precursors, and the second phase is of lithium cathode materials of vehicles.

As the leading intelligent chemical plant in lithium-ion battery material industry, the project will realize the full automation from raw material input to finished product output and the logistics docking without human intervention in the whole process, so as to reduce staff and increase efficiency while improving product stability, thus providing new kinetic energy for the enhancement of the industrial chain of new energy materials in Changsha, Hunan Province for a new highlight of building a national intelligent manufacturing center.



The Start-up Ceremony of China Minmetals' National New-energy Materials Demonstration Base (Phase I) and Tongguan Base of Changyuan Lico, Hunan on December 28, 2018

➤ The first batch of products were put into production for the 10,000-ton lithium carbonate project of Minmetals Salt Lake

The 10,000-ton lithium carbonate project of Minmetals Salt Lake is one of the three major projects of the new power industry of China Minmetals. It is of great significance to build the business system of "four beams and eight columns" of new China Minmetals. In 2017, the pilot production of 300 tons/year lithium carbonate in Minmetals Salt Lake went on smoothly. In November 2018, the first batch of qualified lithium carbonate products was officially launched. The construction of this project is of positive significance for the effective use of resources in the Qaidam Basin, the improvement of the new energy industry chain and the development of the local economy.



Celebrating the Successful First-batch Products



Driving the enterprise development through innovation

Innovation is the fundamental driving force to promote the development of human society. Therefore, China Minmetals has always adhered to the innovation-driven strategy, comprehensively promoted innovation in science, technology and management, so as to continuously improve the core competitiveness of enterprises with the innovation as the engine.



2018

Honored **3** prizes of National Science and Technology Award, including 1 First Prize and 2 Second Prizes of National Scientific and Technological Progress Award

Honored **16** prizes of China Nonferrous Metals Industry Science and Technology Award, including 7 First Prizes

Honored **18** prizes of Metallurgical Science and Technology Award including 7 First Prizes

Honored **13** excellence prizes of China Patent Award

Innovation of Sci-technology

We have realized a great leap in the scientific and technological innovation by strengthening the research and development of core technology, storing the superior scientific and technological achievements, and paying attention to the market-oriented application of scientific and technological achievements.

Harvesting the innovation achievements

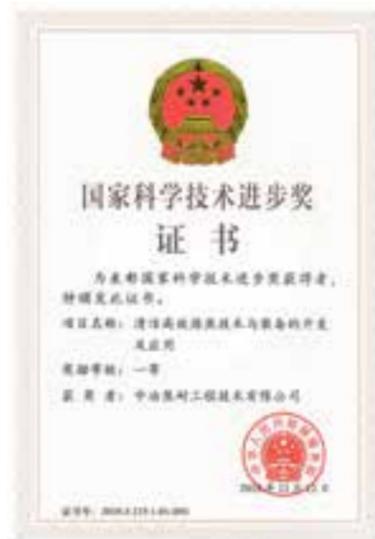
After defining the development trend, key areas and key technologies of "four beams and eight columns" business system, we have conquered a number of core technologies to promote enterprises to reduce costs and increase efficiency, transform and upgrade the industries, and improve quality and efficiency. In 2018, we specially developed 82 new technologies and 132 new products and equipment, and successfully solved the worldwide problem of large-scale production of lithium extraction from salt lakes with high magnesium-lithium ratio.



➤ **MCC won First-prize of National Scientific and Technological Progress Award---The Development and Application of Clean and High-efficiency Coking Technology and Equipment**

Led by MCC-ACRE, the project has been completed with Beijing University of Science and Technology and Ansteel Group after more than 10 years of joint efforts.

Aiming at the key technology of clean coking developed for NOx control, SO₂ and particulate matter control, the project not only realizes the emission reduction of air pollutants, but also breaks through the bottleneck of resources through the development of high efficiency coking technology in accordance with the characteristics of coking coal in China. The independent research and development of efficient key equipment and intelligent management system for coking production have focused on the environmental protection index, the raw material cost, and the coking energy consumption, which ensures the overall leadership of foreign coking technology on the basis of completely independent intellectual property rights.



Improving the innovation capability

We attach importance to the construction of national science and technology platform, strengthen the investment in science and technology, continuously train scientific and technological talents, and constantly enhance the scientific and technological innovation ability of enterprises.

Investment + Platform + Talent

In 2018, the company's R & D investment reached RMB 9.127billion, and 27.38% higher YoY.

The company has 14 research and design institutions, 37 national scientific and technological research and development platforms, such as national key laboratories.

The Company has more than 80,000 professional technical personnel, including 3 academicians of the Chinese Academy of Engineering together with 1 scholar selected in the National Ten Thousand Talents Programme and 1 selected in the National One Million Talents Programme.



➤ **Listed in National Technical Standard Innovation Bases**

In March 2018, the National Technical Standard Innovation Base (International Standardization of Metallurgical Engineering), undertaken by the MCC Group was approved and made for its construction, has become the first International Standardization Innovation Base in China (among 6 in total in the country) which will provide a better technical support platform for the international steel productivity promotion and equipment manufacturing cooperation.

In order to better promote the preparation of innovation base, the Company set up the National Technical Standard Innovation Base Council, Committee of Experts and Secretariat, in accordance with the relevant requirements of the State Standards Commission, together with the first batch of six professional and technical standards research institutes.



Intellectual property management

We strictly abide by the Patent Law of the people's Republic of China, carry out analytical research on the layout of intellectual property rights and the application of patent transformation in strategic emerging industries, promote the transformation of scientific and technological achievements, and continuously release the vitality of scientific and technological innovation. By the end of 2018, the number of valid patents reached 27,187, including 7,740 invention patents.



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► Awarded the title of National Intellectual Property Demonstration Enterprise

The MCC Group encourages all the sub-enterprises to implement the Enterprise Intellectual Property Management, establish a unified centralized management system, so that the work of intellectual property rights can be effected in all links of the production and operation for the cultivation of the national intellectual property superiority and demonstration enterprises.

In 2018, MCC Group, together with the subsidiary MCC-Huatian, 17MCC and SBC-MCC, was honored as National Intellectual Property Demonstration Enterprise while MCC-Changtian was awarded as National Intellectual Property Superiority Enterprise. MCC and its ten subsidiary enterprises were awarded as National Intellectual Property Demonstration Enterprises.

Cultivating the innovation culture

We carry out the annual scientific and technological achievement award. In 2018, 39 achievements awards and 30 honorary awards with a total bonus of 14.3 million were appraised, which significantly enhanced the sense of honor and stimulated the enthusiasm of scientific and technological personnel for innovation.

2018 Scientific and Technological Achievement Award

39 Achievements Awards

30 Honorary Awards

A total bonus of **14.3** million were appraised

In 2018, the First Award for Top10 Innovative Achievements of Staff was held to mobilize employees to carry out job innovation in depth and for a long time. The recognition and propaganda of outstanding innovation achievements not only promotes the sharing of relevant achievements and advanced experience, but also arouses the enthusiasm, initiative, creativity and synergy of basic workers, which is helpful to realize the harmonious development of employees and enterprise mutually.



One of Top10 Innovations-The Upgraded Manual Deburring Device of China Tungsten High-tech Material

Promoting the industrial progress

With the technological advantages, we actively participate in the research planning of industry development and the formulation of industry standards for the editor-in-chief or participation in the compilation of more than 1,200 international national standards to promote the development of the industry.

Participation in the compilation of more than **1,200** international national standards.

The subsidiary MCC-CERI has completed the cleaner production standards of five main processes, filling in the gaps of the national technical standards in this field; China Enfi has issued the industry's first green factory evaluation standard for non-ferrous metal smelters, pointing out the direction for promoting the green development of the industry.

Informatization

We have kept up the trend of the advanced technology for the continuous innovation and the further integration of the information and the industry to develop some new industrial forms through the integration of the Internet +, the industrialization and the informatization. By building the Minmetals&Alibaba e-commerce platform, we have enhanced the industry influence and built a five-in-one "Internet intelligent manufacturing capability system" to promote the transformation and upgrading of the industry. We have firmly implemented the network and information security requirements of the state and relevant ministries, and constantly improved the level and ability of SOEs to fulfill social responsibilities related to network and information security.



Innovation of Management

China Minmetals insists on taking the reform of marketization mechanism as the breakthrough point, focusing on the pilot project of state-owned capital investment company, standardizing the decision-making issues and procedures of the headquarter, and reshaping the management system, to explore our own characteristic Minmetals Mode in deepening the reform of SOEs.

Internal coordinated development

The total scale of business coordination reached

RMB **150** billion in the whole year

Taking the maximization of synergy as the core principle, we strive for the "biggest common denominator" and shape the broad-minded and inclusive culture to promote strategic restructuring towards multi-field coordination and deep integration. We will continue to promote the "hundreds of billions of internal market" strategy and further release the restructuring dividend of the alliance of central SOEs.

In 2018, we set up a policy system to clearly define the industrial integration and coordinated development, and hold meetings to exchange views on the operation management of the metal mining industry to provide the conditions for the full and efficient cooperation of the whole industrial chain; and organize the promotion meetings for the mutual communication in the ecological industry.

The awareness of internal cooperation is obviously enhanced with the internal market space continuously expanded, the potential of deep-seated cooperation excavated, and the business cooperation greatly rising. The total scale of business coordination reached RMB 150 billion in the whole year, which gave full play to the unique advantages of complementary reorganization, effectively reduced transaction costs, improved business efficiency, and continuously strengthened the overall strength.

Contract management

Contract Management is a management mode of rigid binding force and strong incentive function with the written form of contract to clarify the responsibilities, rights and obligations of both parties.

In 2018, by issuing the guidelines on the implementation of contract management, we set up an index system covering finance, industry and business for subordinate enterprises in different industries, design the evaluation mechanism of enterprise competitiveness and establish the evaluation index base of headquarters institutions, so as to promote the comprehensive implementation of contract management.

Risk management

We enhance the comprehensive risk and internal control management to strengthen the implementation and supervision of risk management system in order to promote the further improvement of comprehensive risk management system. In 2018, the Company focused on promoting risk management in the areas of financial business and PPP business, urging the newly established directly-managed enterprises to improve the risk management, and carrying out the rating credit, the regular risk monitoring and the special risk budgeting of the customer suppliers, which decreased the risk events by 14% year on year, risk assets by 12% from the same period last year, and declined the overall risk continuously.

To build a slimmer and fitter enterprise

We sped up the disposal of inefficient and invalid assets, made every effort to reduce the level of management, gradually stripped off the social functions of enterprises to fully realize the level of management at the level of 4, the level of legal persons at the level of 10, and reduce the number of legal households by more than 20 percent, thus completing the SASAC "fitness" work assessment task as scheduled. In 2018, HNG-Shuikoushan Company overcame difficulties through comprehensive reform and realized a total profit of RMB 206 million.

➤ Implemented the disposal of "zombie enterprises" for a slimmer and fitter company

Since the 2008 financial crisis, the production and operation of HNG-Shuikoushan Company has been difficult, suffering losses for 10 years consecutively. In 2016, the SASAC designated Shuikoushan Company as a most difficult enterprise which was listed as a disposal key unit by China Minmetals.

The Corporation put forward the general requirements of "emphasizing precision, strong incentive, hard restraint and strict assessment" to supervise the reform and development of Shuikoushan Company. Since 2017, Shuikoushan Company has changed the ideology and work style of leading cadres and the workers for revitalizing the confidence, formulated the new development strategy of "giving priority to the development of mining industry, empowering the beryllium industry, green developing lead industry, planning new industry", and adhered to striving for perfection and continuous improvement to improve the work efficiency. Through these three major reform measures, Shuikoushan Company has completely extricated themselves from difficulties, and finally getting rid of the losses of up to 10 years.





The Whole-process Security Operation

The production safety is not only the basic guarantee of workers' safety and health, but also the basic condition of the company's healthy and sustainable development. Due to our high sense of responsibility and mission, we have always put the concept of "people-oriented, safety first" throughout all aspects of the company's production and operation, adhering to the red line of enterprise safety in production, and earnestly implementing the safety production responsibility system, which ensures the stable and sustainable production safety in the company.

In 2018, seven direct management enterprises, including Minmetals Mining, Luzhong Mining, Hunan Nonferrous Group, Minmetals Salt Lake, Minmetals Development, Minmetals Exploration Company and Changsha Research Institute of Mining and Metallurgy, achieved the goal of "zero industrial and workplace accident" in production safety throughout the year. Minmetals Mining is recommended as the advanced enterprise in 2018 National "Safety Production Month". No mass occupational disease incidents occurred throughout the year.



Safe Management

Safety management is the embodiment of our high responsibility for the safety and health of all employees, and is the premise of creating a better and happy life for employees. According to the business characteristics of the company, we strive to build a safety control system and management team corresponding to the world-class metals and minerals corporation, to achieve the safety objectives of "zero accident, zero injury and zero occupational disease", and to create a healthy and safe working environment for the employees.

In 2018, the safety and environmental protection management of grass-roots enterprises at all levels was more solid with the improving capability of control and management.

- In the 2018 Safety Performance of the world's leading mining companies released by the International Council on Mining and Metals (ICMM), MMG's indicators performed well, especially ranking first in the list of Total Recordable Injury Frequency Rate (Per one million hours worked), the most important measure of safety performance.
- **13** enterprises harvested outstanding achievements in the assessment of provincial government safety production
- **14** construction projects won the title of Construction Enterprise Safety Production Standardized Site in the National Construction Enterprise Safety Production Evaluation.

Implementing the subject responsibility of safe production

Responsibility is the soul of safety work as well as it is the foundation of safety work for us to implement the subject responsibility of safe production. Therefore, we change the concept of safety work in a timely manner, constantly strengthen new measures, scientifically optimize the top-level safety layout, and implement the subject responsibility of safe production, in consistent with the continuous promotion of deepening the reform of the company.



Timely adjusting the composition and responsibilities of the committee by upgrading the specifications of the leadership with Chairman and General Manager as the group leaders, and the main department directors of the headquarters as the group members to guarantee the safety work;

Fully implementing the list of responsibility for production safety and decomposing the responsibilities to each post and each employee in a way that signs the responsibility letters for safety and environmental protection, layer by layer;

Reasonably optimizing the safety decision list and core control items, improving the company safety rules and regulations against the list, forming the four-level system of "regulations, measures, rules and guidelines", and clarifying the respective authority and responsibility of the headquarters, directly managed enterprises and subsidiary production enterprises.



The Corporation held video conference on safety and environmental protection in the middle of 2018



Tang Fuping, Chairman and Party Group Secretary of China Minmetals, inspected the safety management of Tailings Reservoir, Luzhong Mining

> Incentive Measures for Production Safety

HNG: optimized the security personal risk mortgage; Solemnly affirmed the advanced worker with the heart-touching reward and seriously punished the dereliction of duty with the heart-ached punishment; contractual management was implemented which greatly mobilized the responsibility and enthusiasm of the enterprise safety management personnel.

Minmetals Mining: formulated *Measures for the Performance Management of Production Safety*; attached equal importance to encouragement and punishment, linking 10 per cent of the total budgeted wages to production safety, and setting aside RMB 3 million as a special reward fund for production safety.

we carried out more than **21,000** inspections of all kinds of safety production throughout the year in the subsidiary companies at all level

investigated more than **116,000** hidden safety hazards

resulting in **99.8** percent of rectification and reform.

Investment in Production Safety (RMB 100 million)



Prevention of Safety Risks

In accordance with the deployment of the Security Committee of the State Council, we actively promote the construction of a dual prevention system for classified control of safety risks and investigation of hidden dangers, continuously rectify hidden dangers to strictly control accidents in production safety, constantly increase investment in safety to eliminate backward process equipment for the improvement of essential safety.

In 2018, we carried out more than 21,000 inspections of all kinds of safety production throughout the year in the subsidiary companies at all level, investigated more than 116,000 hidden safety hazards, resulting in 99.8 percent of rectification and reform.

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Anhui Development Mining and Xianglushan Tungstate Company have completed the pilot construction task designated by Ministry of PRC Emergency Management in an all-round way.
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Three mines of Luzhong Mining Company have passed the acceptance of provincial dual-prevention construction while Laixin Iron Mine Company has won the title of provincial benchmarking enterprise.
- 

15 production enterprises have completed the upgrading of safety and standardized operation.
- 

Hunan Nonferrous Group (HNG) has taken fine management as the carrier to promote the management alignment in an all-round way.
- 

With the firm concept of "Today's scene is tomorrow's market", MCC Group has revised many manuals such as highway safety production standardization to win the market reputation.

➤ Safer Construction with the Intelligent Construction Site Management

The digital, intelligent and online measures have become an important direction of safe construction. By implanting face recognition, behavior recognition, virtual reality and other technologies into site attendance, safety supervision, mechanical operation and other links, the 23rd Metallurgical Construction Group Co., Ltd. of Minmetals builds intelligent construction site to improve the lean management of project construction.

The "Intelligent Site Cloud Platform" developed by 23MCC can intelligently manage the construction site, identify safety specifications such as wearing safety helmets, record violations and automatically warn them, and monitor the safety of equipment, which has become an edge tool of security management.

Safety Culture

We lay stress on the construction of enterprise safety culture by means of diversified training for the employees to constantly improve the safety early warning and accident handling ability, to vigorously cultivate the safety behavior habits, and to continuously enhance the safety awareness for a good safety culture atmosphere.

Safety Production Training

We carry out innovative safety training to enhance the management awareness of managers and the self-protection consciousness of operators with a new model of thematic training characterized by "precision training", for example, the safety and environmental protection leadership special training with high-level specification, wide-scope participation and strong-strength teachers, which has become a standard model carries of the high-quality training with the person-in-charge of each directly-managed companies certificated for the posts.



In April 2018, Tang Fuping, Chairman and Party Group Secretary of China Minmetals, investigated the copper-lead-zinc base project and experienced simulated safety education on the spot.

Safety Awareness Campaign

With safety culture oriented, the safety publicity activities including safety skills competition and safety selection etc. have been carried out to insert safety culture into the daily work of employees, forming a cultural atmosphere in which everyone wants to be safe, manages safety and focuses on safety.

➤ The down-to-earth implementation of "Safety Production Month" Campaign carried out in Minmetals Mining

During 2018 National "Safety Production Month", Minmetals mining, with the theme of "Life Priority, Safe Development", has carried out various safety production activities such as theme propaganda, safety propaganda and consultation, safety production inspection, emergency rescue exercises, and mine safety production skills competition, etc. Starting from the improving safety awareness and safety skills, Minmetals Mining not only focused on the front line of posts, but also made the whole staff cover and participate widely, so as to ensure the pertinence and effectiveness of the activities. At the same time, each grass-roots level also set up a special team for "Safety Production Month" campaign to formulate its specified activity plan.

Beiminghe Iron Mine: extended safety training to the frontline teams and posts; selected experienced and skilled class leaders; carried out special safety training lectures; highlighted the role of "pass, help and lead".



Hecheng Mining: carried out a series of activities focusing on the joint emergency exercise of underground permeable accidents to test the feasibility of the plan and train the emergency rescue team for the emergency self-rescue and mutual rescue skills.



Mining Engineering Company: carried out the signed document solicitation activity of "My Views on Safety Production", to enable all the staff to express their views, opinions and suggestions on the safety production work in consistent with their daily working experience.



Minmetals Property Company: sent knowledge to the community, service to the post, skills to the staff, according to the requirements of "full coverage, problem solving, wide participation and strong ability".



China MCC5 Group Shanghai-Opening Ceremony of Safety Production Month

Emergency Management

We attach great importance to the work of emergency drills, to actively organize the emergency drills, committed to enhancing the awareness of safety prevention and emergency management, strengthening the skills of self-rescue and emergency response to all kinds of disasters and accidents, and improving the ability of rapid response and emergency rescue, with 4,426 emergency rescue exercises and 122,000 participants of the subsidiary enterprises at all levels conducted in the whole year.

4,426 emergency rescue exercises and
122,000 participants of the subsidiary enterprises at all levels conducted in the whole year

➤ Emergency rescue exercises for industrial gas poisoning accidents were carried out

In June 2018, emergency rescue exercise for industrial gas poisoning accidents was the first organized by China Minmetals in Hunan Shizhuyuan Nonferrous Metals Co., Ltd., jointly with Chenzhou Security Committee, in order to test the organizational and command ability of the grass-roots units, the emergency disposal capacity of key post personnel, as well as coordination and coordination ability of personnel in various departments. The emergency rescue exercise, with nearly 200 people participated in the activity, not only tested the scientific, practicability and maneuverability of the emergency plan, but also accumulated valuable experience for the emergency rescue.



Safe Production Environment

We actively implement safety action, attach importance to the occupational health of employees, increase investment in safety science and technology, strengthen the scientific and standardized management of contractors, enhance the safety and security ability of the company, and ensure the orderly promotion of all work safety in production.

Occupational Health Security

We put the occupational health security of each employee in an important position, establish and improve the occupational health and safety management system of the company, improve the working environment, and promote the level of occupational health and safety management.

We are concerned about the health of employees by purchasing haze masks and all kinds of health books for employees, and organizing large-scale healthy-walking activity of "ten thousand steps a day, longstanding health for everyone in Minmetals".

➤ MCC-Tiangong Held Lectures on Health Knowledge

In November 2018, the MCC-Tiangong Engineering and Technology Research Institute held a lecture on health knowledge, inviting well-known traditional Chinese medicine physiotherapist to explain to the staff and workers the common disease-inducing factors such as cervical spondylosis, cold dampness, hypertension, and hyperlipidemia. The knowledge of prevention and treatment methods, as well as the common diseases in daily work and life, are explained one by one from the aspects of prevention methods, disease symptoms, inducing factors, treatment methods to urge employees to further develop healthy working and living habits.



On the occasion of the International Women's Day in 2018, the trade union of the Corporation company invited well-known experts for the prevention and treatment of female health care and common diseases.



➤ MCC20 held a lecture on emergency rescue and disease prevention and treatment

In May 2018, combined with the actual situation of the construction industry in which the enterprise is located, China MCC20 Group Corporation, jointly together with Shanghai Wujin Health Education Center, conducted a knowledge lecture on the "Emergency Rescue and Disease Prevention" to explain the emergency rescue mode of the frequently occurring safety accidents. Through the combination of teaching and demonstration, the employees were taught the corresponding rescue methods and the methods of self-prevention of occupational diseases with doubts and questions solved one by one to improve the employees' awareness of safety in production and the consciousness of self-rescue and mutual rescue in emergencies.

➤ Well-performed Occupational Health Management in Luzhong Mining

- Entrusted occupational disease inspection institutions to carry out physical examination of occupational hazard personnel in Xiaoguanzhuang Iron Mine, Zhangjiawa Iron Mine, beneficiation plants and Outsourcing team with more than 2,300 people involved
- Distributed summer prevention and temperature reduction fees with a total of RMB 2.457 million
- Held a meeting on the design and review of occupational disease protection facilities in the 38,000-ton mine equipment expansion project of the subsidiary machinery plant
- Carried out the detection of occupational disease hazard factors
- Supervised the prevention and control of occupational hazards
- Entrusted occupational disease physical examination institutions to carry out health examination for more than 60 departing personnel



Sci-technology Innovation for Safety Production

We persist in strengthening production safety with science and technology, increasing investment, supporting research and development, transformation, and application, and covering key areas of production safety in the light of the intelligent construction of the company, so as to improve the essential safety level of enterprises.

➤ **CIMR consolidates the industry position in the field of non-coal mine safety inspection**

In 2017, in the assessment and inspection conducted by the Ministry of Science and Technology of China on the key laboratories of the enterprises, the Metal Mine Safety Technology Laboratory under Changsha Institute of Mining Research (CIMR) was rated as a Good level. In 2018, the "National laboratory of mine elevator safety access analysis" declared by CIMR has been approved by the National Development and Reform Commission, which fills the blank of the verification capability of the safety access analysis of the mining elevator in China, and will further improve the technical innovation ability of the institute and consolidate its industrial position in the field of non-coal mine safety detection.

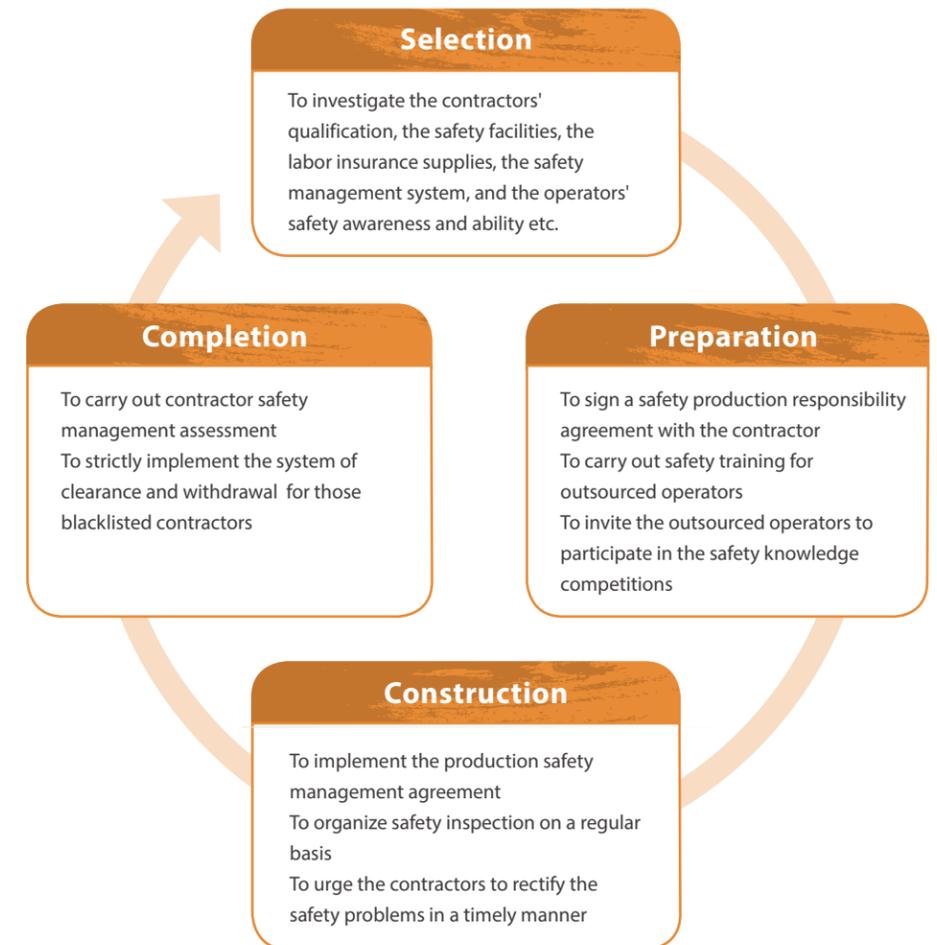
Safety Management of Contractors

➤ **China Tungsten of Minmetals improves the safety of mining**

China Tungsten has made efforts to improve mining technology for mining safety, and to develop the advanced mining methods and technologies, such as medium and deep hole blasting, bottom approach mining etc. The medium and deep hole blasting mining technology which is being tested in Xintianling Company has been maturely used in the subsidiary companies of Shizhuyuan, Xianglushan and Yuanjing Tungsten while the technology of filling with waste stone or tailings is being carried out in Huangshaping and Xiangfushan with remarkable effect.

The company actively promotes mechanization and automation of mining, popularizes the use of patio reverse drilling rig, introduces the application of Pry MAO car and jumbo, and carries out remote control operation of large equipment, thus improving the safety guarantee ability of mine system.

The outsourcing team of the mine and the engineering contracting team are the top priority of the safety production supervision. Therefore, we stick to clearing away and standardizing the contractors with multiple accidents to strengthen the safety management of the contractor.





Safeguarding the all-round growth of employees

Employees are the most valuable resources and wealth of the enterprise. We attach importance to safeguarding the legitimate rights and interests of employees for the improved sense of happiness, focus on the leading role of talents in the development of the company with the talent concept of "people oriented, talents prior" to build a good growth and development platform for employees, so that the value of each employee can be fully respected and realized.



Employees' Rights and Interests

We attach importance to the protection of the rights and interests of its employees, strictly abiding by the Labor Law, the Labor Contract Law, and other related laws and regulations in the local areas. We are committed to providing equal employment opportunities and advancing democracy in the workforce for building a harmonious relationship with our employees.

Standardizing employment management

We abide by the relevant laws and regulations of the place where we operate, adhere to the equal and non-discriminatory employment with fair treatment of different nationalities, races, gender, religious beliefs and cultural backgrounds, root out the use of child labor, and uphold the equal pay for equal work to provide the equal employment opportunities for vulnerable groups including women and the disabled.

In 2018, the company and its affiliated enterprises recruited

4,902 fresh college graduates

installed

35 retired soldiers

Safeguarding Employees' Rights and Interests

We guarantee the basic rights and interests of the employees, identify the diversified values of the employees, respect and protect the privacy of the employees. We promote the reform of the salary distribution mechanism and respect the value contribution to fully stimulate the initiative and creativity of the staff; we pay the social insurance for the employees in strict accordance with the national policy, and construct the innovative welfare system for the employees according to the conditions of the enterprise.

Welfares and Interests



Supplementary Pension

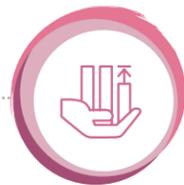
To optimize the balance of annuity treatment for the group leader annuity balance;

To promote the turnaround enterprises such as Minmetals Mining to restore the enterprise annuity payment for the interests of employees.



Supplementary Healthcare

To optimize the supplementary medical insurance and expand the scope of services for the maximized rights and interests of employees without increasing the cost



Third-pillar Welfares

To provide employees with efficient, convenient, professional guidance and services for their sense of security with the optional scheme of supplementary medical insurance and propaganda sessions

Promoting Democratic Management

We adhere to the system of workers' congress, give full play to the role of a democratic management system with the basic form of workers' congress as the basic form and the open system of factory affairs as the main content, and further open up the channels for democratic management, democratic supervision and democratic decision-making of staff and workers.

In 2018, the labor union establishment rate was

100%

the employee membership rate was

100%

Constructing the enterprise democratic management system covering the whole company

In 2018, according to the realistic reform and development of the company, the Labor Union of China Minmetals formulated the general plan for the replacement in the new workers' congress to set up the first headquarter Office Workers' Congress and the Office Workers' Union, taking a substantive step towards the construction of the layered Workers' Congress.

The scheme realizes the full coverage of all the 200,000 employees by the democratic management of the enterprise for the first time, and becomes a real Workers' Congress and Workers' Union. The new Congress, composed of 138 representatives, accounts for 0.07% of the total number of employees, including both the main leaders and the advanced workers in the front line of production and management, which pays attention not only to the ability of participating in and discuss company's affairs, but also to the channels of interest appealing of the grass-roots workers.



Employees' Development

We regard the talents cultivation as an important strategy of the company, pay attention to the career development of employees, strive for the staff training and talent reserve, provide all kinds of practical opportunities for employees, and broaden the channels of career development for the employees' maximized enthusiasm and creativity and the mutual development of employees and enterprises.

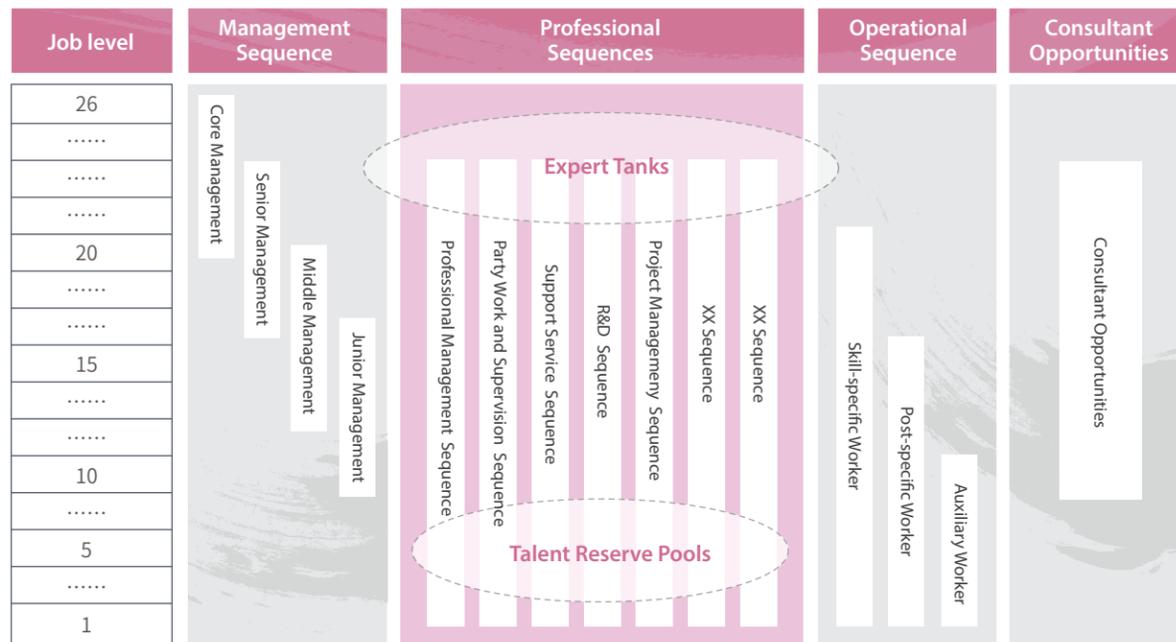
Opening Career Development Channels

We continuously promote the strategy of strengthening enterprises with talents, constantly optimize the allocation of human resources in the company, vigorously construct the basic human resource management system characterized by the "four dimensions" covering hierarchical, sequence, salary and scale, build a career development platform to meet the needs of all kinds of talents, so as to encourage employees to grow into talents.

Revising the position-management measures

In order to strengthen the talent team and construct a comprehensive basic human resources management system, the company, guided by the basic principles of the "four dimensions", has optimized Measures of the Company's Position System Management and Measures of the Company's Professional Sequence Qualification Management.

Job System Overview



Multi-sequence, multi-level job system with expert tanks and talent reserve pools as well as promotion opportunities and exit mechanism

Promoting the Pilot Professional Manager System

Measures of the Professional Managers' Management Formulated: To state the implementation strategy, scope and principles of the professional manager system; to clarify the key issues including the responsibilities of the party group and the board of directors, the leadership standards of professional managers, market-oriented the selection and employment, the contract management, the internal identity conversion, the evaluation and the compensation system.

Mechanism of market-oriented selection and employment for professional managers piloted: To draw lessons from the common practice of the market combined with the actual situation of the enterprise; to design the scientific and standard selection process through headhunting recommendation, independent search and internal self-recommendation; to employ two professional managers for the General Manager of Minmetals Securities and the Deputy General Manager for Minmetals Innovative Investment, which provides experience of the follow-up marketization reform for the other subsidiary enterprises.

Implementing Employees' Training

Focusing on the education and training of staff and adhering to the concept of "all staff training, all staff trained", we vigorously carry out the training for all kinds of key talents, to enhance the talent echelon for a high-level, high-quality and high-standard team.



Pre-service Training

Holding pre-service training for 193 new employees from various units in Beijing and 37 middle-level cadres after the completion of the strategic restructuring;

Familiarizing the employees with the company for their better integration and consensus with optimized training process and management mechanism including perfect content, rich training methods, and improved publicity.



General Skills Training

Enabling the employees to analyze and solve the complex problems with good thinking habits established by the feature training of "Problem Analysis and Solution" which is strongly recommended by the employees with Popular Index 9 (Nearly close to the full 10)

Two training courses were held for the new directors of 103 person-times to change their roles, forge their party spirits.

Improve their capabilities while two training sessions on management were held to carry out in-depth interpretation by inviting well-known experts and scholars, which involved 199 people-times.



Cadres' Quality Training

We perfected the training system for managers and issued the learning plan for all directors of the headquarter to support and guide the development of the talents pond and staff growth.

Two training courses were held for the new directors of 103 person-times to change their roles, forge their party spirits.

Improve their capabilities while two training sessions on management were held to carry out in-depth interpretation by inviting well-known experts and scholars, which involved 199 people-times.



At the opening of pre-service training for new employees in 2018, Guo Wenqing, General Manager and Deputy Party Committee Secretary of China Minmetals, Chairman of MCC Group, attended and lectured the first lesson

Caring for Employees

We care about the work and life of employees, committed to providing employees with a humanized working and living environment, carrying out employee care activities, caring for female employees, overseas employees, retired employees, helping employees with difficulties; Organize various forms of cultural and recreational activities to help employees balance their working life and strive to build a warm, harmonious and happy Minmetals family.

Helping the Staff

We continuously carry out humanistic care for our employees, establish and improve the support system for workers in need, earnestly help employees with difficulties, and strive to meet the different needs of employees in need of work and life, expressing the love and warmth of the Minmetals family to those in need.

Helping Employees in Need

After starting the support system for the difficult employees, we further straightened out the work train of thought, optimized the deployment, continuously carried out the information collection for the database of the difficult employees, and provided data support for the accurate support in 2018. More than 3,000 difficult employees have been allocated special funds for help, and at the same time, all kinds of special staff and workers with serious illness at the headquarters, are kindly offered condolences.

More than **3,000** difficult employees have been allocated special funds for help



Huang Shibo, Excellent Contestant of the SOEs' Vocational Skills Competition

> Innovative Cadres Attachment in the production enterprises

In consistent with the needs of the talent team and the comprehensive situation of cadres in various branches, we have selected a number of young cadres under the age of 40, with relatively high academic qualifications, 7-14 years of experience in management and excellent working performance to station in such three leading and closely-relevant companies as Baosteel, Ansteel and Shandong Xiangguang Company so that they can deeply understand the laws of the industry, fully acquaintance the needs of customers, look insight into business opportunities, and improve the ability of working out the problems and the complex situations by means of experiencing in the upstream and downstream of the industry chain.

> 2MCC implemented the education-assisting fall campaign

The Workers' Unions at all levels have always regarded the education-assisting fall as an important carrier for widening sympathy-expressing activities, combining economic aid with institutional support, academic help with humanistic care, and the important time nodes with daily student assistance. In this way, the 2MCC company has established a perfect timing contact mechanism so that the help and rescue for those in need is normal, regular and daily with the warmth and care of the enterprise sent to everyone.

In 2018, the 2MCC Workers' Unions mainly offered help to the children of the workers admitted to the college entrance examination and the middle school entrance examination this year as well as the children of the workers with follow-up difficulties who were studying in colleges and universities, with the maximum assistance RMB 2000 and the minimum RMB 500.

Caring for retired employees

We conscientiously implement the political and living treatment of retired employees, adhere to the system of reading and listening to reports by veteran bureau-level cadres, celebrate the birthdays for old leaders. In the whole year, we have organized the secretaries and members of the branch party group to attend the report meeting of the old comrades three times held by the Organization Department of the Central Committee of the CPC.

Adhering to visiting and condoling the retirees, for example, conveying 150 people (including all the retired party members who joined the Party before the founding of the people's Republic of China) during the "two festivals"(Mid-Autumn Festival and National Day).

Enabling the retirees to know about the affairs of the state and the company without leaving their homes, as well as the working arrangements of retired cadres by opening 16 WeChat groups and 1 WeChat official account.



Guo Wenqing, General Manager and Deputy Party Committee Secretary of China Minmetals, Chairman of MCC Group, visited the retired party members, experts and cadres in Hunan enterprises while investigating in Changsha Institute of Mining Research.

Caring for Female Employees

We maintain the special rights and interests of female workers, celebrate International Women's Day, and actively support female workers to carry out activities with special characteristics.



Best wishes to female workers of Minmetals Development on International Women's Day

Caring for Overseas Employees

We are concerned about the work and life of overseas employees and actively assist in solving life and work difficulties.



In November 2018, during the meeting of APEC Business Leadership, Tang Fuping, Chairman and Party Group Secretary of China Minmetals, investigated the sub-enterprises of the Corporation in Baxin, Singapore and Australia and condoled to the expatriate staff.

Activating Employees' Cultural Life

We carry out a variety of staff cultural and recreational activities to enrich the cultural life of employees, so as to forge the company targeting "a main force to ensure security of resources; a national team to upgrade the metallurgical industry; an integrated service provider in the industry", to enhance the vitality and cohesion with all the employees working efficiently and living happily.

In 2018, a total of about RMB 1 million was allocated for the cultural activities of employees.

➤ The first sports meet of the staff was held

In May 2018, we successfully held the first staff sports meet involved 200,000 employees of the whole group with nearly 2,000 athletes from 47 teams and 6,000 employees attending the event.



➤ The thematic series activities for "New Achievements of Reform and Opening-up in My Eyes"

On the occasion of the 40th anniversary of the reform and opening up, the company has widely carried out a series of positive energy activities with the theme of "New Achievements of Reform and Opening-up in My Eyes", including Essay solicitation activities and calligraphy and painting exhibitions as well as four positive thematic experiences such as "New Changes in Beijing", "Lucid waters and lush mountains are invaluable assets", "Staying true to our founding mission" and "Powerful Science and Technology Leads to Prosperous Nation", with altogether over 1,500 person-times participating, which has greatly stimulated the patriotic enthusiasm of the staff in loving the party and the nation.





Strategic Green Development

Guided by the concept of "Lucid waters and lush mountains are invaluable assets", we maintain the "zero record" of sudden environmental pollution incident all year round, implement the party central committee's policy and promote the business development collocating with the fulfillment of social responsibility.



Strengthening the environmental protection management

Environmental Protection Achievements in 2018

The year-on-year integrated energy consumption decreased by **10.8%**

The year-on-year SO₂ emissions decreased by **40.7%**

Times of environmental protection training reached **1637**

Person-times of environmental protection training reached **94696**

China Minmetals tamps the environmental protection management system, explores the innovation of energy saving and environmental protection management, and promotes the green development.



Perfecting environmental management system

We strengthen the environmental protection management. In headquarter of China Minmetals, we established a leading group for ecological environment protection, headed by the chairman and general manager of the company with the main responsible persons of the functional departments of the headquarters acting as members.

Integrating environmental protection into the whole process of project management

With the priority concept of environmental protection, Minmetals Exploration and Development Company has integrated environmental protection into the whole process of project management.

Phase of Survey

Actively promoting green survey guided by the green development principle

Implementing minimum impact control on geological survey environment in consistent with e3 plus, ISO14001 HSE

Phase of Preparation

Upholding environmental priority to apply for green mining mode

Developing such basic work as pre-evaluation, hydrological survey and environmental monitor

Phase of Operation and Cloture

Focusing on harmonious community, biodiversity protection and ecological restoration

Taking harmonious coexistence between man and nature as the judgment criterion

Raising Employees' Environmental Protection Awareness

In terms of the environmental protection, we implement thematic training in an innovative way to raise the awareness of management personnel and operation personnel for risk prevention. We organize various communication activities to cultivate the culture of environment protection. We carry out the inspections led by the deputy general manager and the persons in charge to improve the awareness in company's daily production.

Energy-saving week and low-carbon day in MCC Central Plains Company

MCC Central Plains Construction Investment Co., Ltd (Short for MCC Central Plains) carried out 2018 energy-saving week and low-carbon Day with the theme of "Saving Energy and Reducing Consumption for Blue Sky". In terms of communication with public, the company made full use of the multi-channel media including propaganda board, WeChat official account, WeChat group etc., set up exhibition board and hang banners in each construction project place, distributed the initiative flyer and organized staff to watch and learn from the special educational film.

Participating in industrial environmental protection exchanges

We actively participate in conferences and forums in frame of industrial activities, carry out technical innovation, formulate a green standards system for the industry. At the National Industrial Congress for the Ecological and Environmental Protection of Non-ferrous Metals, 11 advanced technologies and 8 research topics developed by China Minmetals were listed in the captured advanced technology, with 6 person-times from China Enfi and Zhuzhou Smelter participating in the thematic sub-forums on behalf of China Minmetals.



In 2018, we formulated **57** national and industry standards and participated in compiling **30** standards.



compiled 5 cleaner production standards for major processes to fill the domestic gaps in this field as follows:

- *Evaluation Index of Cleaner Production for Sintering and Pellet Production Process of Iron and Steel Industry*
- *Evaluation Index of Cleaner Production for Blast Furnace Iron-making Process of Iron and Steel Industry*
- *Evaluation Index of Cleaner Production for Steel-making Process of Iron and Steel Industry*
- *Evaluation Index of Cleaner Production for Steel-rolling Process of Iron and Steel Industry*
- *Evaluation Index of Cleaner Production for Ferroalloy Process of China's Iron and Steel Industry*



compiled the first *Evaluation Standard of Green Factory in Nonferrous Metal Smelter*.



made clear the target and determined the assessment, reward and punishment measures so as to urge the subsidiary companies to save energy and reduce pollution emission effectively.

Carrying out environmental protection emergency management

On the basis of *Environmental Management Emergency Plan of China Minmetals*, we strengthen the emergency exercise to enhance the scientificity, feasibility and operability.

Upholding green operation

We integrate green operation into daily management, so as to improve the effectiveness of energy-saving, reduce pollutant emissions for the efficiency of resource use. We take practical and effective measures in green office management, energy-saving technology transformation and ecological environment protection, which are conducive to reducing operating costs and negative impact of enterprise operations on the environment.

Improving the energy-saving effect

In the field of energy saving, we improve the efficiency of energy use and reduce the pressure on the environment by carrying out technological transformation.



6 technologies and 2 projects of MCC-CISDI, MCC-Northern, Shanghai Baosteel and MCC Construction Engineering were listed in the selection of national key technologies and best practices in energy saving.

13 energy-saving transformation technologies of MCC-Southern and MCC Huatian were included into the energy-saving supply and demand docking project of the national energy saving center.

Rolling and crushing and pressure hot stuffy steel slag Technology of MCC Central Research Institute of Building and Construction was selected into "National Demonstration List of Advanced Pollution Prevention Technology" by the Ministry of Ecology and Environment of China.

➤ CISDI's Smart Blast Furnace Energy-Saving Technology Selected for National Key Energy-Saving Technology Catalogue

The energy consumption of blast furnace production accounts for about 60% of the total consumption of the steel and iron industry. With green transformation and the development of the steel and iron industry, intelligent green blast furnaces will become the inevitable trend and choice in the future. CISDI's declared "Smart large-scale blast furnace energy saving technologies based on bosh gas index optimization" was successfully selected for the National Key Energy-Saving Low-Carbon Technology Promotion Catalogue (2017 Version, Energy Saving Section) issued by National Development and Reform Commission, becoming the only selected project in the steel and iron industry in 2017. 5 key technologies included by this energy saving technology can help large blast furnaces to realize high efficiency and low consumption indexes, including fuel ratio of ≤ 485 kg/ton and coal gas use ratio of $\geq 52\%$, thereby reaching the international advanced level.

➤ The air compressor waste heat recovery reduced the operating cost of NCA

The North China Aluminum Co., Ltd. (short for NCA) has actively promoted the reform of energy saving and consumption reduction. Since the technical reform of air compressor waste heat recovery implemented in November 2015, remarkable results have been achieved. By 2018, during 2 winter heating seasons, the 3 waste heat units had respectively recovered 2.23 MW hours of heat, 2.07 MW hours of heat and 2.40 MW hours of heat, saving RMB 876,700, RMB 862,700, RMB 1.087 million consistently, as well as saving power rate of about RMB 30,000 per heating season due to the operation of the waste heat recovery unit leading to the rest of cooling fan of the air compressor itself. In the past three years, the cumulative cost savings have reached 3 million Yuan, contributing to the reduction of operating costs.



Reducing Pollutant Emissions

► The Energy Saving Retrofit Project for Hot Rolling of Shanghai Meishan

The energy saving retrofit project of air preheater for hot rolling No. 1 heating furnace, one of the key environmental protection and energy saving transformation projects of Shanghai Meishan Iron and Steel plant was jointly constructed by MCC Shanghai Baoye. Once the transformation is completed, the thermal efficiency of the heating furnace can be improved, thus greatly reducing energy consumption, saving RMB 10.05 million a year in gas costs and 5,916 tons of standard coal together with reducing the emission of 15,900 tons of CO₂, 50 tons of SO₂ and 40 tons of nitrogen oxides.

In the process of production and operation, we constantly adjust the industrial structure to promote industrial upgrading, deepen emission reduction management, eliminate backward production capacity, and promote the optimization of energy structure.



We eliminated 4 process and equipment of Minmetals Mining, China Tungsten High-tech, and Luzhong Mining, strictly implemented the national industrial policies to promote the shut-down of the backward energy-consuming process and equipment on schedule and relocation of a batch of enterprises with backward capacity.



We vigorously promoted the optimization of energy structure and fully implemented the transformation of coal-fired boilers for the steady drop of pollutant emission.



We strengthened the technical research and equipment development in the fields of energy saving and emission reduction, mine remediation, soil remediation and sewage treatment.

► Anhui Development Mining completed the dust removal transform of the ore supply workshop

In order to reduce dust pollution, the company organized technical personnel to study the others' advanced experience on dust control in order to formulate dust removal transform plan combined with the actual status. In 2018, the installation and commissioning of 10 dust removers was completed, which significantly reduced the air dust content in workshop.

Improving the resources usage efficiency

In the mining business, China Minmetals has carried out heavy metal tailings, wastewater treatment and reuse projects to improve the use efficiency of resources.

► The first mine without tailing in antimony industry built in Hunan

In March 2018, with the continuous innovation, the new technology, and the upgrading process, the HISKWANG Shan Twinkling Star Company built antimony smelter blast furnace ice copper dust collection system and reflector working door smoke and dust collection system to solve the unorganized emission of antimony smelting low altitude smoke and dust for a new and improved environmental treatment and cleaner production.

► Green mining exploration with sci-tech innovation

regarded the ecological environment life-cycle protection of the mining industry as an important idea to carry out the integrated business of green prospecting and mining. In view of the outstanding environmental problems of national ion rare earth mining, the company has established a scientific and technological research and development platform for the breakthrough progress of the key technologies and demonstration projects, developed more than 10 new technologies for the investigation of ionized rare earth mines, which can effectively shorten the investigation cycle, reduce the investigation cost and improve the investigation efficiency, carried out intelligent mining technology for the fine mining and controllable design to increase the recovery rate of resources by 3% - 5%, established a wireless remote real-time dynamic monitoring system for groundwater to promote the comprehensive utilization of production water with a new ammonium-free leaching agent.



The Feishuiyan and old mining site renovated by Hsikwangshan company of China Minmetals Rare Earth

Preserving the ecological environment

We make effort to protect biodiversity and ecosystems by promoting land resources and biodiversity management as well as we strive to avoid the exposure impact of the disturbed land on the environment and communities through the implementation of the land management plan.

➤ Luzhong Mining turned the tailings dam green again

In 2018, the company invested RMB 2.58 million to turn the Yujiaquan tailings dam green again, cleaning up 500 cubic meters of waste stone, renovating 130,000 cubic meters of dam slope, covering 22,000 cubic meters of soil, planting 68,758 square meters of lawns, sowing 1.85-ton grass seeds, and planting 5,550 *Amorpha fruticosa* Linn. At present, the dam face and slope of tailing reservoir have all been afforested, which can effectively prevent dust generation and reduce soil erosion.



➤ The Biodiversity Management of Dugald River Zinc Mine

The *Carpentaria Agile antechinus* have a habitat in the planning area of the MMG Dugald River Zinc Mine Project in Australia. MMG consulted biodiversity experts on the best action plan to reduce the impact on the species and submitted the program to the Australian Federal Minister of Environment for approval and endorsement under the Environmental Protection and Biodiversity Protection Act 1999. The monitoring data collected by MMG helps the scientists to conduct broader research on the species, thereby better understanding the life cycle, habitat and eating habits of *Carpentaria Agile antechinus* for further conservation measures in the future.

➤ MMG monitored the biodiversity

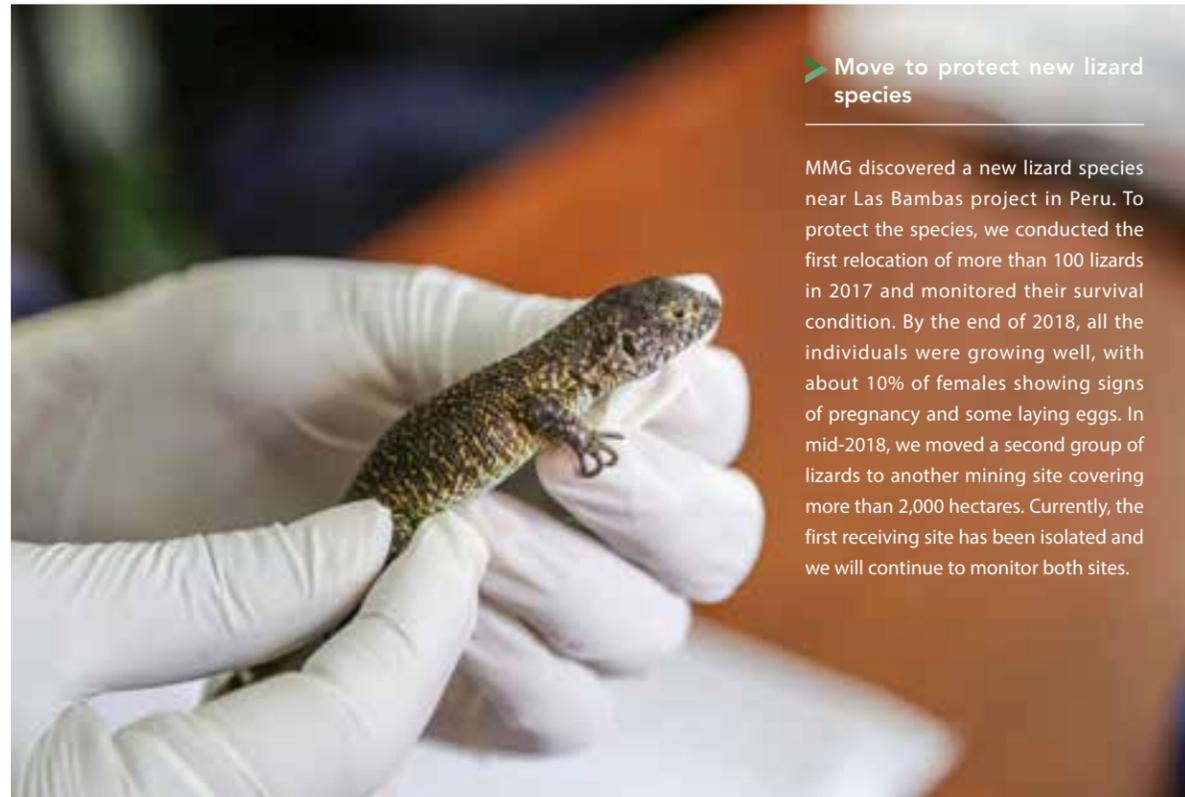
MMG launched a new biodiversity monitoring campaign in 2018 to EcoSmart Ecology in collaboration with Sunshine Coast University and Queensland University of Science and Technology for a research on marsupial anteater, which will be the first large-scale special study of the species, and MMG hopes to find a larger and wider range of species than previously recorded.



➤ Protection of vulnerable vegetation by transplantation

In some areas near the Kinsevere mine, vegetation grows out of copper-bearing rocks to form copper steppes. MMG worked with University of Lubumbashi to move the copper steppe vegetation to a regenerated copper outcrop mountain to help the plants get the proper nutrition. The plant transplantation experiment has achieved initial success, and we will continue to monitor and study the vegetation in the area.

Another ongoing plant project is to protect the planet's red carpet algae species, which grow in the arid forests of Katanga province, where the MMG Kinsevere project is based. We have moved thousands of these plants from areas directly affected by mining and are currently preparing nursery beds for transplanting.



➤ Move to protect new lizard species

MMG discovered a new lizard species near Las Bambas project in Peru. To protect the species, we conducted the first relocation of more than 100 lizards in 2017 and monitored their survival condition. By the end of 2018, all the individuals were growing well, with about 10% of females showing signs of pregnancy and some laying eggs. In mid-2018, we moved a second group of lizards to another mining site covering more than 2,000 hectares. Currently, the first receiving site has been isolated and we will continue to monitor both sites.

Green Office

We reduce paper and energy consumption to implement low-carbon environmental protection with green offices.

➤ Green office practice of MCC

| Measures to decrease the electricity consumption | Measures to decrease the oil consumption | Publicity and training for energy saving and emission reduction |
|---|--|---|
| <ul style="list-style-type: none"> • Setting the reasonable temperature of air conditioners • Setting electronic equipment to energy saving mode or power off when using • Reducing the use time of lighting equipment • Giving priority to the purchase of energy-saving products, materials, etc. | <ul style="list-style-type: none"> • Optimizing the configuration of transportation vehicles during production • Shortening the transport distance of materials • Calculating the fuel consumption status of vehicles to determine the service life of vehicles reasonably • Carrying out regular maintenance of cars • Perfecting the management system of administrative vehicles | <ul style="list-style-type: none"> • Training on energy conservation and environmental protection • Organizing education activities on energy conservation and environmental protection |

Carrying Out Green Business

Due to the profound accumulation in the field of green environmental protection and the advantages of technology, experience and talents, China Minmetals, focusing on consultation, design, construction, operation and environmental protection, build an integrated industrial chain of housekeeping services to provide overall supply-side solution for the support of the project construction with first-class design, construction and management.

● Leading in metallurgical engineering and energy conservation

We have advanced technologies and comprehensive operation capability in the fields of metallurgical engineering, energy conservation and environmental protection with 34 energy-saving companies and 8 clean-energy companies.

● Accelerating pace of development in the green construction project consultation

In 2018, China Enfi undertook more than 50 projects in terms of consulting and designing, which covered more than 40 cities in China with a national market share of nearly 30% in this field.

Green Construction

In recent years, the concept of green building gradually extends from building materials to the field of construction engineering. Focusing on fabricated architecture, the 22 MCC Company actively expands new markets, develops new technologies, and constantly improves the quality and performance of buildings by virtue of its own advantages, thus forming the three green building products systems of MCC.



➤ Green fabricated building appeared in the 17th China International Exposition of Housing Industry

The 22 MCC attended the 17th China International Exposition of Housing Industry & Products and Equipment of Building Industrialization (CIEHI) with the theme "a Future of MCC Green Prefabricated Building", mainly showcasing the achievements of MCC Prefabricated Building (Hebei) Technology Institute in fabricated steel-concrete structure, prefabricated concrete structure, and prefabricated low-energy building fields and stressing on the comprehensive strength of 22 MCC as a "leader in industrialized construction industry and a one-stop service provider".

Treating Solid Waste

We work with the project participants of various partners to carry out a new generation of solid waste resource utilization business with high quality and high standards, so that the unusable resources can be restored to the available value.

➤ Solid waste resources utilization project of urban mineral resources in Sanming city

The Sanming Urban Resource Recycling Base Project undertaken by China Enfi is the first general contracting project in urban mineral waste resources utilization of China Enfi, which will not only dispose of 10,000 scrapped vehicles and 300,000-ton waste steel annually through advanced, green and efficient processing technology and equipment for disassembling and crushing of the scrapped cars, but also will provide reference for the relevant industry in China with the fine separation capability of colored materials.

➤ Restoration of the land polluted by chemical industry in the Yangtze River Economic Belt

China City Environment Protection Engineering Limited Company (abbreviated as CCEPC) has undertaken the first project for the relocated chemical enterprises within one kilometer along the Yangtze River in Yichang City to carry out restoration and treatment, Tiantian Chemical Project in Yichang City, which adopts the ectopic curing stabilization and high temperature incineration to restore the remaining industrial pollution site of 15,000 square meters in the plant area, so as to keep the pollution factors in the soil stable for reducing the migration and transformation risks to the surrounding environment and eliminating the possible environmental hazards. After restoration, the area will become suitable for the human settlements and will completely eradicate the hidden dangers of pollution to the Yangtze River.

In recent years, the green mining has become our new business growth point. China Enfi and other subsidiaries of China Minmetals provides the government and customer enterprises with the whole-process and life-cycled service in the field of soil remediation and mine restoration, which is characterized by an integrated industrial chain of technical research and development, equipment integration and optimization, detection, site investigation and risk assessment, technical consultation and scheme design, general contracting, investment and project management.

➤ Municipal solid waste incineration power generation project in Yiyang

17 MCC company has undertaken the Municipal solid waste incineration power generation project in Yiyang county, Jiangxi Province, which adopts the grate furnace waste incineration power generation technology, a new one with independent intellectual property rights, to dispose of urban and rural garbage and stock waste in Yiyang for the reduction, harmlessness and recycling. Once completed, the project will generate 65 million degrees of electricity a year, contributing to about RMB 5 million in tax revenue and 80 jobs for the community residents.

➤ The experiment of soil remediation in abandoned rare-earth mining area has been successful

The soil pollution caused by tailings has been perplexing mining enterprises and mining sites, for example, the contaminated soil of abandoned rare-earth Mining area in Datian Township, Ganxian District, with high concentrations of heavy metals, low levels of organic matter and nutrients, naked contaminated soils of hidden hazards to the surroundings. China Enfi has undertaken the comprehensive treatment project (Phase I) to restore the soil with the existing core technology. Combined with the characteristics of contaminated soil in this project, Enfi Research Institute adopted the experiment-before-treatment scheme and carried out small-scale and pilot-scale experimental research in Yanshi R&D base and project site. It is proved with the data collected in the experiment that the upgraded soil remediation agent can effectively adjust the soil pH value, passivate the heavy metals in the soil, adjust the nutritional structure, preserve water and increase soil moisture, achieving good results in the restoration of the rare-earth tailings. The data obtained from this experiment will also provide strong support for the smooth implementation of the project.

Minmetals Rare Earth Tin Mining Company-Tailings pond of the company



The heavy metal comprehensive treatment project (phase I) of abandoned rare earth mining area in Datian, Gan county

Water Environment Treatment

It is our responsibility to strengthen the protection and utilization capacity of water resources. In 2018, our main force of water environment treatment including 22 MCC and MCC Communication Construction Group was in charge of the construction of the sewage treatment plant in Zhejiang Quzhou and Jilin Siping together with the recycling pumping station in Dali Yunnan.



Master plan of Quzhou Chengdong sewage treatment plant Project (Phase II)

Sponge Cities Construction

We integrate the advanced technology of permeable materials with years of research into the construction of sponge cities. The Steel slag permeable concrete and steel slag permeable brick produced by MCC Bao Steel are the recycling products from the comprehensive utilization of smelting slag resources, and are also the first energy-saving products in Shanghai resource utilization industry, which are of high strength, high permeability, green energy with service life over 20 years, listed into the first batch of advanced applicable technologies and products catalog for sponge city construction issued by the Ministry of Housing and Urban-Rural Development of China.

➤ The environmental comprehensive renovation supporting projects of the first China International Import Expo

In 2018, we participated in the supporting project of China International Import Expo's comprehensive environmental management, including Shanghai Baoye's auxiliary facility project (Section I) of Shanghai Pudong international airport and 3 comprehensive renovation projects of the Expo held in Xujing, MCC Bao Steel Technology's durable permeable ecological pavement system projects (Sponge City Roads) with provision of such brand series products as 2,500 cubic meters of permeable concrete, 11,000 tons of steel slag permeable aggregate, 110,000 square meters of high-strength and high-permeable steel slag bricks.



3 supporting projects of Shanghai Baoye of China Import Expo have been completed

Environmental impact assessment

With years of industry experience, we extend the environmental impact assessment service from the mineral development business, and provide scientific basis for the design and construction decision of mining projects.

➤ The MCC Northern participated the environmental impact assessment on the mining and separation of Chentaigou Iron Mine

Chentaigou Iron Mine is located in Qianshan Township Qianshan District of Anshan City, Liaoning Province, with complex hydrogeological conditions, long operation period and high ecological environment requirement so that there are many contents of environmental impact assessment involved. Based on the technical advantages of environmental assessment for many years, MCC-Northern accurately analyzes forecasts and evaluates the possible environmental impact after the implementation of the project, with the advantages of mining project eia technology accumulated over the years, MCC north has accurately analyzed, predicted and assessed the possible environmental impact of the project after implementation, providing scientific basis for the environmental management of the construction unit and the optimization design of the design unit.



Promoting the Win-win Partnership

In addition to our efforts in mining industry, we are also committed to serving all aspects of people's life, insisting on open and win-win partnership, fulfilling social responsibility in an all-round way, and promoting the harmonious society construction.

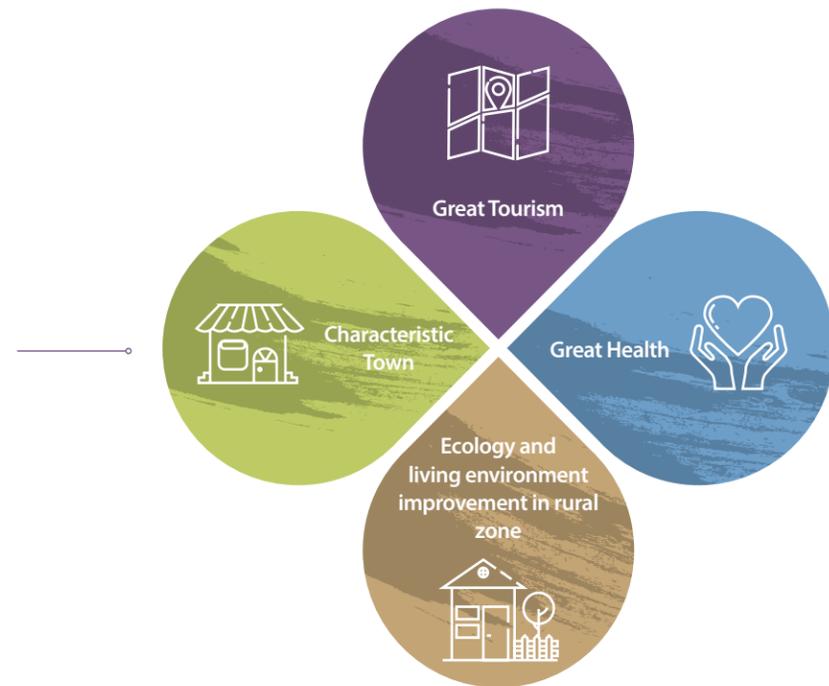


Contributing to a Better Life

Constructing Beautiful Villages

We actively respond to the national strategy of accurate poverty alleviation and rural revitalization, and put our heart into the construction of beautiful villages. The Beautiful Village and Smart City Technology Research Institute of MCC, provides a range of services on elaborating the industrial economic development mode for villages according to their resource condition, the development and construction mode and the "county-town-village" integration for a fully-covered beautiful rural one-stop service to build a "beautiful village industry integration platform".

China Minmetals' 4 hematopoietic products for driving the construction of beautiful village on the sustainable development



| Goals | Business Modes |
|--|--|
| <ul style="list-style-type: none"> ● Sustainable development of industry in village ● Improving living cultural level ● Ecological environment protection | <ul style="list-style-type: none"> ● Mode of "1+X+Y" on industry alliance for investment in beautiful village, X for product investors, Y for product operators, 1 for a service platform which is jointly built by X and Y ● One-stop Service for integrated beautiful villages in a full coverage including investment, planning, design, construction and operation |

► Planning of Internet town with agricultural characteristics

MCC-CISDI participates in the consultation project of the agricultural Internet town in Meizhou, Guangdong Province, contributing to the China's Rural Revitalization Planning. The project focus on local agricultural products, such as grapefruit planted in eastern Guangdong, accompanied by agricultural thematic tourism, health care, agricultural financial services, agricultural big data, cold chain logistics for local agriculture products, deep processing and other related characteristic industries. With the adoption of Internet thinking, we integrate the modern information technology such as big data and the Internet of things into the local industries development to build the Internet agricultural town characterized by production supervision, safety supervision, price formation, information exchange, R&D, convention and exhibition centers, logistics distribution, and brand building.

► Building the town with cultural and ecological tourism characteristics

At 2018 Conference for Ecological Cities and Beautiful Villages of Beautiful China held by National Ecological Civilization Construction Forum, Minmetals Hallstatt Tourism Town was honored as one of Top 10 Cultural Ecological Scenic Spots. With five years of operation, the scenic spot has explored an innovative development mode of "tourism, culture and real estate" and formed a European-style tourism vacation destination, which not only promotes the local tourism industry, but also protects the ecological environment.





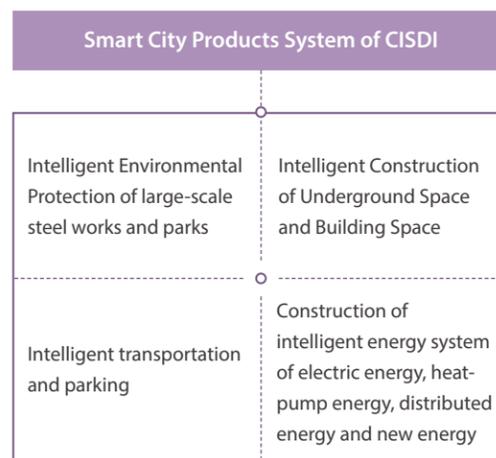
Sanli, Sanshi and Ziwang Highways project in Guizhou Province

► **Constructing highways for the development of Guizhou Province**

The first three PPP-mode highways in Guizhou Province, namely Sanli, Sanshi and Ziwang , with a total length of 127km, were built one year ahead of schedule and passed the delivery acceptance of work, which connects six poor counties at the national level in Guizhou Province. The completion and opening of some sections one year ahead of schedule has laid a strong support for the transportation network, thus winning valuable time for 61 villages, more than 30 ethnic minorities, and 290,000 poor people to get out of poverty by 2020 and enter a well-off society together.

Planning for Smart City

Targeting on the sustainable development of economy, social stability and harmony, the sustainability of natural environment, we provide a comprehensive range of solutions for the Smart City's, such as the intelligent park, intelligent campus, intelligent community, intelligent building, intelligent energy, intelligent tourism, intelligent government affairs and other business areas, from planning and design, investment and financing, integration and contracting, construction and implementation to the project delivery and operation.



Underground Utility Pipe Gallery

We actively devote ourselves to the construction of underground utility pipe gallery for the improvement of urban infrastructure. As the national force of China's metallurgical industry, MCC has worked in the construction of underground pipe gallery as early as decades ago. We accomplished various of underground utility pipe gallery construction projects for the whole year of 2018.



In July 2018, the underground pipe gallery project of Changhe Street of Binhe New District in Yinchuan, built by our subsidiary China Metallurgical Construction Engineering Group, was successfully completed and passed acceptance. As the first underground utility pipe gallery of Yinchuan City, it is with a total length of 8.7 km, divided into three sections including comprehensive utility infrastructure, power infrastructure and gas infrastructure which strives for the well-organized integration of the disorderly municipal pipelines including electricity, telecommunication, water supply, reclaimed water and heat, etc.



In August 2018, the 26.25km-long Baiyin Underground Utility Pipe Gallery constructed by China First Metallurgical Group entered into trial operation stage which is the first batch of national pilot cities of utility pipe gallery. All kinds of control systems and supporting software of pipe gallery will be optimized and perfected continuously, which will lay the foundation for Baiyin City to become a smart city.



Layout Health Care Industry

With the rapid entry into an aging society, the scale of health care industry in China has ranked first in the world. In recent years, combined with the experience in the fields of characteristic industrial towns and beautiful villages, we have actively layout the health care industry.

The Health Care Industry Research Institute established by MCC aims to promote the combination of technology and investment, focus on the innovation of operational mechanisms and industrial demonstration, and provides multi-level, intelligent and high-quality with specialized one-stop service.

► Building a health care service centre for the disabled elderly

In April 2018, ShenKanQinghuangdao General Engineering Design & Research Institute Corporation's municipal design and research institute signed the engineering design contract and project management service contract with Tangshan Xingya Health Care Service Center. Located in the northern logistics city of Fengrun District, Tangshan City, the project mainly provides professional rehabilitation training for the disabled elderly, in order to help them to improve life quality.



Integrity and Compliance

Integrity Management

We attach importance to compliance management, abide by international conventions, laws and regulations of the country where the project is located, transmit to stakeholders of the company's governance and operation concepts, methods and effectiveness by an open and transparent way. In accordance with the requirements of SASAC, we continue to promote the implementation of the legal work plan in an all-round way.

In 2018, amending **2** rules and regulations, and examining **423** contracts to ensure the integrity and compliance



Legal rules and regulations issued by MCC in 2018 to promote the rule of law



Anti-corruption

We attach great importance to anti-corruption, focusing on key targets that have been investigated and dealt with in recent years, especially the personnel selection and employment, the major investment projects, the key business areas and the critical posts, to curb and deter the corruption with strong and high-pressure for a better business environment. The measures are as follows:

● Strengthening Ideological Consciousness

The party organizations at all levels in China Minmetals Group take the initiative to strengthen the "Four Awareness" and practice the "Two Maintenance", which is highly consistent with the CPC Central Committee.

● Improving System Construction

The party group formulates the implementation plan for the reform of discipline inspection and supervision, clarifying the timetable, road map and specific missions.

● Promoting System Implementation

We step up efforts to ensure the effectiveness of various reform tasks, so as to strengthen the monitoring of supervision system and enhance the ability of corporate governance.

Promoting win-win cooperation

If you want to go fast, walk alone; and if you want to go far, walk together. It cannot be separated from the cooperation with various industries that we can quickly turn losses and increase profits and return to the first-list SOEs in three year. Through supply chain management, quality management, quality service and multi-field cooperation, we achieve win-win cooperation with suppliers, customers, government, universities and scientific research institutions and other stakeholders.

Supply chain management

We are committed to improving supply chain management and achieving win-win results with partners in the value chain. We perfect the management system, optimize supplier resources, ensure the quality of procurement, and reduce the environmental and social risks of supply chain.

► The purchasing platform of Minmetals Rare Earth was officially launched

In October 2018, Minmetals Rare Earth Company launched its purchasing platform, which is helpful to greatly reduce the cost of enterprise procurement and increase the efficiency on one hand; to prevent the professional moral risk and improve the supervision mechanism on the other hand. The company will make full use of the platform to help the online enterprises with long standardized development. The first batch of the eight enterprises have already completed the system training in mid-November 2018 and fully launched at the end of December, and the project will have passed the acceptance by the end of January 2019.

Win-win Cooperation

We focus on quality management to improve the quality of products and construction projects and provide customers with quality and comfortable service for the common promotion of mutual value.

Quality Management

We continue to improve the quality management to provide customers with high-quality products for their needs in different regions. We carry out engineering quality supervision and inspection to promote the in-depth development of the excellent and standardized management for the high-quality projects. In 2018, we won 4 China Construction Engineering Luban Prize, 1 Prize for Overseas Project, 12 National Prime-quality Project and 1 Tien-yow Jeme Civil Engineering Prize.

► The Cisumdawu highway project in Indonesia was praised by the client

During the construction process of Cisumdawu highway tunnel, MCC introduced domestic mature construction technology, strengthens standardized construction management, and ensures the smooth construction. While paying close attention to the quality, safety, progress and standardization of the construction, the project department actively cooperates with the local famous universities such as University of Indonesia, Gajah Mada University, and Bandung Institute of Technology to exchange tunnel construction experience. In 2018, the left line of tunnel from Bandung to Dawu ran through 15 days ahead of deadline, which was highly praised by the client.

► Changchun Longxiang International Business Center Project was praised by the client

The Changchun Longxiang International Business Center Project is a super large urban complex item built by MCC in the northern China, which was honored with Changchun Demonstration Site for Standardized Management of Construction Engineering in 2018. In the customer satisfaction survey, the surveyed items including organization management, the progress control, the overall quality, the safety management, the civilized construction, cooperation with the client and Coordination with the subcontractors were evaluated by the client with scale of "very satisfied".



Excellent Service

With innovative mode and abundant services oriented on the customers, we promote the construction of global marketing service network and improve the comprehensive service for customers.

► 37 °C Daily-life Service

Adhering to the mission of co-creating a happy life with customers, Minmetals Property Company actively explored and created a 37°C living service in the new era, aiming to provide customers with value-added services covering home affairs, home repair, assets, health and early education for a colorful life, warm-hearted services, and created a warm living atmosphere of "peace of mind is our home" for customers, lead a new way of life with high quality service, and help to upgrade consumption.

Multi-domain Cooperation

We take the lead in the industry, carry out the deepening supply-side structural reform and high-quality development. We seize the opportunity of the rapid development of industrial Internet, develop and innovate in industrial intelligence and big data analysis, make important breakthroughs in industry, municipal, energy and other fields, and create a new generation of intelligent solutions to achieve win-win with partners.



International Cooperation

We have carried out communication and cooperation with government departments, such as Poland, Chile, and Singapore, and industrial organizations with the themes of mutual benefit, win-win cooperation, and BRI construction.



Government-enterprise cooperation

Focusing on industrial upgrading and building regional competitiveness, we cooperate with Hunan, Hebei, Wuhan, Xi'an, Fuzhou, Tangshan, Hegang, Qiannan, Tongren and other provinces, cities and prefectures in the fields of industry, municipal administration and energy.



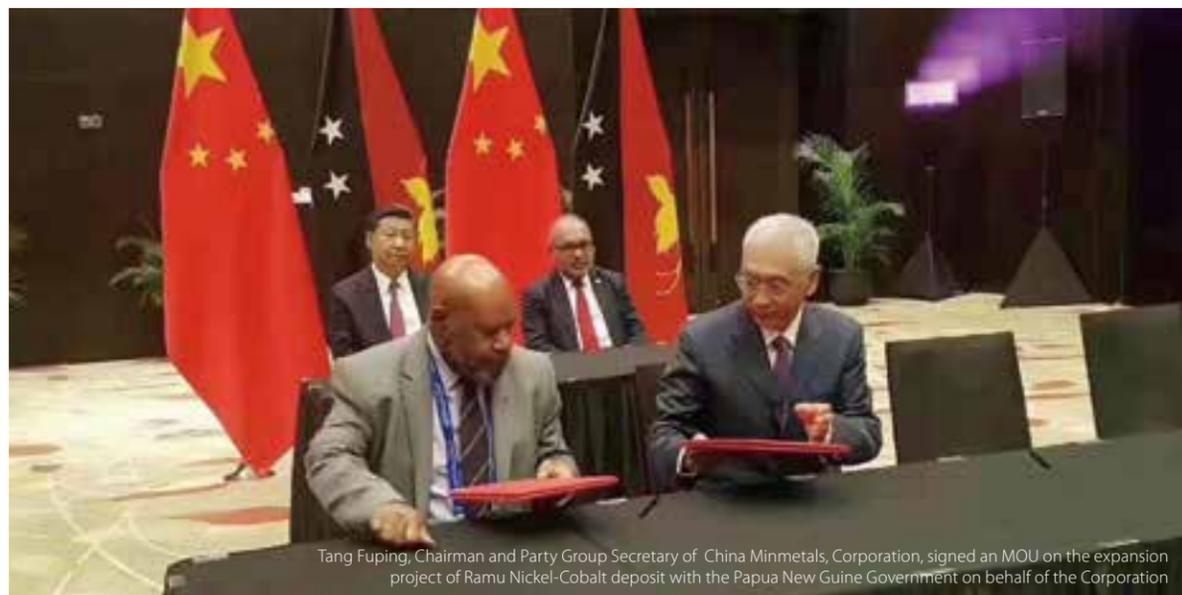
Enterprise-enterprise Cooperation

In line with the principle of complementary advantages, we work with China Life, China Insurance, China Reform Holding, HBIS Group, Huawei, UNIS, ZGC Group, Siemens (China) in the fields of digital plant, smart city, intelligent energy, intelligent manufacturing.



University-enterprise Cooperation

In the development and application of new materials, we have carried out scientific and technological innovation cooperation with Beijing University of Science and Technology and Central South University. At the same time, we cooperate with universities and scientific research institutions to speed up the research and development layout of the characteristic advantageous resources including antimony, bismuth, rare earth etc.



Tang Fuping, Chairman and Party Group Secretary of China Minmetals Corporation, signed an MOU on the expansion project of Ramu Nickel-Cobalt deposit with the Papua New Guinea Government on behalf of the Corporation

Guo Wenqing attended the 9th Annual Meeting of China-Chile Entrepreneurs Committee

On November 2, 2018, the Ninth Annual Conference of China-Chile Entrepreneurship Commission in Beijing. Guo Wenqing, General Manager and Deputy Party Committee Secretary of China Minmetals, Chairman of MCC Group, was invited to attend the opening and closing ceremonies of the China-Chile Entrepreneurs Committee and presided over the meeting. Before the meeting, Guowenqing and Frey, Chairman of the China-Chile Entrepreneurs Committee, former Chilean President and other representatives of Chilean Government had an in-depth exchanges on such topics as further strengthened government-enterprise cooperation.



Sign procurement agreement with KGHM Palska

A 5-year-long contract for the purchase of electrolytic copper with a total value of about RMB 27 billion was signed with KGHM, from whom we purchased a total contract value of the goods with about US \$600 million by 2018 for the first time. At present, the electrolytic copper which we import from KGHM account represents 40% to 60% of China's total import quantity from Poland, with more than 1 million tons of electrolytic copper purchased in a total cost of nearly 6 billion US dollars as of October 2018.



➤ **MCC Signs Strategic Cooperation Agreement with Xi'an Municipal People's Government**

At the 3rd Silk Road International Exposition and Investment and Trade Forum for Cooperation between East and West China held in Xi'an, MCC Signs Strategic Cooperation Agreement with Xi'an Municipal People's Government. According to the agreement, the two parties will jointly promote the new highland of inland reform and opening up of Xi'an municipal construction, the new starting point of the Silk Road Economic Belt and national central city, and speed up the construction pace of "Great Xi'an".

➤ **Build a cloud-computing framework for steel industry**

CISDI and Huawei have signed a strategic cooperative agreement under which both parties will work together in digital renovation for steel enterprises, agricultural big data, smart park, intelligent manufacturing, and corporate information technology applications. As an ICT solution partner in CISDI Public Cloud and Cloud Infrastructure Construction, Huawei will ensure CISDI's intelligent products are put on cloud on-line, build a cloud computing architecture for iron and steel enterprises, provide joint solutions for intelligent manufacturing and smart city application scenarios, and serve the economic development of the industry.

➤ **Promoting the Transformation and upgrading of Intelligent and Digital Iron and Steel Industry**

As a national team leader in the field of domestic metallurgical engineering design and intelligent manufacturing in iron and steel industry, CERI signed a strategic cooperation agreement with Siemens (China) and UNIS.

The cooperation with Siemens start with the innovation of solutions to improve production efficiency and quality in an green, intelligent and digital way to jointly enhance the level of intelligent manufacturing in the whole process of the industry, while the cooperation with UNIS focus on the big data application, intelligent big data analysis, artificial intelligence algorithm with joint efforts to work out intelligent factory solutions, promote the great development of intelligent metallurgy and the intelligent metallurgical industry development.

➤ **An innovative cooperation in financial services**

Minmetals Capital and China Insurance have signed a strategic cooperation agreement, the two sides will further deepen cooperation in the fields of risk management and innovative financial services, give full play to the brand and professional advantages of both sides, promote resource sharing and complementary advantages, and better serve the society and people's livelihood.



Tang Fuping, Chairman and Party Group Secretary of China Minmetals, met with Yang Renshu, President of Beijing University of Science and Technology

Public Good

China Minmetals actively invests in public welfare, actively meets the needs of stakeholders, helps community development, and continuously feeds back to society. Through investing in philanthropy and welfare, volunteer services, charitable trust and oversea public welfare projects, we have been widely recognized by various stakeholders.



Public welfare awards of 2018

- China Minmetals was honored by China Foundation for Poverty Alleviation with *2017 Outstanding Contribution Award*
- At the second China Enterprise Charity Forum hosted by The Enterprise Observer, MCC ranked 259th on the list of the Top 500 Chinese Enterprises in Charity 2018.

Charitable Donations

We actively encourage employees to contribute love to the community and help the communities where they operate as much as they can.

➤ **Uninterrupted 10-year funding for hearing-impaired children**

Beijing Qiyin Experimental School for the Deaf is a school for teenagers with hearing impairment, most of the students come from families with poor living conditions. In 2008, China Minmetals' Finance Department helped children solve the urgent need for lack of costumes by donating money. For 10 years, the Finance Department has taken the initiative to visit the children there every year and send them much-needed materials and school supplies. In May 2018, the representative teachers and students presented a banner with a praise note of ten-year charity without return to help the disabled with boundless love, in order to express their gratitude for the continuous donation and support of China Minmetals for ten years in a row.



Staff of Finance Department Condolence the hearing-impaired Children in Beijing Qiyin Experimental School

Volunteer Services

We inherit the volunteerism of "dedication, fraternity, mutual assistance and progress", promote young employees to actively devote themselves to volunteer action, and help solve social problems with their professional services.

On the 55th Lei Feng Memorial Day, the company's League Committee carried out a series of voluntary service activities on the theme of "Charitable Minmetals, Youth Leading" with more than 1000 persons-time young employees participating.

➤ MCC Medical volunteers serve for Yuepu Town Community

In March 2018, Shanghai MCC Hospital and Yuepu Town, Baoshan District, Shanghai, jointly carried out a series of voluntary service activities with the theme "MCC Around for Your Healthcare" including 8 free consultations, 2 health lectures and 1 interpretation of medical examination reports held to provide services for about 2000 persons-times.

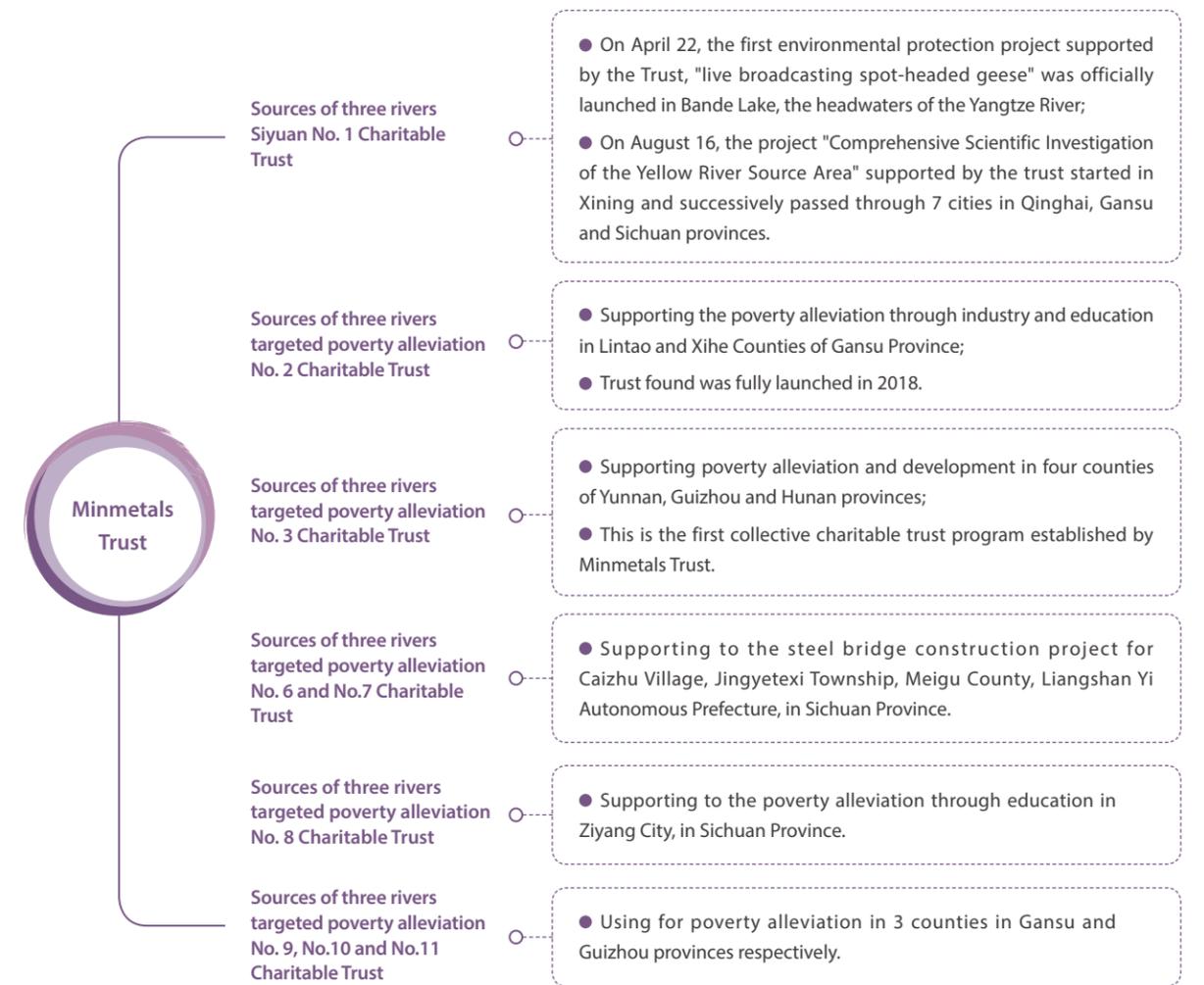
➤ Blood donation for great love

On 21 August, Shuikoushan Nonferrous Metals Group organized voluntary blood donation activities. Around 8 a.m., there was a large crowd at the site, and a long line was formed in front of the blood donation registry. Under the guidance of medical staff, volunteers filled in the form information, measured blood pressure and screened blood. After screening, 93 eligible people successfully donated blood. In 2018, more than 700 employees of Shuikoushan Company used their own actions to donate in total 560,000 mls of blood voluntarily.



Charitable Trusts

Charitable trust is one of our new measures in the field of financial investment and social public welfare in recent years, aiming to solve the problem of insufficient infrastructure in the under-developing areas. In 2018, Mintrust filed a total of seven charitable trusts, among the forefront of the industry.



➤ **Launching the environmental protection trust project to promote ecological environmental protection**

In April 2018, the first environmental protection project of "Live Telecasting of Bar-headed Geese" supported by "Minmetals TrustSanjiangyuan Siyuan No. 1 Charitable Trust", which focuses on maintaining the ecological stability of Sanjiangyuan area, was officially launched to record the whole process of northward relocation of "the highest flying bird in the world", so as to effectively improve the awareness and protection of rare animals in the area of sources of three rivers, which is a valuable attempt for charitable trust to participate in the field of ecological protection.



➤ **The Charity Trust built a bridge of hope for targeted poverty alleviation in Daliangshan**

Minmetals Trust and Sichuan Shenghua Group established jointly the "Source of three rivers Targeted Poverty Alleviation No.6 Charitable Trust" in November 2018 for a period of two years with a trust amount of nearly one million Yuan, which will be used for the steel convenience bridge construction project in Jingyetexi Town, Meigu County, Liangshan Yi Autonomous Prefecture, in Sichuan Province, to improve the local infrastructure construction, promote the economic development of the local village area, and help to relieve the poverty.

Overseas Public Good

While making full use of overseas resources and expanding overseas business, MMG strives to create an upgraded version of going-out enterprise to help overseas communities achieve sustainable development and improve the living standards of local residents through community investment and public welfare projects.



➤ **Establish Business Development Center in Bombas**

In the MMG Bombas project, we established the Challhuahuacho Business Development Center locally to create a business environment which is not totally dependent on mining and to create sustainable livelihood opportunities for local people. The Centre provides training and technical assistance in business management, health and safety management, accounting and quality control to more than 360 local enterprises. In 2018, the Center invested \$36.4 million and \$27.2 million directly and indirectly in the Bombas project and its contractors respectively, up from \$30.4 million and \$11.9 million in 2017.

➤ **Helping to develop planting and breeding industry**

MMG carries out an Andean crop project near the Bombas project in Peru to help local farmers improve traditional crop yields and commercialization levels. Develop guinea pig farming projects to encourage local women and the elderly to raise their income through breeding these animals.



Carry out the guinea pigs breeding project

➤ Carry out health car project for women and children

MMG carries out the "Healthy Mother and Child" public welfare project in the community Bombas Project in Peru to help improve local health and reduce child mortality. The project practice includes home visits and health workshops into community activities.

➤ Providing high-quality education support to the community

In 2018, MMG continued to provide support for the Nueva Fuerabamba School Project, which we supported near Bombas, to conduct high-quality after-school and vacation tutoring classes, to provide scholarships to the community residents of the project, and to help them improve their educational level.



➤ Support the education and health for women

In the past few years, MMG has been committed to supporting women's education and health in the Democratic Republic of Congo, focusing on improving girls' enrolment and awareness of women's rights protection. Our Community literacy projects in the have been under way for three years in Democratic Republic of Congo , involving 511 adults, and 80% of whom are women. In addition, the project is also developing women's and children's rights locally and contributes to the reduction of child marriage rate.

➤ Help improve clean water and sanitation

In the past five years, the clean water and sanitation project carried out by MMG in the Aprimack region of Peru have achieved remarkable results. In 2018, we assisted the Peruvian government in providing technical research support to improve clean water and sanitation conditions in the region.



Outlook 2019

| | Review 2018 | Outlook 2019 |
|---|---|---|
|  <p>Be Valuable</p> | <ul style="list-style-type: none"> Steady growth of operating income Revenue hit record high Improved operational efficiency Improved asset structure Increasing mineral resources capacity Accelerated development of metallurgical engineering Reshaped trading system Outstanding financial real estate Completed corporate reform and downsizing | <ul style="list-style-type: none"> To develop and operate green mines for the new breakthrough in metal mining To seize the important market opportunity for the further promotion of the project construction To closely combine with the national opening-up layout for the transformation of the trade system To foster new growth driver of financial real estate for a moderately pluralistic industrial support To improve the operational and resource allocation efficiency of assets To strengthen the operational risk management without any boundary-crossing |
|  <p>Be innovative</p> | <ul style="list-style-type: none"> Scientifically innovating the layout of technological centers Key technologies for the cost cutting and efficiency improvement Developing patent plans for technologies developed for key business sectors Promoting the application of key technologies Applying for the China Patent Awards and the honorary title of National Intellectual Property Demonstration Enterprise | <ul style="list-style-type: none"> To reform the mechanism of science and technology investment and management for the integration of innovation, industry and investment To strengthen independent R & D for the core technologies with independent intellectual property rights To promote the fast entry of the key scientific and technological achievements into the market with the policy and fund support |
|  <p>Be safe</p> | <ul style="list-style-type: none"> The scientific and optimized top-level design for the down-to-earth main responsibility of enterprise production safety The comprehensive inspection of production safety for the rectification and reform of hidden hazards The full certification of the principal person in charge of the directly-managed enterprises The sound management system for the improved occupational health and safety management level | <ul style="list-style-type: none"> To adopt a refined approach to management and improve safety management To review and investigate major accidents, identify the persons responsible for the accidents and rectify problems To expand the coverage of safety Technology in the key production safety operation with the intelligent construction |

| | Review 2018 | Outlook 2019 |
|---|--|--|
|  <p>Be happy</p> | <ul style="list-style-type: none"> Optimizing The Position System Management Regulation and The Professional Sequence Qualification Management Regulation Formulating the professional management Measures and implementing the manager recruitment pilot program Completing the first pre-service training for new employees after the strategic restructuring Organizing employee activities for the balance of staff's work and life, and stepping up employee assistance | <ul style="list-style-type: none"> To improve the incentive and disciplinary mechanisms To put a talent development program in place for the development of company To optimize the HR allocation of the company To promote the construction of Staff and Workers' Congresses at different levels |
|  <p>Be green</p> | <ul style="list-style-type: none"> Promoting environmental governance in key areas for the clean production processes of mining and smelting operations Putting an accountability system in place for the annually-targeted energy conservation and emission reduction Establishing energy-saving and environmental protection communication and cooperation platforms Promoting green building practices Promoting green business | <ul style="list-style-type: none"> To strengthen the environmental management To adopt a refined approach to management and To standardize the environmental protection in construction practices To focus on pollution source control and end-discharge treatment with energy-saving technology for the prevention of the major pollution accidents To promote the green operation To protect the biodiversity To forge the green business |
|  <p>Be harmonious</p> | <ul style="list-style-type: none"> Operating in good faith and complying with laws Strengthening the supervision of anti-corruption Developing the external technical cooperation Strengthening the multi-domain cooperation and exchange with partners Implementing supply chain management Carrying out public welfare donation and voluntary service Establishing a charitable trust | <ul style="list-style-type: none"> To wholly strengthen the compliance management and good faith management To comprehensively strengthen risk management To consolidate achievements for the expansion of cooperation and the shared development in more areas To innovate the poverty alleviation for the sustainable precise poverty alleviation To promote community development To protect vulnerable groups for the social equity |

Appendix

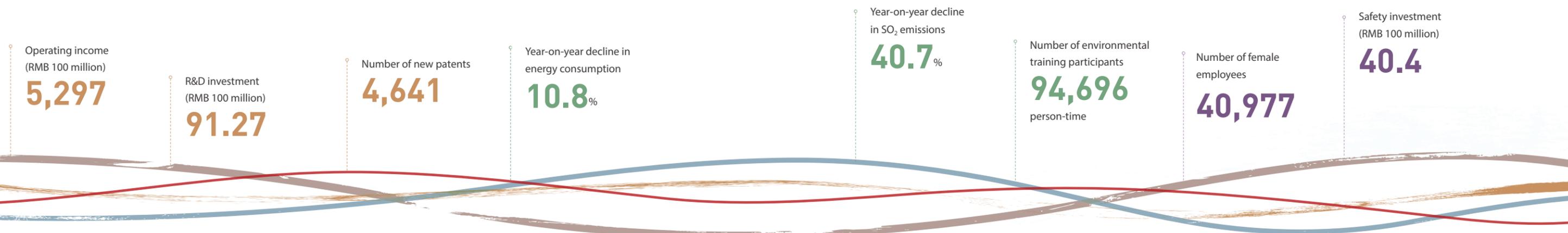
Sustainability Performance

| Economic Performance | 2014 | 2015 | 2016 | 2017 | 2018 |
|------------------------------------|-------|-------|--------|--------|--------|
| Operating income (RMB 100 million) | 3,228 | 2,004 | 4,355 | 4,934 | 5,297 |
| Total taxes (RMB 100 million) | 81.24 | 77.86 | 184.36 | 182.26 | 200.31 |
| R&D investment (RMB 100 million) | 10.61 | 9.84 | 60.52 | 76.23 | 91.27 |
| Number of new patents | 286 | 198 | 3,148 | 3,709 | 4,641 |

| Environmental Performance | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|--------|--------|--------|--------|--------|
| Year-on-year decline in energy consumption (%) | -14.19 | -24.01 | 2.00 | 2.50 | 10.8 |
| Year-on-year decline in SO ₂ emissions (%) | -12.28 | -11.15 | 5.70 | 4.40 | 40.7 |
| Number of environmental training sessions | 16 | 4 | 267 | 817 | 1,637 |
| Number of environmental training participants | 1,405 | 1,770 | 13,670 | 38,160 | 94,696 |

| Economic Performance | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|---------|---------|---------|---------|---------|
| Number of employees | 170,292 | 143,517 | 192,023 | 196,609 | 186,258 |
| Number of female employees | 35,236 | 22,324 | - | 45,200 | 40,977 |
| Safety investment (RMB 10,000) | 46,400 | 39,308 | 189,093 | 299,058 | 404,000 |
| Number of deaths | 4 | 3 | 3 | 16 | 18* |
| Number of employee training participants(person-time) | 200,711 | 149,153 | 263,087 | 317,713 | 355,441 |
| Proportion of contracts executed (%) | 100 | 100 | 100 | 100 | 100 |

* Including outsourcing construction personnel



Assurance Statement



Assurance Statement of Corporate Social Responsibility Report

TUV Asia Pacific Ltd. ('TUV NORD') has been commissioned by the management of China Minmetals Corporation ('China Minmetals' for short) to carry out an independent assurance of the 2018 sustainability Report ('report' for short).

China Minmetals is responsible for the collection, analysis, aggregation and presentation of information within the Report. TUV NORD's responsibility in performing this work (assurance of the report) is in accordance with terms of reference agreed in the scope of engagement with China Minmetals. China Minmetals is the intended users of this statement.

This statement is based on the assumption that the data and information provided in the report is complete and true. This report is the twelfth report of China Minmetals, and it's the second time for China Minmetals to invite TUV NORD give an independent assurance.

Assurance Scope

- The report revealed the accuracy and reliability for key performance, information and management system which happened in 2018.
 - Assurance address is in Tower A, Minmetals Plaza, No.3 Chaoyangmen avenue, Dongcheng district, Beijing China, Where the headquarter located. And 7we didn't visit other branch, Subordinate units or the site of Projects.
 - We evaluate the collection, analysis, aggregation of the information and data.
- Assurance of the Report was done on 27-28.06.2019.

Assurance Methodology

Assurance process including following activities:

- Review the document information which provide 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 Guideline(GRI Standards) on balance, comparability, accuracy, timeliness, clarity, reliability, and give the evaluation;
- Refer to AA1000AS (2008) Assurance methodology;
- Assurance activity is based on TUV NORD CSR report assurance management procedure.

Assurance Conclusion

China Minmetals sustainability Report provide an appropriate and objective view of the sustainability & social programs and performances in 2018. The data in report is reliable and objective, TUV NORD didn't find the system error or substantial error, Which meets the disclosure requirement of GRI Standards core option.



- The structure of report is complete, the revealed information is clear, easy-understand and available;
- The report disclosed the company's social responsibility performance in 2018 from six chapters, such as "Achieve high-quality economic growth" and "Protect employees' all-round growth". In addition, China Minmetals "precision poverty alleviation" and the Restructuring development process over the past three years was elaborated in two special topics, allowing stakeholders to have a deeper understanding of the development of China Minmetals;
- Responsible performance from 2014 to 2018 had been revealed as key performance at the end of the report, which reflects the report comparison.

Suggestion for improvement

Through assurance and evaluation, we had following improvement suggestion on CSR practice and management:

- It is recommended that performance data with large changes in the current year, such as environmental performance data, should be described in the report with relevant content such as cases in response to stakeholder concerns;
- It is recommended to disclose the negative events of the company during the year to reflect the balance of the report;
- It is recommended to pay attention to GRI Standards undisclosed indicators, which can be combined with departmental KPIs to improve the effectiveness of corporate social responsibility management.

Special statement

This statement excluding:

- The activity outside information reveal;
- The position, idea, faith, object, future developing direction, and promise which stated by China Minmetals.

Statement of Independence and Competence

TUV NORD Group is the world's leader in inspection, testing and verification, operating in more than 70 countries throughout the world and providing services which includes management systems and product certification; quality, environmental, social and ethical auditing and training; environmental; social responsibility and sustainability report assurance.

TUV Asia Pacific Ltd. affirms its' independence from China Minmetals and confirms that there is no conflicts of interest with the organization or any of its subsidiaries and stakeholders when performing the assurance of the Report. TUV Asia Pacific Ltd. was not involved in any manner with China Minmetals, when the latter was preparing the Report.

TUV Asia Pacific Ltd.

The team leader: Ms. Huang Li
Date :05.07.2019

The Authorized person: Mr. Song Haining
Date: 05.07.2019

Note: When there is a conflict between the declared Chinese and English versions, please prevail in Chinese.

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The Implementation of the UN Global Compact's Ten Principles

| Ten Principles | Corresponding Actions in 2018 | |
|------------------------|---|---|
| Human Rights | Support and respect the protection of internationally proclaimed human rights | Respect and maintain internationally proclaimed norms and standards on the protection of human rights, integrate the principles of respecting human rights and labor practices into the company's strategy and daily operation, and promote comprehensive development of employees. |
| | Not complicit in human rights abuses | A democratic management system should be established, which adopts the basic mode of employees participating in management and consultation, centers on the workers' self-management system, the workers' congress system and the system of workers serving as directors and supervisors, and is based on organizational leadership and institutional system. |
| Labor | Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining | Strictly abide by the national and local laws, regulations and policies, follow relevant international conventions on human rights and labor, establish and perfect trade unions, seek reasonable suggestions, and ensure democratic supervision right of employees. |
| | Elimination of all forms of forced and compulsory labor | Forced labor and employment discrimination |
| | Effective abolition of child labor | Resolutely abolish child labor |
| | Elimination of discrimination in respect of employment and occupation | Prohibit all kinds of employment discrimination, earnestly safeguard the legitimate rights and interests of female workers and overseas workers, and establish an assistance system for needy workers. |
| Environment | Businesses should support a precautionary approach to environmental challenges | Improve the environmental protection management system, strengthen the environmental risk and environmental emergency management, and carry out environmental protection publicity activities. |
| | Undertake initiatives to promote greater environmental responsibility | Promote green operation, save energy and reduce emission, and improve resource utilization efficiency. Promote green construction management and green mine construction. Protect biodiversity, carry out biodiversity monitoring. |
| | Encourage the development and diffusion of environmentally friendly technologies | Conduct scientific and technological innovation, develop green business such as green building, solid waste treatment, water environment treatment, sponge city construction, environmental impact assessment etc., and take part in the construction of Beautiful Countries and Smart Cities. |
| Anti-Corruption | Businesses should work against corruption in all its forms, including extortion and bribery | Implement the main responsibility, strive to build a "no corruption" system and mechanism, effectively operate the "general supervision" working mechanism, continuously deepen the style construction, and gradually improve the supervision mechanism. |

GRI Standards Index

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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:

- client
 government agency
 employee
 supplier (in its broad sense, including contractor)
 environmental protection organization/NGO
 charity
 media
 member of the public
 others

2.Your overall impression of the sustainability report:

- Very good
 Good
 Fair
 Not good
 Bad

3.What do you think of this report?

| | Very good | Good | Fair | Not good | Bad |
|---------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Information quality | <input type="checkbox"/> |
| Structure | <input type="checkbox"/> |
| Layout and design | <input type="checkbox"/> |
| Readability | <input type="checkbox"/> |

4.What are the most important issues to you?

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