



2017 China Minmetals Sustainability Report

2017 Sustainability Report



Cherishing Limited Resources
Pursuing Sustainable Development

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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.

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China Minmetals



Cherishing Limited Resources
Pursuing Sustainable Development

About This Report

◎ Reporting Period:

This report covers the period from January 1 to December 31, 2017, and some parts may concern significant years in the development of the Corporation.

◎ Release Cycle

The Corporation publishes the sustainability report annually and this is the 11th one since 2007.

◎ 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 easy reference, "China Minmetals Corporation" is also referred to as "China Minmetals", "the Corporation" or "we" in this report.

◎ References:

In compliance with the requirements laid down in such documents as *Guiding Opinions on Fulllment of Social Responsibilities by Central Enterprises 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 Global Reporting Initiative (GRI)'s *G4 Sustainability Reporting Guidelines* as well as international standard *Guidance Standard on Social Responsibility* (ISO26000:2010), national standard GB/T36000-2015 *Guidance on Social Responsibility*, *Guidelines for Social Responsibility in Outbound Mining Investments*, the Ten Principles of the United Nations Global Compact.

◎ 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. Address of the headquarters: Tower A, Minmetals Plaza, No.3 North Chaoyangmen Avenue, Dongcheng District, Beijing, China (100010)

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Statement

Centering on the sustainability philosophy of "cherishing limited resources and pursuing sustainable development", *the 2017 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 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

August 2018



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Message from the Chairman



Tang Fuping,
Chairman and Party
Secretary of China Minmetals
Corporation

“

With greater strength comes greater responsibility. As China's largest metals and minerals corporation, and the only one of its kind participating in the pilot reform of state-owned investment companies, China Minmetals makes strict demands on itself in order to live up to the high expectations from stakeholders. We are committed to creating a powerhouse in the metals and minerals industry through higher quality of development, and all people at China Minmetals are sparing no effort to attain this goal.

”

China Minmetals Sustainability Report 2017 was published as scheduled. This report discloses key data about China Minmetals Corporation's performance in such fields as value creation, safety, environmental protection, communities, and employees, and provides the community for real records of what we have experienced over the past year.

2017 was a landmark year for the Party and the country. It witnessed the successful conclusion of the 19th CPC National Congress, and saw the great cause of socialism with Chinese characteristics enter a new era and the Chinese nation achieve a tremendous transformation: it has stood up, grown rich, and is becoming strong. In this golden age, we, 200,000 members of China Minmetals at home and abroad, are truly proud and excited to take part in the significant progress.

We are also proud of and excited about the remarkable results we achieved in the past year. In 2017 we saw our operating revenue and profit hit new records, the quality of our operation improve across the board, and our resource strategy and diversified business such as trade, logistics, metallurgical engineering, finance, and real estate flourish in all areas. In the year, our management ability was strengthened, cost management took root, risk factors and risky assets decreased significantly, and great achievements in science and technology were accomplished. More importantly, we earnestly studied and followed the guiding principles of the 19th CPC National Congress and Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, upheld Party leadership, strengthened Party discipline, and made all-round progress in Party building. Underlying our exceptional achievements is a more solid step we have taken in sustainable development and a clearer roadmap of sustainable development.

2018 is a key year in implementing the guiding principles of the 19th CPC National Congress, and a crucial year for securing a decisive victory in building a moderately prosperous society in all respects. It marks the 40th anniversary of reform and opening-up, and also a vital year for China Minmetals to make important strides in deepening reform. New era breeds new atmosphere, new missions call for new actions. In response, we will focus on the pilot reform of state-owned investment companies, deepen reform across the board, further improve corporate governance and management, and consolidate Party leadership and Party building. We will make unremitting efforts to fulfill the challenging but significant tasks.

China Minmetals is one of the first companies in China to embrace the sustainable development concept and embed it into all aspects of enterprise management. This report is the 11th consecutive sustainability report China Minmetals has published.

Embracing the philosophy of cherishing limited resources, and pursuing sustainable development, we are never alone on the path to glory since other sectors have been backing us up. We are always full of confidence on this path because the support we receive will always give us the power to press ahead.

Message from the President



“

Guo Wenqing,
General Manager and Deputy
Secretary of the Party Group of
China Minmetals Corporation

It was an unforgettable year. Our exceptional performance and improvement of management won high recognition and trust from both domestic and overseas investors, and increased the sense of pride, fulfillment, and happiness of our 200,000 employees. With more stability and unity, a good development momentum and new growth drivers, China Minerals now has greater strength, stronger driving force, and broader development space than ever before.

”

2017 was a crucial year for the new development of China Minmetals after recapitalization. In the year, under the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era and with concerted efforts of our employees, China Minmetals registered RMB493.4 billion in operation revenue and RMB12.1 billion in total profit, both hitting record highs.

It was a year for China Minmetals to forge ahead, and make history with leapfrog development. Through concerted efforts, we scored fruitful results in production, operation, reform, and innovation. Our ability to exploit and operate resources continued to improve; the operation of overseas mines such as Las Bambas copper mine, Dugald River zinc mine, and Ramu nickel mine reached the industry-leading level; domestic mines of Minmetals Mining Holdings Co., Ltd. and Minmetals Luzhong Mining Co., Ltd. thrived; the deep-sea exploration in the eastern Pacific Ocean succeeded, and trade in resources expanded greatly. We boasted world-leading ability in engineering and construction; the Formosa Ha Tinh Steel Project in Vietnam and the Malaysia-China Kuantan Industrial Park became representatives of mutually beneficial cooperation between China and other countries along the Belt and Road. We maintained steady development of diversified industries. The listing of Minmetals Capital Co., Ltd opened a new character for the development of a financial holding group, and our ranking in the real estate industry rose quickly. New drivers of growth were fostered. For example, the Yiliping plant of Minmetals Salt Lake Limited entered the stage of industrialized lithium extraction, the Caofeidian International Iron Ore Exchange Center gave China a bigger say in the industry, and the copper, lead and zinc base opened up a new space for our development in Hunan. We made solid progress in deepening reform and streamlining, strengthened internal synergy, and fully unleashed the competitiveness of the

industry chain. We signed contracts with a total amount of RMB121.5 billion to create a vast internal market, setting an example for complementary restructuring of central SOEs.

2018 will kick up the efforts to put into action the guiding principles of the 19th CPC National Congress, and marks a crucial year for securing a decisive victory in building a moderately prosperous society in all respects. To realize the new great dream in the new era, we will seize the historic opportunity, focus on building a business structure of “four beams and eight columns,” implement the strategy of innovation-driven growth, explore new models of opening up market, make great strides in streamlining, and strengthen management and control, so as to attain the second-step target of the goal of “quadrupling in three steps.”

Diligence and hard work makes dreams come true. We will rally even closer around the Party Central Committee with Comrade Xi Jinping as the core, fully implement the guiding principles of the 19th CPC National Congress, devote ourselves wholeheartedly to fulfilling the mission entrusted to us by the Party and the country for the new era, and uphold the spirit of never falling behind schedule or getting slack in the endeavor to create a powerhouse in the metals and minerals industry. We sincerely hope to have the support of all sectors as always, and work together with all stakeholders for mutual benefit and for the better future.

郭文清

About Us

Company Profile

China Minmetals Corporation was established as the result of a strategic recombination of two Fortune Global 500 companies – the former China Minmetals and the former Metallurgical Corporation of China (MCC). It is China's largest metals and minerals conglomerate with a very strong global presence as well as the world's largest and most competitive player in metallurgical engineering and project operation. Headquartered in Beijing, the Corporation has total assets of RMB1.68 trillion, including assets of RMB855.3 billion and under-management financial assets of RMB820 billion. Its institutions, resource projects, and construction projects spread in more than 60 countries and regions in the world. In 2017, its operating income reached RMB493.4 billion and total profit RMB12.1 billion, both hitting new records, ranking the 120th among the Fortune Global 500 companies.

China Minmetals has gained a unique competitive edge by taking the lead in the global metals and minerals sector, in operating across the whole industry chain from resource acquisition and exploration to project design, construction, operation, distribution, and further processing. It is able to provide metals and minerals companies with systematic solutions and services throughout the project lifecycle of engineering, construction, and operation.

China Minmetals has a well-structured, diversified asset portfolio. As a leading comprehensive solution provider for urban transportation construction in China, the Corporation has licenses on delivering a full range of financial services, with outstanding strengths in trust, leasing, and securities. Moreover, the Corporation is one of the first 16 central SOEs authorized by the State-owned Assets Supervision and Administration Commission (SASAC) to engage in real estate as a main area of business. It also has distinct competitive edges in strategic emerging industries such as the construction of utility tunnels, "Sponge Cities," and themed projects.

With the approval of the SASAC in 2017, China Minmetals Corporation was renamed "中国五矿集团有限公司" in Chinese (the English name unchanged) after completing the recombination, and transformed from an enterprise owned by the whole people into a wholly state-owned enterprise.

the Corporation has total assets of RMB

1.68 trillion

assets of RMB

855.3 billion

under-management financial assets of RMB

820 billion

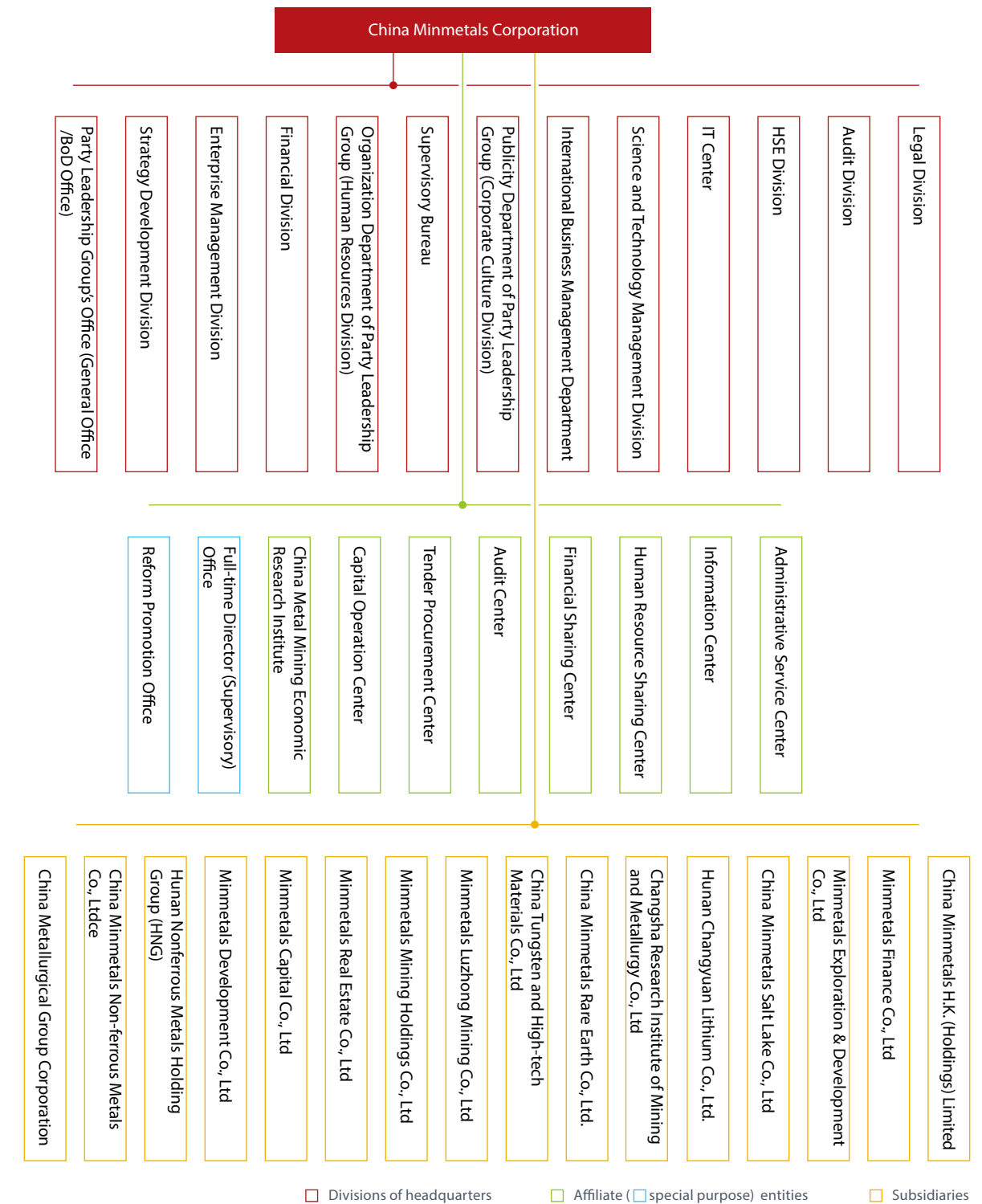
In 2017, its operating income reached RMB

493.4 billion

total profit RMB

12.1 billion

Organizational Structure



China Minmetals Headquarters Office Building

□ Divisions of headquarters
 □ Affiliate (special purpose) entities
 □ Subsidiaries

Corporate Governance and Party Building

2017:
Board of Directors
meetings:

15

The Board of Directors
introduced

5 new systems

and revised

7 systems

Corporate Governance

As the decision-making body of China Minmetals, the Board of Directors reports to the SASAC, makes decisions on major issues according to due procedures and the Articles of Association, and is subject to supervision from contributors and the Board of Supervisors.

The Board of Directors performs its functions in an independent and authoritative manner, while respecting and upholding the leadership core and political core of the Party Leadership Group. In 2017, the Measures of China Minmetals Corporation for Managing the Decision-making Power of the Party Leadership Group's Meeting, Board of Directors Meeting, and President-chaired Meeting (Trial) and the List of Decision-making Power of the Party Leadership Group's Meeting, Board of Directors Meeting, and President-chaired Meeting were implemented, making clear that discussions by the Party Leadership Group are required before any decision is made on important matters, so as to ensure informed and normative decision-making.



Studied, promoted, and implemented the guiding principles of the 19th CPC National Congress



Case: Campaign to study and promote the guiding principles of the 19th CPC National Congress

China Minmetals has earnestly studied, promoted, and implemented the guiding principles of the 19th CPC National Congress. It launched a theme campaign to publicize the new progress and new achievements it had made, organized Party members to watch the opening ceremony of the 19th CPC National Congress, and encouraged discussions and learning among Party members, especially among those who were aboard, at the headquarters, at the primary-level units, and the retired.

By the end of 2017:

368 Party
committees at all levels

188 general
Party branches

3,879 Party
branches

85,613
Party members

Party Building

Under the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, China Minmetals follows and implements the guiding principles 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 Leadership Group over enterprises is upheld.

- **Improved Party building systems:** Formulated 12 systems on primary-level organizational work, and drew up the Detailed Rules of China Minmetals Corporation on the Implementation of the Party Building Responsibility System;
- **Carried out the basic work on Party building of directly administrated Party organizations at the primary level:** Ensured the smooth progress in the Party building work of primary-level Party organizations, including the first Party congress of China Tungsten and High-tech Materials Co., Ltd., the establishment of the temporary Party committee and discipline inspection committee of Minmetals Capital Co., Ltd. (Minmetals Capital), and the Party congress of Minmetals Development Co., Ltd.; released the 2017 inspection and evaluation program on the basic work of Party branches; established the online Party member education platform, and launched the first phase of the Party member education app; and advanced IT-based Party member management;
- **Organized Party building training:** The 2017 training workshop of the directly administrated Party committees was held, which was attended by 90 applicants for Party membership from 14 directly administrated Party organizations at the primary level; and the headquarters organized the practical training on Party building, which had 50 participants.



Organized training demonstration workshops for Party Secretaries



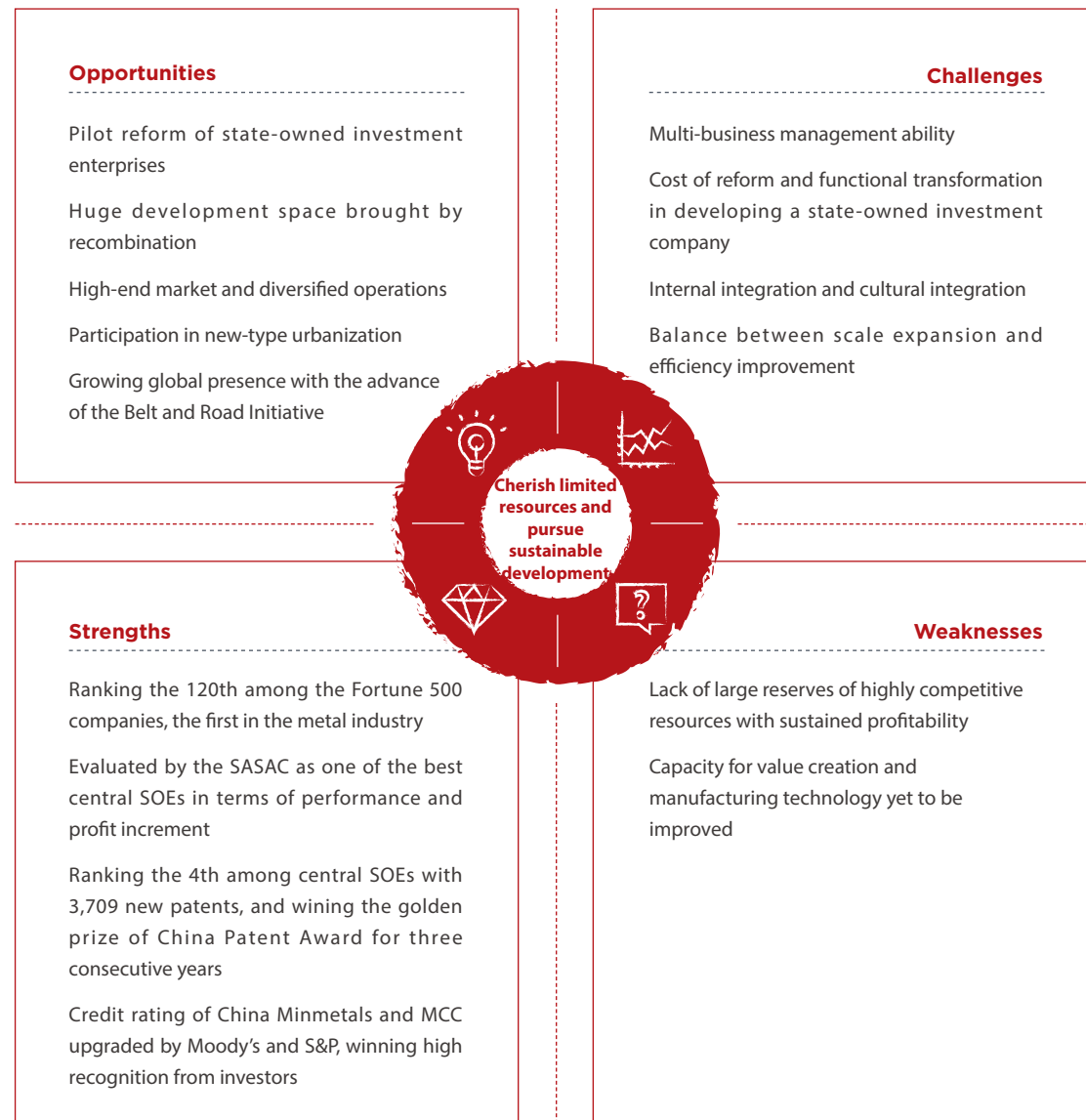
Case: Party Secretary training demonstration workshop

In 2017, we successfully organized three training demonstration workshops for 182 Party Secretaries of directly administrated units based in Beijing, and extended Party Secretary training to primary-level units, covering more than 4,100 participants in total. During the training period, we instructed the Party members to study and understand the guiding principles of the 19th CPC National Congress, share experience, and put it into action, thus strengthening the training effects.



The Party branch of the ore dressing workshop in the ore dressing plant of Minmetals Luzhong Mining Co., Ltd. (Luzhong Mining) was designated by the Party Committee of the SASAC as one of the first batch of primary-level demonstration Party branches of central SOEs.

Background of Sustainable Development



Our Action

In accordance with the overall requirements for “high-quality development” and “developing world-class enterprises with global competitiveness” proposed by President Xi Jinping, we take improving supply quality as the main direction and on the basis of our enormous assets and scale, strive for excellent operating efficiency and asset quality, enhance global influence and competitiveness, and shift from quantitative growth to quality improvement and from improving business performance to strengthening industrial influence and global competitiveness, and step up efforts to develop into a world-class enterprise with remarkable performance in main areas of business, leading technology, advanced management, and outstanding ability of global resource allocation.

Management of Sustainable Development

Sustainability philosophy

Embracing the philosophy of cherishing limited resources and pursuing sustainable development, we use natural, human and social resources sparingly, and do our best to build a valuable, innovative, safe, green, happy and harmonious image for the Corporation. We strive for the greatest possible integrated value for the economy, the society and the environment, boost sustainable development of the Corporation and the stakeholders, and endeavor to shape it as a beautiful enterprise with outstanding strengths and great charm.

New model of sustainable development

We seek to build a new model of sustainable development for the 13th Five-Year Plan period 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

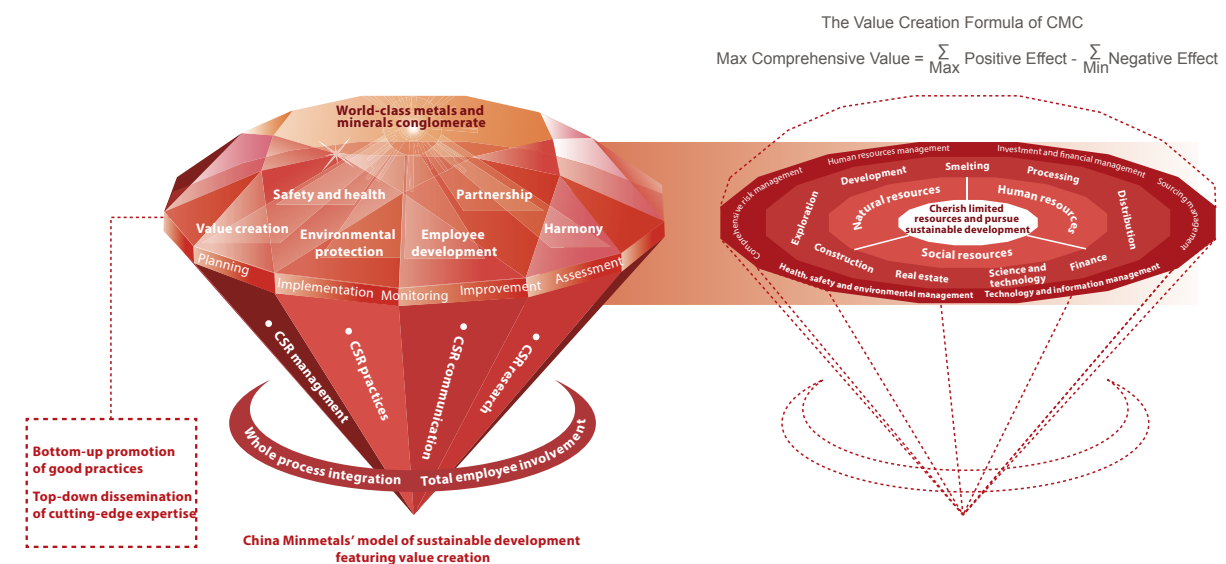
Core idea: Cherish limited resources and pursue sustainable development

Main sources of value: Natural, human and social resources

Means: Whole process integration and total employee involvement

Approaches: CSR management, practices, communication and research



Process: Application to all areas of business and management



Implementation of the 2030 Agenda for Sustainable Development

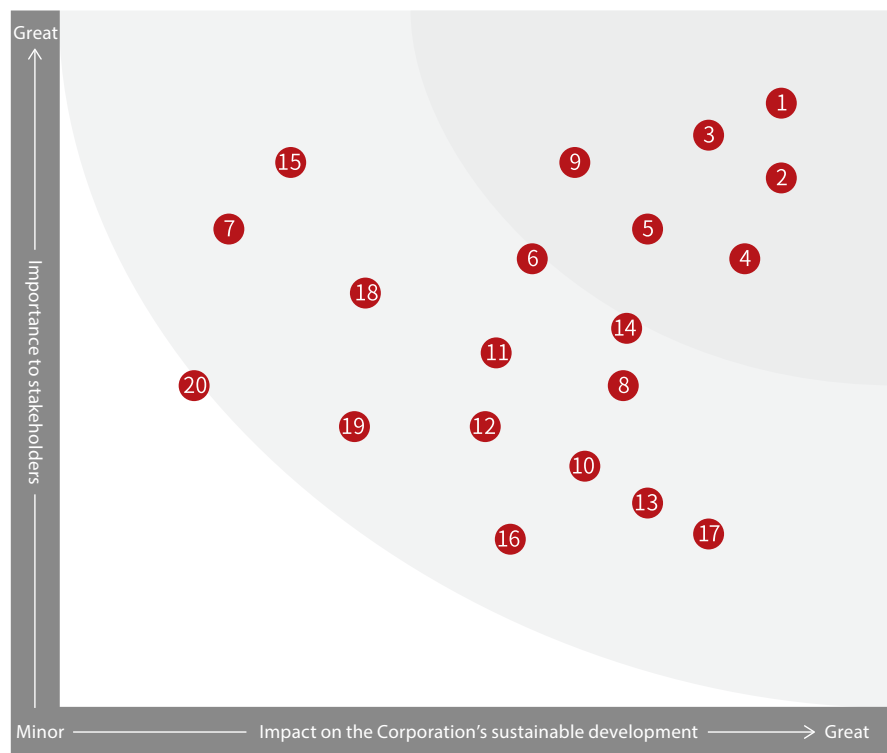
Progress in implementing the 2030 Agenda

 <p>1 NO POVERTY</p>	<p>SDG1: End poverty in all its forms everywhere</p>	<p>Undertake the tasks to help 25 units in 17 counties (including targeted poverty reduction efforts in 6 counties and two targeted villages), providing total aid funds of RMB12.507 million</p>
 <p>2 ZERO HUNGER</p>	<p>SDG2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture</p>	<p>Develop the Chinese herbal medicine growing industry in targeted poverty-stricken areas; conduct various activities overseas to support agricultural production</p>
 <p>3 GOOD HEALTH AND WELL-BEING</p>	<p>SDG3: Ensure healthy lives and promote well-being for all at all ages</p>	<p>Organize a variety of activities to balance the work and life of employees</p>
 <p>4 QUALITY EDUCATION</p>	<p>SDG4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all</p>	<p>Take educational support as an important action of poverty reduction, and enable children in remote areas to have access to education</p>
 <p>5 GENDER EQUALITY</p>	<p>SDG5: Achieve gender equality and empower all women and girls</p>	<p>Give equal pay to men and women for equal work; attach importance to career development of female employees</p>
 <p>6 CLEAN WATER AND SANITATION</p>	<p>SDG6: Ensure availability and sustainable management of water and sanitation for all</p>	<p>Engage in water environment management; pay attention to proper use of water resources and treatment of waste water in the process of construction and development</p>
 <p>7 AFFORDABLE AND CLEAN ENERGY</p>	<p>SDG7: Ensure access to affordable, reliable, sustainable and modern energy for all</p>	<p>Engage in new energy business and R&D of new materials</p>
 <p>8 DECENT WORK AND ECONOMIC GROWTH</p>	<p>SDG8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</p>	<p>Conduct technical training, and increase the share of local procurement; beat the targets in the SASAC evaluations, with operating revenue and profit hitting new records</p>

 <p>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</p>	<p>SDG9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation</p>	<p>Strengthen cooperation and communication with governments and enterprises, and undertake world-class construction projects of tunnels, rail transit, and large venues</p>
 <p>10 REDUCED INEQUALITIES</p>	<p>SDG10: Reduce inequality within and among countries</p>	<p>Take the initiative to fulfil social responsibility overseas, get to know the development demand of local communities, and help advance local infrastructural development, improve local healthcare facilities, and promote local people's well-being</p>
 <p>11 SUSTAINABLE CITIES AND COMMUNITIES</p>	<p>SDG11: Make cities and human settlements inclusive, safe, resilient and sustainable</p>	<p>Take the lead in environmentally friendly and emerging industries such as construction of utility tunnels, "Sponge Cities," "Smart Cities," "beautiful countryside," water service, and healthcare, and build sustainable cities and human settlements able to resist disasters</p>
 <p>12 RESPONSIBLE CONSUMPTION AND PRODUCTION</p>	<p>SDG12: Ensure sustainable consumption and production patterns</p>	<p>Focus on advancing mining technology while exploiting natural resources, dedicate to being an innovator in the upgrading of the metals industry, and contribute to the development and utilization of metals and minerals in China and the world through scientific and technological innovations</p>
 <p>13 CLIMATE ACTION</p>	<p>SDG13: Take urgent action to combat climate change and its impacts</p>	<p>Take the main responsibility for energy conservation and emission reduction, improve the monthly data analysis and warning mechanism, monitor the trends of energy conservation and emission reduction indicators, and detect abnormal data and give warnings</p>
 <p>14 LIFE BELOW WATER</p>	<p>SDG14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development</p>	<p>Signed a 15-year contract with the International Seabed Authority on the exploration of a 72,745-m2 polymetallic nodule mining area in the eastern Pacific Ocean, becoming the first Chinese enterprise to gain the right for exploration and preferential right for exploitation in international seabed area</p>
 <p>15 LIFE ON LAND</p>	<p>SDG15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse</p>	<p>Pay high attention to protection of land, biodiversity, and cultural relics in mining areas, and strengthen tailings reclamation management</p>
 <p>17 PARTNERSHIPS FOR THE GOALS</p>	<p>SDG17: Strengthen the means of implementation and revitalize the global partnership for sustainable development</p>	<p>Strengthen international cooperation, and develop global partnership</p>

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.Investor Communication
- 14.Resource Development and Utilization
- 15.Employee Rights Protection
- 16.Supply Chain Partnership
- 17.Career Development
- 18.Tax payment according to law
- 19.Salary and welfare
- 20.Biodiversity conservation

Stakeholder engagement

Stakeholder communication



We released the *China Minmetals Sustainability Report 2016*, which, for its high quality, won the GoldenBee Excellent CSR Report 2017 • Evergreen Award at the 12th International CSR Forum.

We participate in CSR seminars organized by industry associations and CSR advisory agencies to discuss CSR issues, share CSR practices and experience, and explore solutions to raising the level of CSR management. We were honored as Five-Star Enterprise of China's Industrial Sector by CSR Performance 2016 by China Federation of Industrial Economics (CFIE).



We guided our subsidiaries including Metallurgical Corporation of China Limited (MCC) and MMG Limited (MMG) to develop sustainability reports. Notably, MMG was granted the GoldenBee Excellent CSR Report 2016 • Overseas CSR Disclosure Award.

Stakeholder engagement

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



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
China International Council for the Promotion of Multinational Corporations	Deputy Chair
World Economic Forum	Deputy Chair
Accounting Society for Foreign Economic Relations and Trade of China	Deputy Chair
China Association for International Economic Cooperation	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
<i>China Occupational Safety and Health Council</i>	Council member
<i>China Environment News Council</i>	Council member
China Chamber of Commerce for Import and Export of Machinery and Electronic Products	
China Council for the Promotion of International Trade	
UN Global Compact	



Feature

China Minmetals Serves as the Pioneer of the Belt and Road Initiative

Leveraging the Corporation's competitive edge in operating across the whole industry chain after the recombination, China Minmetals actively implements the Belt and Road Initiative, promotes capacity cooperation with countries and regions along the Belt and Road, sticks to the localization strategy, and helps improve the wellbeing of local people.



Extensive presence in countries and regions along the Belt and Road

As of the end of 2017, China Minmetals had set up a total of 91 wholly owned or holding enterprises in 27 countries and regions along the Belt and Road, mainly engaging in project contracting, resource development, smelting, trade in minerals, property development, and financing services.

Metallurgical engineering and project operation

As a metallurgical and construction central SOE, China Minmetals engages in metallurgical engineering and project operation in 30 key targeted markets, taking the lead in exporting China's technological standards and whole industry chain mode to the rest of the world. It has gained trust of major greenfield steel project proprietors in countries and regions along the Belt and Road, won the bid for the Daxen steep project of Indonesia, signed the turkey contract with ACS of Spain, and struck contracts with TATA of India on the coking project and the 5,870-m3 blast furnace design and technical service for its KPO steel plant.

Case: 10-million-ton greenfield steel project put into operation

In May 2017, the No. 1 blast furnace of the Formosa Ha Tinh Steel Project in Vietnam constructed by MCC, one of the only two 10-million-ton greenfield steel projects in the world, was put into production. It is the largest steel complex in Southeast Asia and the one with the largest investment in Vietnam.

During the construction of the project, MCC enabled the whole industry chain of China's metallurgical and construction industry to "go global," drove service exports worth USD3.35 billion, and successfully exported China's super-large blast furnace core technology and equipment, with main technology indicators reaching the highest level among blast furnaces of the same grade.

Case: Steel project in Malaysia-China Kuantan Industrial Park comes into trial production

The Malaysia-China Kuantan Industrial Park (MCKIP) is a major intergovernmental project developed on the initiative of the leaders of China and Malaysia. In December 2017, two wire rod and bar production lines of the Kuantan steel project, the first project having moved into the MCKIP, were put into trial production.

MCC is the whole-industry-chain service provider for the Malaysia-China Kuantan steel project, responsible for overall design, core unit equipment, and a major part of construction tasks. With a designed annual capacity of 3.5 million tons, it is the first modern whole-process comprehensive steel plant the Chinese mainland has invested in and constructed overseas, and the largest steel project in Malaysia. The project is backed by world-leading environmental protection technology such as environment-friendly stock yard, and compact "one-tank" molten iron transportation, hot charging and hot delivery technology. The plant will produce bar, wire rod and H-shaped steel, filling in the gap in the ASEAN region. After being completed, it will attract a number of downstream and upstream enterprises to the Park, thus driving the services industry and promoting local economic development.



 **Feature**

China Minmetals Serves as the Pioneer of the Belt and Road Initiative

Leveraging the Corporation's competitive edge in operating across the whole industry chain after the recombination, China Minmetals actively implements the Belt and Road Initiative, promotes capacity cooperation with countries and regions along the Belt and Road, sticks to the localization strategy, and helps improve the wellbeing of local people.



Trade in resources

China Minmetals conducts trade in metals and minerals in dozens of countries along the Belt and Road. It has had electrolytic copper procurement agreements with KGHM Polska Miedz for 20 years, and is the largest importer of Polish products. It also carries out a lot of resource cooperation projects in South Asia and Central Asia.



Case: Duddar lead-zinc project in Pakistan

With controlled reserves of 9.9 million tons, the Duda lead and zinc project in Pakistan is designed to have a production capacity of 500,000 tons / year. The project consists of a lower system which is under construction and an upper system which is already in operation. In 2017, the upper system produced more than 38,900 tons of zinc concentrate and about 5,080 tons of lead concentrate, a year-on-year increase of about 152.63% and 154.71%, respectively. The lower system is expected to be put into production in 2020. The project has offered more than 900 jobs for the local community so far.



Case: World-class Ramu nickel/cobalt project

The Ramu nickel/cobalt project in Papua New Guinea is a large project that integrates mining, beneficiation and refining, with a total investment of RMB12.275 billion, the largest overseas nickel/cobalt investment by Chinese enterprises. The project has a design service life of 20 years, and the proven and controllable nickel reserves exceed 78 million tons.

In 2017, the Ramu nickel project was in stable operation and hit production targets. It produced 35,100 tons of metallic nickel throughout the year, which represents 107.7% of the designed capacity.



Pakistan Duda Lead and Zinc Project



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Non-steel projects

China Minmetals has energetically developed non-projects along the Belt and Road, and made great progress in urban infrastructural development, property development and road transportation projects. As a result, a pattern featuring the dominant position of metallurgical engineering and the two wheels of infrastructural construction and emerging industries has taken shape.



Case: MCC undertakes Kuwait university town project

The Kuwait university town project is the largest turkey project constructed by MCC in the Middle East, and is a key project of Kuwait. Located in Al Farwaniyah Governorate, it will be one of the world's largest university towns after completed.

Case: State highway project of Indonesia

The Cileunyi-Sumedang-Dawuan Toll Road (Phase II) being constructed by China MCC17 Group is a toll road in West Java, Indonesia, and is a longitudinal line of the Java ring road. The project includes two sections and the first highway tunnel of the country along the 3.9km road, and construction will last 1,095 days.

The project has drawn high attention from all walks of life in Indonesia. Indonesian President Djoko Widodo paid a visit to the construction site of China MCC17 Group for inspection.



Case: Singapore MRT project

The Thomson-East Coast MRT line connects the northern and southern parts of Singapore, and is the sixth line to be built. After completed, it will bring great convenience to people. Relying on its strengths in technology, China Jingye Engineering Co., Ltd. won the bid for the Bedok south station and tunnel project of the Thomson-East Coast line, and the project will last from April 28, 2016 to February 28, 2024.

Research and development

Under the Belt and Road Initiative, China Minmetals provides integrated services including "key technology - advanced equipment - evaluation - engineering design - project construction," and is cooperating with dozens of countries in technology development, consulting services, engineering contracting, and other areas.

Technology development and consulting services: Increase the iron and manganese recovery rate of projects through distinctive technology such as the micro-fine hematite ore dressing technology, complex and compound iron ore dressing technology, and low-grade, fine-grained, complicated and refractory siderite and limonite processing technology, which greatly improves the efficient and comprehensive use of local resources.

Project contracting: Serve as technology contractor for construction projects represented by the Chibuto mineral sands exploration project in Mozambique, and work to develop it into a world-class landmark mining project through solid laboratory technology research, in-depth technical and economic feasibility analysis, and scientific project organization.

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Fulfilling social responsibility along the Belt and Road

"Shared growth through consultation and collaboration" is the basic principle of the Belt and Road Initiative, and also the valuable experience China Minmetals has accumulated in its long-term global operations.

China Minmetals has more than 13,000 employees in countries along the Belt and Road. Its local subsidiaries take the initiative to fulfill social responsibility, understand local community development needs, work out community development plans, and help advance infrastructural development and improve healthcare facilities, becoming the economic and cultural ambassadors along the Belt and Road.

Promoting local development

Our projects have brought about positive changes to local communities and considerable benefits to shareholders, with important and far-reaching influence on the social and economic development of the countries and regions where they are conducted.

In 2017, the Ramu nickel/cobalt project in Papua New Guinea provided local business opportunities worth PKG7.786 million, brought PKG24.284 million to the local catering industry and PKG7.344 million to the local security industry, and paid land and environmental compensations of PKG2.134 million, and the annual expenses reached PKG41.548 million. For its diversified and outstanding CSR practices, the project was honored a model in CSR performance by the Papua New Guinea Chamber of Mines and Petroleum.

Over the past 15 years, the MCC Saindak copper-gold project has driven the economic development of the western desert area of Pakistan, and improved the strength and image of Pakistan's national industry. Since it came into production, the project has registered a total profit of more than USD3 billion, paid taxes of over USD70 million, employed more than 3,000 local people, and procured local materials worth nearly USD500 million, including transportation costs of about USD30 million paid to local transporters.

The project was hailed a paragon in China-Pakistan cooperation by former prime minister of Pakistan.



Conducting localized management

China Minmetals has vigorously expanded overseas markets and promoted the shift from traditional management of overseas projects to the localized management mode through constant innovations based on the experience in overseas project management and the implementation of multiple measures.

Measures of localized management:

- International management:** Increase the proportion of local employees and managers.
- Sub-contractor selection:** Use local and nearby labor resources when possible, and cultivate local teams for long-term cooperation.
- Rights and interests of local employees:** Implement personnel, holiday, and remuneration systems in accordance with local laws and regulations and local situations.
- Training of local employees:** Teach local employees China's advanced operating skills, by which they can make a living.
- Communication with local owners:** Actively take part in activities organized by local owners, and hire local security officers to handle relations with governments, workers' union, and residents.
- Cultural integration:** Pay attention to local culture and customs, identify the differences with Chinese culture and customs, and gradually integrate corporate culture and local culture.



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Reduce hunger

MMG celebrated 10 years of food security at Kinsevere Copper Mine of Congo in Africa, with the Farmers' Assistance Program helping over 20,000 villagers and supporting economic livelihoods in the region.

MMG's Las Bambas operation runs a number of productive agricultural projects, including the Andean Crops and Guinea Pigs projects, both started in 2016. These projects seek to deliver on multiple objectives, including food and economic security as well as the preservation of culture and heritage. The Andean Crops Project received an honourable mention in the 2017 Sustainable Development Award, presented by Peru's National Society of Mining, Petroleum and Energy (SNMPE).

"The project staff have provided constant support and training; they've taught us how to compost, how to harvest and how to fertilize. This has helped to improve our production."

—Hilda Aranguri, a community member from the community of Manuel Seoane Corrales

Protection of cultural heritage

In 2017, MMG Constructed and invested in community infrastructure across MMG's sites, including the chapel in Manuel Seoane Corrales community at Las Bambas in Peru. The chapel is built in full accordance to Peruvian legislation regarding earthquake-resistant building standards. MMG carry out support for cultural preservation at the Sepon operation, in conjunction with Lao government and James Cook University, Australia.

Health and disease prevention

The first 1000 days of a child's life are critical for future intellectual and physical development. Since 2012, MMG has invested approximately US\$3 million to support maternal and child health in Laos. In 2017, MMG contributed to the second phase of the project which aims to distribute micronutrients to a further 270,000 children across 22 districts in rural Laos with UNICEF. The project is reducing stunting and iron deficiency anaemia in children under two through community outreach, education, and provision of micronutrient supplements. One component of the 1000 Days project that makes a significant impact is the Breastfeeding Education program, implemented by Lao Women Union's volunteers. This vital work between MMG, experienced partners, governments and local communities continues to bring visible health outcomes and opportunities for those in need.

The breastfeeding education program has been really effective in a country where mothers traditionally feed their children sticky rice. This can result in a permanent physical and cognitive impairment as a result of stunting and malnutrition.

—Rebekah Kofoed, UNICEF Australia's International Programme Coordinator

In Kinsevere, MMG works hard to deliver on the ground campaigns and benefits to the local communities:

- measles immunisation campaigns, targeting more than 600 children under the age of five;
- World AIDS Day and HIV/AIDS community awareness campaigns, including voluntary HIV testing and training of regional medical staff;
- coordination with the Kipushi Health District; and support of the Kinsevere Community Health Centre;
- malaria awareness initiatives, which includes working to empower communities to minimise morbidity and mortality rates. Special efforts are made with the most vulnerable, including pregnant women and children under five;

Balochistan is the largest and least populous province in Pakistan, and its economic development is extremely uneven. The MCC Shandak Copper and Gold Project greatly promotes the development of local communities and improves local medical conditions. The surrounding people can freely inspect, diagnose, and reduce the cost of medicines and vaccines. On average, more than 6,000 person-times are inspected, diagnosed, and treated each year, and millions of rupees are reduced for the surrounding people.

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Protecting local environment

Embracing the green development concept, we abide by local environmental protection laws, regulations and standards, improve the environmental management system, strengthen communication with stakeholders, incorporate resource conservation and environmental friendly concepts into the whole life cycle of projects and the cooperation process, and work down to earth to guard against ecological and environmental risks, and protect local environment.

The Colombo-Katunayake Expressway (CKE) is the first expressway in Sri Lanka. In the process of construction, MCC minimized the impacts on local environment by taking into consideration environmental impacts and resource efficiency, establishing the environmental management system, improving processes and technology, and embedding environmental protection concepts into every link of project development and construction.



Noise reduction: Set up sound barriers in densely populated areas and key scenic areas, and use rotary tables to reduce noise from construction.



Aquatic life protection: Open up circulating water channels in the lagoon to facilitate the migration of fish and shrimps.



Sewage treatment: Set up oil-water separation cells at road sections reclaimed from the sea, and allow the rainwater, after sedimentation, to flow to the lagoon.

Community education

MMG is promoting gender enrollment at the Kinseyville Copper Mine to help children and women build awareness of rights. At present, girls account for 50% of primary school students, compared with less than 30% a few years ago, and the proportion of child marriage has also declined.

The China Metallurgical Sandak Copper and Gold Project promotes local education: funded the operation of Sandak Primary School, enabling more than 600 children in the vicinity to receive free education. Assisted the provincial government and mining bureau to establish a mining training school, and jointly invested nearly 30 million rupees with the owners to establish a technical training school.

Improve people's livelihood conditions

The MCC Shandak Copper and Gold Project specifically purchases water delivery vehicles, providing nearly 2,000 villagers in five nearby villages with safe and sanitary water for free. Improve the local energy situation, install power transmission facilities for surrounding villages and provide free electricity to let the surrounding villagers live an electrified life. The annual cost of electricity to surrounding villages is nearly \$800,000.

MMG provides the community with the building materials needed to build and repair toilets at the Kingsville Copper Mine. MMG plans to repair 320 toilets per year.

Engaging in disaster relief

In the middle of March 2017, the northern and central parts of Peru, including the capital Lima, were struck by floods. Tens of thousands of houses were destroyed, roads were seriously damaged, and hundreds of thousands of people became homeless.

In response to the call of the central government of Peru, MMG Las Bambas joined the disaster relief efforts immediately, and provided food and drinking water for more than 500 affected households in several temporary shelters.



In November 2017, the employees of Ramu Nico Management (MCC) Limited rescued 17 people from drowning in the sea, including two children. Two bodies of the victims were also recovered. Upon rescuing the people out of water, the employees contacted the local police and sent them to the hospital without delay.

Be Valuable

In 2017, against the backdrop of the fast-growing Chinese economy and the recovering global economy and mining market, China Minmetals seized the development opportunities, kept the ultimate goal of operation in mind, and saw its operational quality steadily improved, and the supply-side structural reform advanced across the board. We sped up the upgrading of the traditional industries, increased inputs in emerging industries, and achieved healthy development of diversified industries; took solid steps to address tough problems, and actively carried out internal and external cooperation. Our operating revenue and total profit both hit all-time highs.

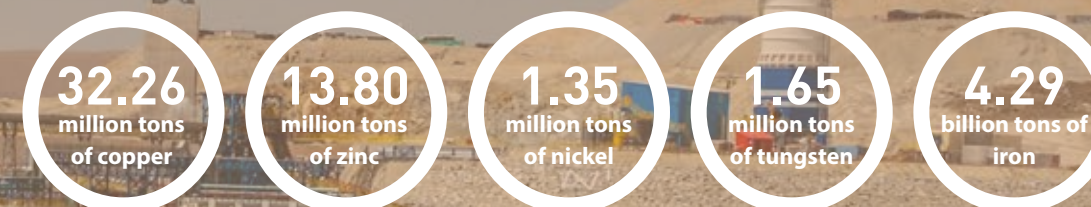


China Minmetals posted a total profit of RMB **12.1** billion and operating revenue of RMB **493.4** billion, a year-on-year growth of **200%** and **13%**, respectively; it beat the targets in the SASAC evaluations, with operating revenue and profit hitting new records

China Minmetals moved up five places in the fourth ranking of the World's Most Admired Companies, ranking the fourth in the metals industry.



Reserves of main metals:



The actual business volume of metallic minerals increased 17.3% year on year, breaking the 100-million-ton mark for the first time.

The output and reserves of copper and zinc were among the top ten in the world, and tungsten, antimony and bismuth reserves ranked the first.

Resource exploitation

In 2017, we continued to take metallic minerals as the core business, and strengthen the ability to obtain domestic and overseas resources and manage mines. We saw a remarkable increase in trade in resources, and thus contributed to ensuring the country's metals supply and improving China's capacity for global resource allocation.

Creating a powerhouse in the international metals and minerals industry

China Minmetals is dedicated to developing into a powerhouse in the international metals and minerals industry. Abroad, we advanced the management reform and lifted our global operation capacity to an industry-leading level. We ensured steady operation of world-class super-large mines we designed, constructed and operated independently, including the Las Bambas copper mine located in Peru, Dugald River zinc mine in Australia, and Ramu nickel mine in Papua New Guinea, and the Kinsevere copper mine in the Democratic Republic of the Congo, and successfully turned our advantages in resources into economic benefits. Domestically, we strove to reduce costs and improve efficiency of mines, and phase out outdated mines, and saw a continued decrease in production costs. Through the construction of new-type green production bases, we enhanced the competitiveness of traditional smelting companies, and took the lead in industrial transformation and upgrading.

Case: Las Bambas copper mine in full production throughout the year

In 2017, the Las Bambas copper mine in Peru strengthened safety, cost and output management, and effectively mitigated community risks. The ore dressing recovery percentage saw a more-than-expected increase. Throughout the year, the copper mine was in full production, producing 454,000 tons of copper from high-quality copper concentrate. It ranked the 7th in the world by single mine copper output, and fully translated its advantages in resources into economic benefits.



the Las Bambas copper mine in Peru



Dugald River zinc mine completed and put into production commemorative card unveiled

Case: Dugald River zinc mine in Australia goes into operation

In November 2017, the Dugald River zinc mine in Australia was put into operation two months ahead of schedule, enabling China Minmetals to regain its position as one of the world's main zinc producers. The Dugald River zinc mine has zinc ore reserves of 65 million tons with an average grade of 12% zinc, and is one of the largest zinc mines with the highest grade of zinc in the world. Adopting underground mining and conventional flotation technology, the mine has a designed annual mining capacity of 1.7 million tons, the annual output of zinc is over 170,000 tons and a service life of more than 25 years, and will be one of the ten largest zinc mines in the world.

Case: Construction of the copper-lead-zinc industrial base started in Hunan

In November 2017, the construction of China Minmetals Copper-Lead-Zinc Industrial Base commenced at the Shuikoushan Circular Economy Industrial Park of Changning City of Hengyang, Hunan Province. With an estimated investment of over RMB10 billion, the base has a designed annual capacity of "300,000 tons of copper, 300,000 tons of zinc, and 100,000 tons of lead." After put into production, the base is expected to post annual output value of RMB22.6 billion and profit & tax of RMB1.5 billion. The project can address three issues at the same time: the relocation of Zhuzhou Smelter Group, the transformation and upgrading of Hunan Shuikoushan Nonferrous Metals Group Co., Ltd. (SKS), and the improvement of competitiveness of Minmetals Copper (Hunan) Company Limited, open up new development space for China Minmetals in Hunan, and set an example for the supply-side structural reform and the transformation and upgrading of the non-ferrous metal smelting industry of China.



Copper, lead and zinc industrial base started

Trade and logistics

We introduce innovative trade modes and endeavor to build a greater circulation trade system. Relying on the distinct resource advantage of the Las Bambas copper mine, we expanded cooperation with mines and smelting companies around the world, and achieved an exponential growth from hundreds of thousands of tons to millions of tons in copper concentrate trade. We signed long-term trade agreements on access to 17.23 million tons of upstream resources, including 7.5 million tons of iron ore and 8.98 million tons of coal, a year-on-year increase of 275% and 52%, respectively.



Case: Cooperation agreement inked on 100m-ton iron ore trade and blending center

On November 6, 2017, China Minmetals signed cooperation agreements with Caofeidian Port Group Co., Ltd., HBIS Group, Shougang Group and COSCO on the establishment of the Caofeidian International Iron Ore Exchange Center. According to the agreements, they will work together to build a 100-million-ton new-type environment-friendly, intelligent, efficient and fully functional iron ore trade and blending center integrating such functions as bonded warehousing, ore blending, value preservation, financing, and spot and forward delivery warehouses. After completed, the exchange center will provide one-on-one individualized services for steel companies, give a strong impetus to the transformation and upgrading of China's iron and steel industry, and give Chinese enterprises a bigger say in the international iron ore market.

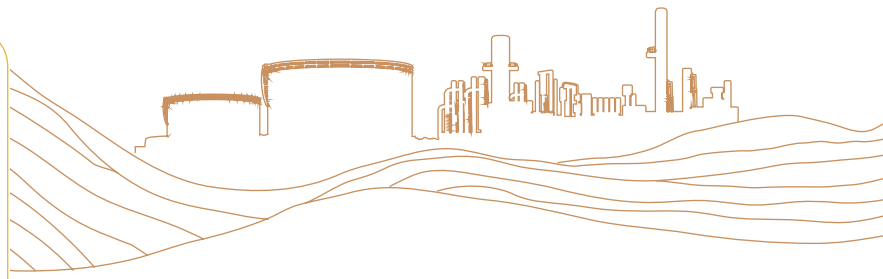


China Minmetals Caofeidian International Ore Trading Center Cooperation Agreement Signing Ceremony



Case: China Mining Co., Ltd. designated as delivery factory

In May 2017, Zhengzhou Commodity Exchange announced that China Mining Co., Ltd., a subsidiary of China Minmetals, would be designated as a manganese and silicon futures delivery factory, and would conduct manganese and silicon futures delivery business starting from June 22. This can greatly reduce the company's delivery costs and improve its reputation.



Engineering and construction

In the field of engineering and construction, we focus on elevating our status as China's largest metallurgical engineering contractor, roll out new targeted measures to improve engineering and construction management, foster new competitive edges, adopt innovative marketing thinking and modes, and see a dramatic growth in market size. The proportion of new and high-tech projects and comprehensive projects increased steadily, representing a new step toward the high-end market.

In 2017, the amount of newly signed contracts passed the threshold of RMB **600** billion

There were 258 contracts worth over RMB **500** million each, up 43% year on year

The world's No. 1 in metallurgical engineering

We continuously strengthen our integrated operational and service capacity in metallurgical engineering, and maintain an absolute advantage in domestic major metallurgical projects and greenfield steel projects along the Belt and Road. In 2017, we signed new metallurgical engineering contracts worth RMB78.5 billion in total, an increase of 44.3% year on year, taking the lead in exporting China's metallurgical technical standards and the whole industry chain mode to the world.



Case: Zhanjiang iron and steel base comes into operation

The Zhanjiang iron and steel base constructed by MCC is designed to annually produce 8.23 million tons of molten iron, 8.928 million tons of molten steel, and 9.44 million tons of rolled steel. Covering an area of more than 12 km², it is a world-class 10-million-ton low-carbon steel base. In 2017, the iron and steel base came into full production, becoming the most cost-effective production base of Baosteel. The steelmaking project won the 2017 Luban Prize for Construction Project.

Relying on its advantages in management, technology and services, MCC undertook tasks including equipment maintenance, production, mechanical operation and technological transformation, and provided whole-process and whole-industry-chain services ranging from raw material wharf to transportation of finished products, so as to ensure that the base hits production targets, complies with standards, and meets the requirements for efficiency and energy consumption.



Zhanjiang Iron and Steel Base Construction

Advancing infrastructural construction

We implement meticulous management of project construction, keep up with the Belt and Road Initiative, domestic hot spots and market opportunities in developed regions, strengthen cooperation and communication with governments and other companies, and have outstanding construction and service capacity in urban transportation facilities and infrastructure such as highways, airports, ports, and rail transit systems. We have achieved remarkable results in utility tunnels, high-end housing construction, middle- and high-end property development, steel structure and other fields, and conducted world-class projects to facilitate people's travel, serve urban development, and improve people's lives.

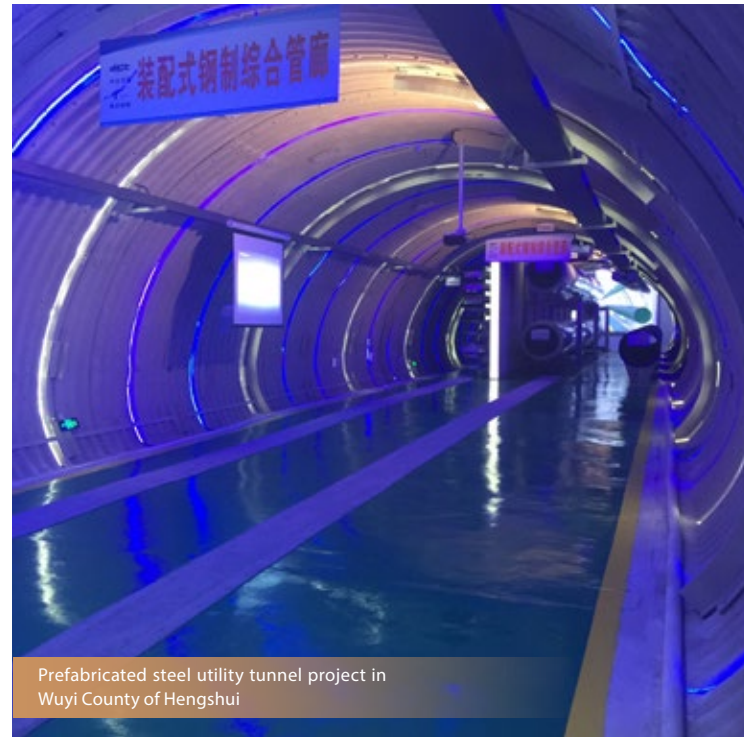
Case: Shanghai Baoye Group signs contract on National Sliding Center

In December 2017, Shanghai Baoye Group Co., Ltd signed the contract on the National Sliding Center, a key project of the Beijing 2022 Olympic Winter Games. The center will host all bobsled, skeleton and sledding competitions. Its main tracks will be the only tracks with slaloms in Asia, and are the most complicated and difficult part in the design and construction of the Olympic venues.

Case: Consolidate the leading position in the pipe industry

In 2017, MCC won 42 PPP projects for the construction of utility tunnels with a total length of 417 kilometers and total investment of RMB45.3 billion, and undertook a number of major projects including the utility tunnel project in Hengshui of Hebei Province. MCC Utility Tunnel Construction Co., Ltd became one of the first enterprises to move into the Xiong'an New Area.

In 2017, MCC released the local standard for its self-developed prefabricated corrugated steel utility tunnel technology, the first of its kind in China. It also advanced intelligent tunnel construction, conveyed and integrated information in the phases of tunnel planning, design, construction, operation and maintenance using the intelligent expert system and big data technology, and established the GIS-BIM integrated intelligent service platform, achieving intelligent control of the whole life cycle of utility tunnels.



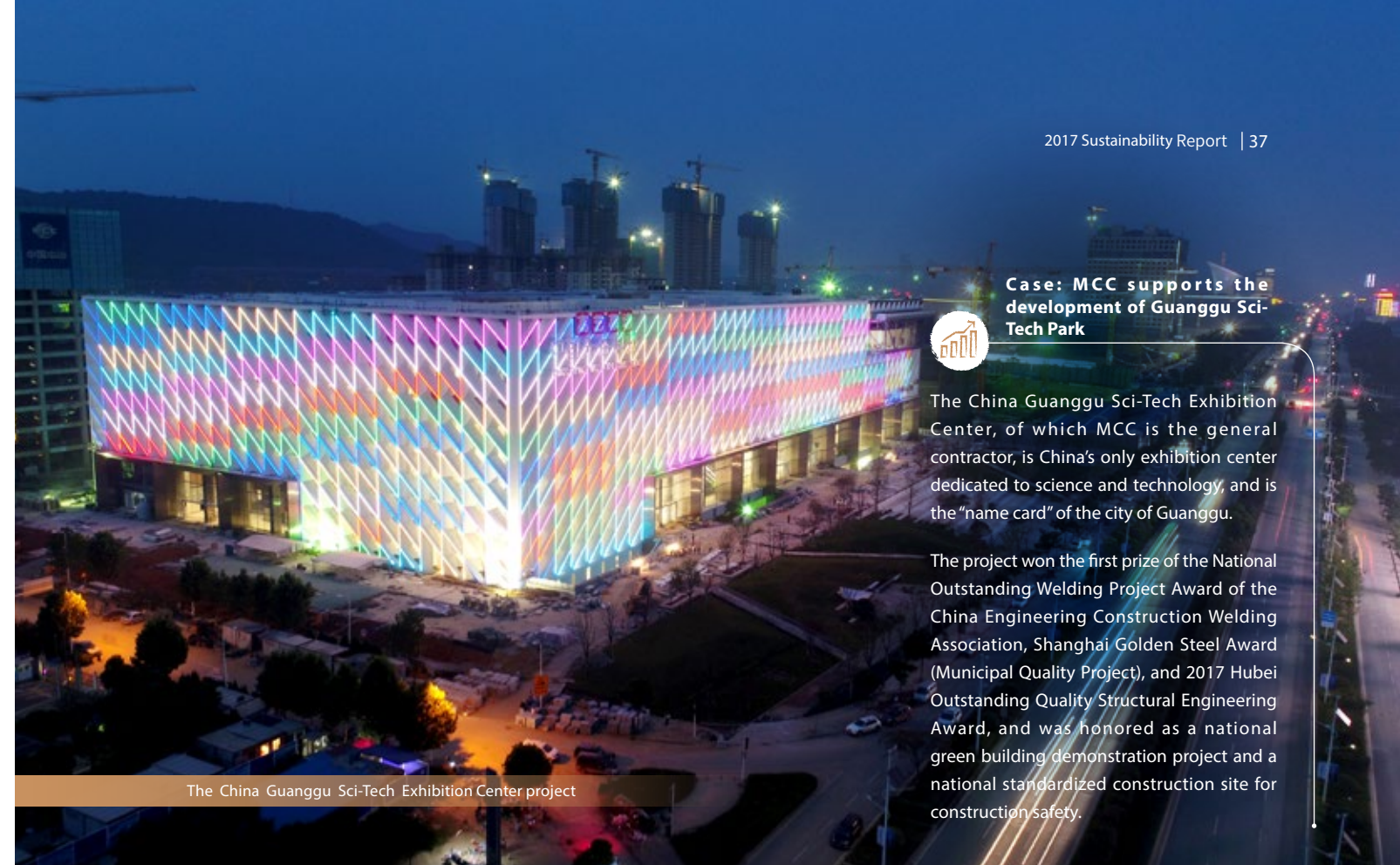
Prefabricated steel utility tunnel project in Wuyi County of Hengshui

Case: MCC supports the development of Guanggu Sci-Tech Park



The China Guanggu Sci-Tech Exhibition Center, of which MCC is the general contractor, is China's only exhibition center dedicated to science and technology, and is the "name card" of the city of Guanggu.

The project won the first prize of the National Outstanding Welding Project Award of the China Engineering Construction Welding Association, Shanghai Golden Steel Award (Municipal Quality Project), and 2017 Hubei Outstanding Quality Structural Engineering Award, and was honored as a national green building demonstration project and a national standardized construction site for construction safety.



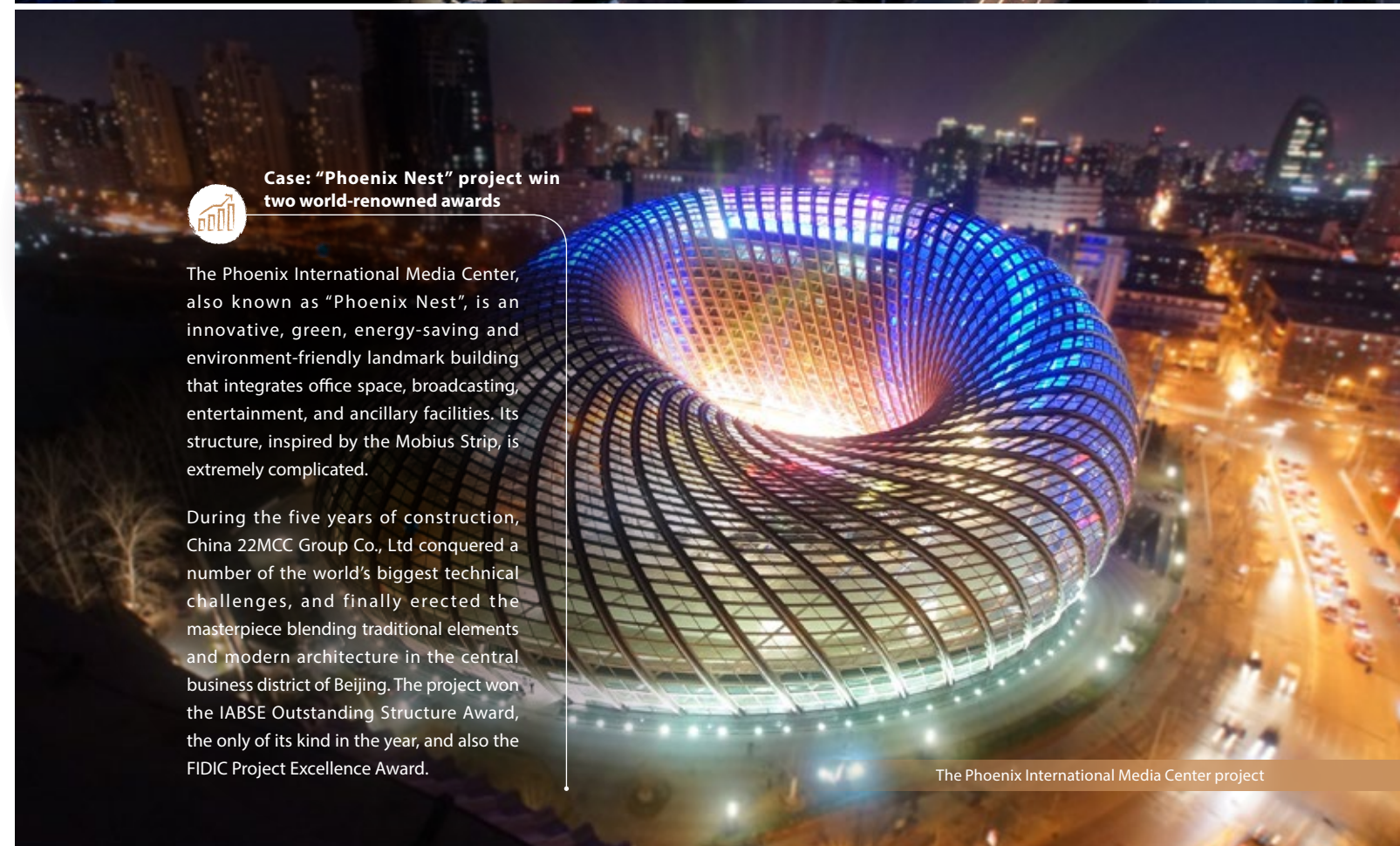
The China Guanggu Sci-Tech Exhibition Center project

Case: "Phoenix Nest" project win two world-renowned awards



The Phoenix International Media Center, also known as "Phoenix Nest", is an innovative, green, energy-saving and environment-friendly landmark building that integrates office space, broadcasting, entertainment, and ancillary facilities. Its structure, inspired by the Mobius Strip, is extremely complicated.

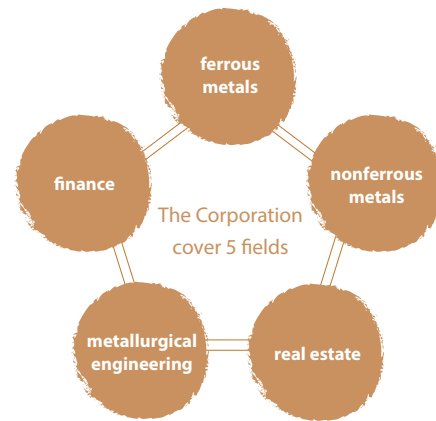
During the five years of construction, China 22MCC Group Co., Ltd conquered a number of the world's biggest technical challenges, and finally erected the masterpiece blending traditional elements and modern architecture in the central business district of Beijing. The project won the IABSE Outstanding Structure Award, the only of its kind in the year, and also the FIDIC Project Excellence Award.



The Phoenix International Media Center project

Finance and real estate

We actively engage in financial and real estate business in an effort to cope with the cyclical fluctuations of the metals and minerals industry and secure the sustainable and healthy development of the Corporation. The eight listed enterprises under the Corporation cover such fields as ferrous metals, nonferrous metals, real estate, metallurgical engineering, and finance, with a total market capitalization of more than RMB200 billion and equity market capitalization of around RMB110 billion.



Own **8** listed enterprises

a total market capitalization of more than **200** billion

equity market capitalization of around **110** billion

Real estate

We focused on high-end housing, adopted targeted policy in different cities, increased efforts in liquidizing the inventory, rapidly reduced the inventory and delivered high-margin projects ahead of time in third-tier and fourth-tier cities, and saw our reputation elevated in the industry.



Honor Mansion by MCC Real Estate

Finance

Bearing in mind the purpose of serving the real economy, we are licensed to deliver a full range of financial services, and conduct industrial investment, M&A, restructuring and capital operations through integrating financial resources. Venture capital platforms and fund management companies were also established in order to provide strong strategic support for developing ourselves into a state-owned investment corporation.



We worked to reduce debts. Benefiting from its commercial operation, we repaid the USD1 billion principal of the loans for the Las Bambas copper mine, saving interest cost of USD51 million a year.



In May 2017, Minmetals Capital went public on the Shanghai Stock Exchange, marking that China Minmetals has securitized financial assets and become a financial corporation licensed to provide a full range of financial services.



In 2017, Minmetals International Trust Co., Ltd was given an "AAA" long-term credit rating with an outlook of "stable", indicating that its stable, sustained and quality development has won wide recognition from agencies. Minmetals Financial Services (Shenzhen) Co., Ltd won the 2017 Junding Prize for Futures Risk Management Subsidiaries sponsored by the Securities Times.

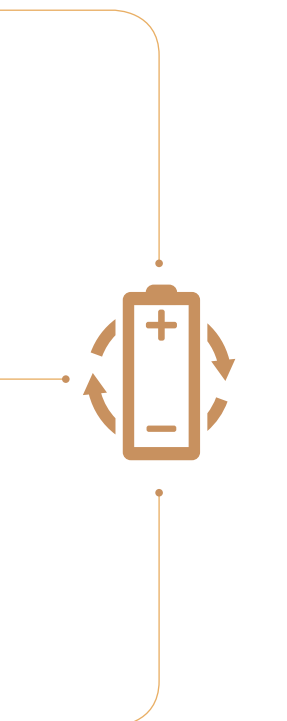


"Minmetals Capital" officially listed on the Shanghai Stock Exchange

Industrial upgrading

We capitalized on the advantages in resources and technology to foster new drivers of growth. On the basis of the ternary precursor project of Ramu New Energy (MCC) Limited, the battery cathode material project of Changsha Research Institute of Mining and Metallurgy, and the Yiliping project of Minmetals Salt Lake Limited, the new materials business segment covering the whole industry chain was set up, driving the core business of metals and minerals to leap toward the high end of the value chain and industry chain and opening up new space for innovation and development.

<p>Ternary precursor project of Ramu New Energy (MCC) Limited</p>	<p>In October, China Minmetals invested RMB3.69 billion to establish Ramu New Energy Limited in Caofeidian. Its ongoing ternary cathode precursor project for lithium-ion batteries is the largest in China. The new materials project is aligned with the national industrial policy and the expectation of the new energy vehicle market. After completed, it will extend the upstream nickel, cobalt and manganese resources of China Minmetals to the downstream sector.</p>
<p>Battery cathode material project of Changsha Research Institute of Mining and Metallurgy</p>	<p>In July 2017, China Minmetals officially launched the project of Changsha Research Institute of Mining and Metallurgy on the commercialization and technological transformation of cathode materials for vehicle batteries. After completed, the project will increase the capacity of cathode materials by 20,000 tons, and further consolidate the leading position of China Minmetals in the field of cathode materials for lithium-ion batteries.</p>
<p>Yiliping project of Minmetals Salt Lake Limited</p>	<p>In September 2017, the first 150kg industrial lithium carbonate products backed by the self-developed technology of Minmetals Salt Lake Limited were ready for delivery at the Yiliping project, marking that Minmetals Salt Lake Limited has solved the worldwide difficulty in extracting lithium from high Mg/Li ratio salt lake brines and entered the stage of industrialized extraction of lithium from salt lake.</p>



Inner Flotation Workshop of the Minmetals Salt Lake Project

Deepening reform

In 2017, we achieved substantial results in streamlining and in improving quality and efficiency. We advanced reform to address institutional barriers to our development, completed the joint-stock reform, and launched primary-level reforms in first-tier subsidiaries.

Streamlining

Focusing on principal contradictions and key links, we reduced the levels of legal persons to 12 and the levels of management to four. We also drew up the plan to further cut the levels of legal persons to 10 and reduce the number of legal persons. According to the relevant policy, we handed over gas, heat and water supply and property management of the residential areas for employees to specialized private enterprises in a steady and orderly manner.

We addressed the issues of “zombie enterprises” and troubled enterprises with the utmost determination, completed the annual tasks in advance, and achieved the objective of controlling losses.

Business synergy

After the recombination, we set up a leading group for creating a hundreds of billion yuan internal market to guide and advance work in a more effective and efficient manner. The awareness of collaboration inside the Corporation was greatly enhanced, and the volume of business handled through collaboration saw a dramatic increase. We signed internal contracts with a total amount of RMB121.5 billion, and carried out contracts worth RMB97.5 billion. Rapid progress was made in creating a vast internal market, and the competitiveness of the whole industry chain was fully unleashed, setting an example for the complementary recombination of central SOEs.

Business management

Our cost account for the proportion of operating revenue decreased by 2.4 percentage points year-on-year, and the growth rate of the cost of finished goods and accounts receivable was much lower than that of operating revenue. The net cash inflow exceeded RMB30 billion for the third consecutive year. Our asset-liability ratio fell by 1.78 percentage points from the previous year, the turnover of current assets increased 0.04, and our operational quality improved significantly.



China Minmetals participated in the central enterprise's slimming fitness to improve quality and efficiency work mobilization deployment video conference

Be Innovative

Innovation is the primary force for high-quality development, and the prerequisite for building China into a modern socialist country. Following the new development concepts, China Minmetals sticks to the path of high-quality development, implements the innovation-driven strategy, increases inputs in innovation, and improves innovation capacity so as to make breakthroughs in key technology and provide a lasting impetus for sustainable and healthy development.



Performance in 2017

4 national technological innovation platforms newly established

National scientific and technological awards:
4 prizes

- 1 second prize of the National Technological Invention Award
- 3 second prizes of the National Scientific and Technological Progress Award

Metallurgical Science and Technology Award:
17 prizes

- 1 special prize
- 5 first prizes
- 2 second prizes
- 9 third prizes

18 prizes in the China Construction Industry Association BIM Competition, one of the most among central construction SOEs

21 patents won awards of the 19th China Patent Awards :

- One patent won the golden prize and won the China Patent Gold Award for three consecutive years
- 20 patents won the excellence Awards

Science and Technology Award of Chinese Nonferrous Metals Industry:
19 prizes

- 7 first prizes
- 8 second prizes
- 4 third prizes



Consolidating the foundation for innovation

China Minmetals combed and improved technological innovation systems and actively undertook national scientific research projects, strengthened the construction of national technological innovation platforms, and coordinated the construction of technological innovation bases to consolidate the foundation for technological innovation, and improve the capacity for original innovation.

Improved the layout of technological innovation platforms

Expanded the layout of and brought into full play the leading role of national technological innovation platforms; strengthened collaborative innovation between technological innovation platforms; strengthened the construction of Corporation-level technological innovation platforms in weak links, and worked to boost the development of core businesses, and foster strategic emerging industries

Actively undertaking national scientific research projects

The company has undertaken 54 national scientific research projects or tasks in such areas as deep geo-resources, green building materials, key basic materials, deep-sea resources, public safety, efficient utilization of water resources, etc.

Strengthened the construction of national technological innovation platforms

36 national technological innovation platforms; the International Joint Research Center of Seabed Mineral Exploration was approved, our first international sci-tech cooperation base

Case: The International Joint Research Center for the Development of Seabed Mineral Resources co-founded by Changsha Research Institute of Mining and Metallurgy Co., Ltd and Changsha Institute of Mining Research was approved by the Ministry of Science and Technology



The International Joint Research Center for the Development of Seabed Mineral Resources co-founded by Changsha Research Institute of Mining and Metallurgy Co., Ltd and Changsha Institute of Mining Research conducts research on key issues in deep-sea mineral exploration, focusing on the needs of the major seabed mining projects of China. It is China's only international joint research center in marine mineral exploration, and is of great significance to enhancing China's level of international cooperation and global competitiveness in deep-sea mining and propelling commercialized exploitation of sea-bed mineral resources.

Making breakthroughs in technological innovation

China Minmetals continuously strengthened its capacity for original innovation and independent innovation, took the lead in undertaking key technology tasks, made breakthroughs in a number of future-looking, original and disruptive technologies, and achieved an abundance of innovation outcomes, enabling it to gradually become a pioneer in technological innovation.



The "energy dissipation - load bearing dual-functional metal components and high-performance damping structure" of Central Research Institute of Building and Construction Co., Ltd won the second prize of the National Technological Invention Award



The "research on key anti-seismic technology for industrial structure and the application" of Central Research Institute of Building and Construction Co., Ltd won the second prize of the National Scientific and Technological Progress Award



The "R&D and application of efficient energy-saving and environment-friendly sintering technology and equipment" of Zhongye Changtian International Engineering Co., Ltd was granted the second prize of the National Scientific and Technological Progress Award



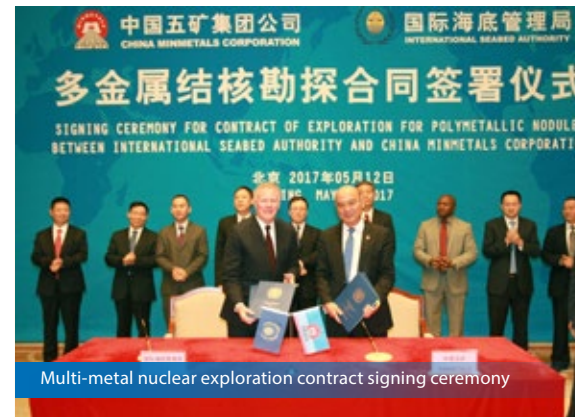
The "R&D and industrial application of mineral processing technology for micro-fine complicated and refractory hematite-magnetite iron ores" of Changsha Research Institute of Mining and Metallurgy and Northern Engineering & Technology Corporation (NETC) of MCC won the second prize of the National Scientific and Technological Progress Award



Case: Strategic resource exploration in international seabed areas

In May 2015, China Minmetals signed a 15-year contract with the International Seabed Authority on the exploration of a 72,745-km² poly-metallic nodule mining area in the eastern Pacific Ocean, becoming the first Chinese enterprise to gain the right for exploration and preferential right for exploitation in international seabed areas.

In December 2017, the Corporation's international seabed mining exploration concluded successfully. It was the first of its kind conducted by Chinese enterprises, and also an important part of China's Jiaolong deep-sea research project. The voyage completed more than 20,000 kilometers during 95 days, and accumulated a large amount of data, laying an important foundation for future explorations.



Multi-metal nuclear exploration contract signing ceremony



Case: Mineral processing technology for micro-fine hematite-magnetite iron ore of Yuanjiacun

The low-grade fine-grained ores and overall low level of utilization are unable to meet the needs of China's modernization and industrialization drives. The Yuanjiacun iron ore is a typical micro-fine complicated and refractory hematite-magnetite iron ore.

Changsha Research Institute of Mining and Metallurgy and Taiyuan Iron & Steel (Group) Co., Ltd conducted joint research on the iron core, and established the 22 million t/a hematite-magnetite iron ore dressing plant with the largest capacity in China. Backed by a set of efficient mineral processing technology for micro-fine hematite-magnetite iron ores, the project as a whole has reached the world-leading level. The technology can greatly reduce energy consumption, prevent environmental pollution caused by coal-fired flue gas, and achieve zero discharge of waste water, and can set an example for the development and utilization of fine-grained refractory ores in China.



Taiyuan Iron & Steel (Group) Co., Ltd Yuanjiacun Flotation Cleaning System

Advancing intelligent mining

Technological advances and data application will have a far-reaching influence on the mining industry. The rapid technological advances represented by big data, internet of things and intelligence will gradually penetrate into all links of the mining industry chain. China Minmetals for the first time proposed the development roadmap for intelligent mining industry chain based on big data to transform the mining industry from a traditional industry to a high-tech industry and to make the mining industry more intelligent.



The first intelligent mine in China - Dongguashan Copper Mine

- Developed the intelligent mining technology development report

- Set up platforms for cooperation between enterprises and research institutes, and organized more than 10 exchange events and field surveys with over 300 participants

- Guided Hunan Shizhuyuan Non-ferrous Metals Co., Ltd to experiment with intelligent mining and prepare the Master Plan for the Construction of Intelligent Mines; and guided Minmetals E & D to establish the mining big data platform, and Changsha Research Institute of Mining and Metallurgy to conduct R&D of the intelligent deep-sea mining system.



Case: Minmetals E & D conducts "Data mining" program

In 2017, Minmetals E & D advanced the construction of the mining database and data application, promoted the mining data management standard, mining right management system and mineral resource spatial data component development, and carried out the "data mining" program. It made full use of data for data analysis, modelling and evaluation to address the problems in resource exploration, mining and production. It used data as assets in a comprehensive way and improved the operation and management of mines, laying a foundation for intelligent mines and their cost control.

Protecting intellectual property rights

China Minmetals attaches great importance to the protection of intellectual property rights (IPR). In 2017, it strengthened the construction of IPR management systems, increased inputs in the creation, protection and application of IPR, and achieved fruitful results in technological innovation and IPR.

China Tungsten and High-tech Materials Co., Ltd set up a project team and officially launched research on IPR regarding tungsten and cemented carbide, providing reference for the company's strategic decision-making, technology research and development, product development, market development and industrial layout.

5 subsidiaries were designated as the national exemplary enterprises in intellectual property

1 subsidiaries was designated as the national leading enterprise in intellectual property

MCC ACRE Coking & Refractory Engineering Consulting Corporation was honored one of the 2016 Ten Most Influential Enterprises in IPR.

Incentivizing and empowering talents

Talent is the foremost resource of innovation. China Minmetals always puts people first to stimulate the vitality of innovation, and attaches great importance to the team building of technology professionals and recruitment and cultivation of talents, so as to provide strategic support for the endeavor to create a powerhouse in the metals and minerals industry.

In 2017, the company newly set up the patent award, which was granted to 38 outstanding scientific and technological achievements (including 1 outstanding contribution prize), 15 advanced units and 24 teams. The award's bonus standard was greatly raised to stimulate originality.

Case: Yue Qingrui elected academician of the Chinese Academy of Engineering

In 2017, Yue Qingrui, Chairman of Central Research Institute of Building and Construction Co., Ltd was elected an academician of the Chinese Academy of Engineering. Mr. Yue has rich research experience in industrial structure, and has won a number of national awards. He is an expert for the Ministry of Science and Technology and the Ministry of Housing and Urban-Rural Development, and a chief of key technological innovation platforms, and has participated in the development and evaluation of national key scientific and technological development plans including the plan for national major innovation bases, and the key new materials R&D and application plan included in the National Plan for Scientific and Technological Innovation.



As of the end of 2017, China Minmetals had **22,994** effective patents cumulatively including **6,580** invention patents. In 2017, we obtained **3,709** new patents including **1,233** invention patents.



Case: China ENFI's method for producing polycrystalline silicon wins golden prize of China Patent Award

The patent on the method for producing polycrystalline silicon held by China ENFI Engineering Corporation (China ENFI) creatively proposes the idea of "tiered separation and purification, and dynamic purification cycle," and disruptively turns the "tail gas" generated through the traditional production technology into the gas for reaction process.

The method for producing polycrystalline silicon can raise the recycling rate to 99.99%, reduce production costs by 80%, and solve the key difficulties in mass production. China ENFI has made large-scale, low-cost and clean production of polycrystalline silicon a reality, accelerated integration and application of advanced technology on a global scale, and driven the rapid development of China's polycrystalline silicon industry.



Yue Qingrui elected academician of the Chinese Academy of Engineering



Academician Yu Yongfu

As of the end of 2017, the Corporation had more than 85802 technology professionals

including **3** academicians of the Chinese Academy of Engineering, **1** participant of the National Special Support Program for High-level Talents, **8** participants of the New Century Talents Program, over **8,277** R&D specialists, and **24,805** scientific and technological staff.



Academician Yu Lancang

Promoting industrial progress

Following the concept of open and shared development, we bring into full play our leading role, and host and participate in various events in the industry. We have a group of exemplary enterprises which lead the industry and drive industrial progress.

In November 2017, Zhuzhou Cemented Carbide Cutting Tools Group (ZCCCT) was included into the second batch of national exemplary manufacturing enterprises, elevating its competitive edge and international influence in the cemented carbide industry.

In November 2017, China First Metallurgical Group passed the review of the National Technological Innovation Demonstration Enterprise, becoming the fifth under the Corporation to win the title following ZCCCT, WISDRI Engineering & Research Incorporation Limited, ACRE, and China MCC17 Group Co., Ltd.

CISDI Group energetically promoted the in-depth integration of the internet, big data and artificial intelligence with the real economy, and made significant breakthroughs in the application of big data in urban development and rural revitalization on a "borderless, flexible, ecological, cultural and innovative" basis. It provided strong support for the "Guizhou-Cloud Big Data" initiative, and made the best use of big data to benefit the industry and the people.



China Enfi belonged to China's Minmetals builds the world's first digital mine control system construction project by Chinese enterprises at the Chambishi copper mine in Zambia

Be Safe

Production safety is essential to people's wellbeing and social and economic development. China Minmetals puts safety far above all other priorities, and strives to build a safety and environmental protection management system and team that contributes to its endeavor to create a powerhouse in the metals and minerals industry. It works to achieve the safety objectives of "zero accident, zero injury, and zero occupational disease" and create a healthy and safe work environment for employees, and sees to it that the subsidiaries earmark and use safety funds appropriately.



Performance in 2017

Total inputs of RMB

2.99058

billion in safe production

8 projects up to national **safety standards for construction sites**

Hunan Shuikoushan honored a model unit in the national "Month of Safe Production" and

"Safe Production in All Enterprises" campaign

China Minmetals Non-ferrous Metals Holdings Co., Ltd named an **outstanding unit of Hunan province in safe production**



Safety management

We bear in mind safety concepts, earnestly study the guiding opinions of the Party and the State Council on safe production, strictly fulfill the main responsibility, and further improve the safe production responsibility system, risk prevention and control system, and regulatory and supportive system. We continue to strengthen regulation on key projects, emerging industries, and projects in key regions and remote areas, standardize safety management of overseas subsidiaries, improve overseas safety supervision capacity, and strengthen the incident reporting mechanism.

Total inputs of RMB
2.99058
 billion in safe production

Improving responsibility system

In 2017, we performed safety responsibilities, signed safe production responsibility agreements with units at all levels, increased the strength of the assessment of the accident assessment in safety production, and promoted manufacturing subsidiaries at all levels to develop safe production responsibility checklists. We continued implementing the shared safety responsibility system and the safety accountability system, and strictly implemented the safe production responsibility system.



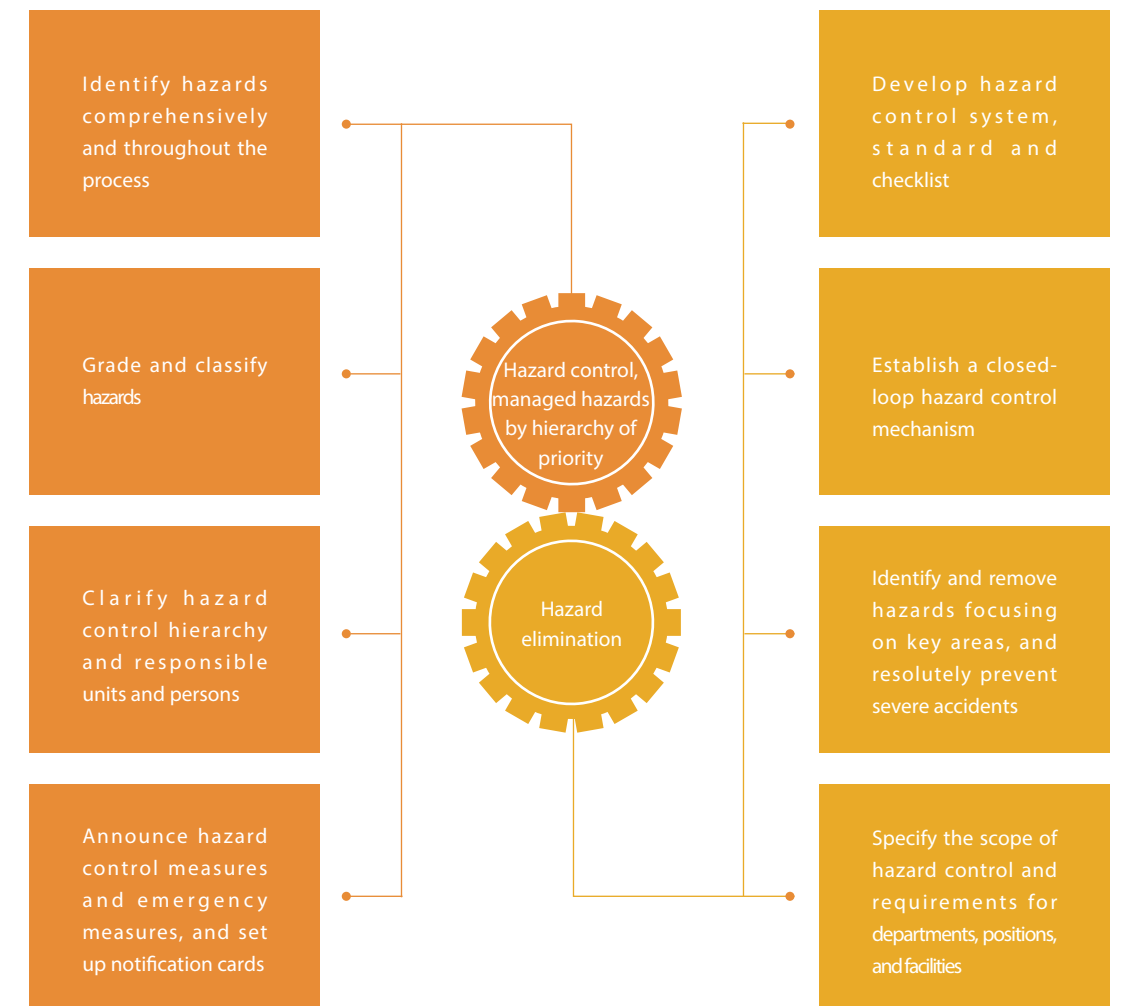
Safety inspection meeting of China Minmetals

Establishing dual-control mechanism

Following the principle of hazard source control and effective prevention, we improved the priority-based hazard control system and hazard elimination system, strengthened capacity building for hazard control, managed hazards by hierarchy of priority, and normalized the system for units to identify, address and report hazards themselves.

Anhui Development Mining Co., Ltd and Jiangxi Xiushui Xianglushan Tungsten Co., Ltd were designated as pilot units of the national hierarchical hazard control and hazard elimination mechanism.

- Luzhong Mining Co., Ltd put in place the dual-control mechanism across the board.
- Minmetals Mining Holdings Co., Ltd organized experts of China Academy of Safety Science and Technology to conduct hazard assessments on its mines and guide them through underground mining hazard assessment methods and instruments.



Standardized safety management

In 2017, we continued to benchmark ourselves against MMG in standardized safety management, with a focus on safety culture, hazard control, onsite safety management, incident investigation and analysis, and onsite safety confirmation.



Case: Anhui Development Mining Co., Ltd learns safety management experience from MMG

Drawing on the advanced experience of MMG on safety management and in light of its own situation, Anhui Development Mining Co., Ltd conducted the “Five One” and “Five Dos and Don’ts” safety training activities. Through experiential training, these activities increased the employees’ safety awareness and skills, and improved their practical skills and emergency response capacity.

“Five One” activity:

- Put forward one suggestion;
- Be a safety inspector for one day;
- Analyze the lessons of one accident;
- Read one book on production safety;
- Be a safety trainer for one day.

“Five Do’s and Don’ts”

- Think of safety risks, and don’t continue if not clear;
- Think of safety measures, and don’t continue if not ready;
- Think of safety skills, and don’t continue if inadequate;
- Think of safety devices, and don’t continue if not in place.
- Think of safety confirmation, and don’t continue if not confirmed.

Case: 23rd Metallurgical Construction stands out in standardized safety management evaluation

In recent years, 23rd Metallurgical Construction (Group) Co., Ltd., China Minmetals has vigorously promoted standardized safety management and taken various measures to improve intrinsic safety of construction. It has put in place priority-based hazard control and elimination systems, implemented the safety code of conduct, and standardized safety management procedures and safety protection at construction sites, so as to ensure stable and safe production.

Twenty-five projects constructed by 23rd Metallurgical Construction won the honor of “2016 Standardized Safe Production Projects” from Hunan Provincial Department of Housing and Urban-Rural Development, and another three were selected as provincial exemplary construction sites in safe construction.

Safety culture

We keep in mind that safety is not priority order but values, and our safety-first commitment is aimed at creating a zero-injury workplace for employees and contractors. We strengthen the construction of safety culture, and allow employees to realize that safety is not just a requirement, but instead, they should, must, and are able to be safe.

Safety training

Training
566,680
participants in total

carried out
31,396
safety education and training sessions at all levels

We provide safety training for employees at all levels ranging from the leadership, the management to operators. In 2017, the leaders of the State Administration of Work Safety delivered training on the dual-control mechanism at the Corporation.

Minmetals Luzhong Mining Co.,Ltd launched the campaign to guide employees to learn laws, regulations and rules on production safety, and increase the awareness of production safety; draw lessons from accidents, and warn and remind themselves; and learn first aid skills and solidify the last line of defense, so as to eliminate hazards and ensure safe production.

Case: Simulation-based safety training in safety experiential zones

A number of subsidiaries under MCC have set up safety experiential zones or booths to make safety training more targeted and effective.

The safety experiential zones feature a wide range of hazard sources and protective devices at construction sites, including impacts on safety helmets, fire extinguishers, electricity, ropes, tilting of operating platforms, safety belts, falling, and safety rail collapse. The high-fidelity stimulation amazed the trainees, and allowed them to experience the effects of hazards, thus increasing their awareness of safety.

Case: China Tungsten and High-tech Materials Co., Ltd holds training on safety and environmental protection laws and regulations

On July 25, 2017, China Tungsten and High-tech Materials Co., Ltd organized training on production safety laws and regulations and standardized safety management, which was attended by more than 100 participants. Dr. Wang Feiyue of Hunan Provincial Work Safety Council interpreted the revised Production Safety Law of China, and analyzed the painful lessons and severe losses from accidents and law violations, further enhancing the employees’ awareness of production safety.



Case: First hazardous chemical smelting safety skills competition held

On June 29, 2017, Minmetals Non-ferrous Metals Holdings Co., Ltd organized the first hazardous chemical smelting safety skills competition, which was aimed at improving the quality and skills of production workers. The competition consisted of a safety knowledge contest, speech contest, and practical skills contest. 300 people watched the competition on site, while 6,794 people watched it online and 1,735 took part in the quiz via the WeChat platform.



Case: MCC Malaysia organizes OHS training

To help employees get a systematic understanding of occupational health and safety (OHS) and local safety regulations and enhance their safety awareness, MCC Malaysia invited safety officers of Malaysia's Construction Industry Development Board (CIDB) to provide OHS training for all employees.

During the training, the employees not only acquired knowledge on OHS and increased their awareness of safety, but also discussed with the trainers on the differences in safety policies and safety measures between China and Malaysia, and learned about local regulations on construction safety.



Safety culture training

Safety awareness

While increasing employees' awareness of safety, we attach importance to the safety awareness of leaders, consider insufficient attention from leaders as the biggest hazard, and implement the policy of "vetoing unqualified candidates in production safety by a single vote" in the appointment, evaluation, and selection of cadres. And we launched a "Month of Safe Production" campaign to create a safety atmosphere in an all-round manner. It promoted production safety on LED screens, distributed promotional materials to mines, and carried out a "one piece of safety knowledge, one safety skill, one safety picture, and one safety concept" activity via the WeChat platform to increase employees' awareness of safety and strengthen capabilities of disaster prevention, disaster mitigation and disaster relief.



Case: "Three unified measures" to enhance safety awareness

Hsikwangshan Twinkling Star Co., Ltd strengthened the construction of safety culture, promoted meticulous safety management and targeted supervision, adopted the "three unified measures," and conducted the "safety commitment" activity in an effort to regulate employees' behavior. It also adopted a hazard control record keeping and supervision system to ensure employees meet safety requirements, and created a distinctive safety culture.

Safety vows: I pledge to keep in mind safety concepts, to cherish my family's reminders, to fulfill my duty in accordance with safety rules and regulations, to be an intrinsically safe employee, and to have my family and my company rest assured.



Employees making safety vows

Emergency preparedness

We organize emergency response training to strengthen employees' emergency response capacity, improve contingency plans, and carry out emergency drills to enhance the emergency rescue command system's ability to lead, organize and coordinate emergency rescue efforts, and improve the emergency rescue departments' ability to quickly respond to accidents and provide timely and effective medical services on site.



Emergency response teams

By the end of 2017, we had

872 full-time

and part-time emergency rescue teams composed of

18,801

team members

Emergency response training

We organized **2,862** emergency training sessions

covering **112,645**

employees

Contingency plans

We developed **767** contingency plans

3,073 special plans

and **523** onsite response plans

Emergency drills

We carried out **1,740** emergency drills

with **50,894** participants

Safety environment

We take health, safety and environmental protection as a precondition for the Corporation's survival and development. We have shifted from "end-of-pipe treatment" to hazard source prevention and control, conducted safety inspections with a "zero tolerance" attitude and resolute measures to eliminate hazards, ensure safe production and contribute to high-quality economic development and improvement of people's wellbeing.

Safety inspections

We organize strict safety inspections on a quarterly basis, and urge subsidiaries to strengthen the areas of weakness in production safety and raise the level of safety management. The inspections include but are not limited to safety systems, procedures, training, operations, and personal protective equipment. An "identifying hazards around you" campaign was carried out in an effort to ensure that safety responsibilities are fulfilled.

In line with the requirements of "zero tolerance, strict enforcement, and good effects," MCC has crosschecked production safety at subsidiaries, strengthened major hazard source control through regular inspections, adopted a three-tier inspection mechanism and diverse methods, and reinforced onsite supervision. In 2017, MCC conducted 1828 ongoing projects on safety production supervision for 25 subsidiaries, and all problems identified were rectified.

In 2017, MCC conducted **1,828** ongoing projects on safety production supervision for **25** subsidiaries.

Safety assurance technology

Technological means is the key to safety assurance. To ensure safety in key areas and improve intrinsic safety, we support R&D on production safety and translation of research results into practice on the basis of the Corporation's intelligent system construction.



Case: Las Bambas introduces SmartCap technology

Of all safety incidents at Las Bambas, 23% are fatigue-related. In order to combat fatigue and raise awareness about the importance of rest and adequate sleep, in 2017 MMG implemented Life by SmartCap (known locally as Guardián de Vida) at its Las Bambas operation, and became the first mining operation in Peru to do so. This proactive technology aims to preventatively manage fatigue in operators of mine haul trucks, staff transportation buses, concentrate trucks and long distance light vehicles.

The LifeBand headband, worn by operators, monitors their levels of fatigue and triggers an alarm if the individual is required to take preventative action. In addition to the alarm, a prompt with the driver's risk level is displayed on the SmartCap screen installed in the vehicle. When the system detects that the operator's fatigue level has increased, an alert is sent to a remote control centre, from which further measures can be taken to protect the driver.

Smart Cap was installed in all mining fleet, concentrate trucks, staff transportation buses and long-commute light vehicles in 2017. During the first quarter of 2018 Smart Cap implementation will be fully completed. This technology, together with other initiatives, will help MMG reduce fatigue-related incidents at our sites and deliver on our commitment to safe, injury-free workplaces for our employees and contractors.



Case: Shizhuyuan promotes IT application in safety management

Hunan Shizhuyuan Non-ferrous Metals Co., Ltd (Shizhuyuan) has promoted the application of intelligent equipment for safe production, IT-based management and the production safety deployment command system, achieved IT-based multi-tier supervision, and improved IT-based safety management measures, providing strong technological support for the safe production, concentrated management, and informed decision-making of mines.

The company has achieved underpit remote control of 4m3 driverless forklifts, introduced the unattended measurement system, achieved whole-process intelligent control at dressing plants, and independently developed an automatic feeding system, and employed automatic ore grinding and intelligent floatation control. Dumping has been operated by mechanical hands, the Dongpo substation has achieved unattended operation, and the number of underground workers has been reduced. All these have contributed to ensuring production safety. The company also established WeChat groups on production safety, and built the safety information sharing and feedback platform.



State Councilor Wang Yong inspecting safety work at a mine of Shizhuoyuan

Hazard elimination

We identify and eliminate hazards in an all-round manner, and insist that production not start unless safety is assured. We reviewed the major accidents that occurred during the past two years, dug deep into the responsibilities and causes, and took corrective measures, so as to ensure that our projects have good quality and are safe, environmentally friendly, and technologically advanced.

In 2017, we conducted 52,653 safety inspections, identified 149,883 hazards, and removed 148,023 hazards (98.7% of identified hazards).

MCC deems major hazards as accidents, takes timely measures to remove hazards, and sees to it that inspections cover all aspects of projects. It employs modern information technology to establish the hazard elimination mechanism backed by the Internet, and requires that photos before and after hazard elimination should be submitted in order to ensure effective rectification and form a closed-loop management system.



Case: Minmetals E & D reinforces safety management

Minmetals E & D develops targeted checklists covering such information as the details and parts of group inspections, hazard descriptions and hazard elimination measures. The checklists must be signed by the inspectors, heads of the inspected unit, and the inspection team leaders.

Minmetals E & D sets out the identified hazards at the weekly safety review meeting, imports the hazards into the hazard management platform, and strictly carries out the hazard confirmation and elimination procedures, forming a closed-loop hazard management model.

In 2017, we conducted
52,653
safety inspections

identified
149,883
hazards

and removed
148,023
hazards

98.7 % of
identified hazards

Construction safety

Since it released the Manual on Standardized Safety Management of Construction Sites in 2015, MCC has unremittingly standardized safety management and improved construction site management to ensure the health and safety of construction workers. In 2017, MCC organized a campaign on standardized safety management of construction sites. Eight of its projects, including the PPP utility tunnel project in Baiyin City and Yanghu International Wealth Center, were selected as national exemplary projects, and some other projects received provincial honors.



Case: MCC's Chengdu project rated AAA

On July 18, 2017, the construction of Chengdu Magic Cube Performance Center constructed by MCC was completed. The project was honored a provincial standardized safe construction site of Sichuan and rated AAA by China Construction Industry Association.

The performance center features a special and sophisticated design with varying long cantilever structures, numerous pillar joints and column joints, and dense steel bars at joints, putting high demands on technology and safety management. A section-based approach was adopted when unloading the dome steel structure. Two electronic total stations were used to observe the 15 monitoring points and adjust the amount unloaded, so as to ensure smooth progress and the stability and safety of the entire structure.



Chengdu Magic Cube Performance Center, with no pillars inside the 40m-plus-high complex, allowing unobstructed views

Be Green

The report of the 19th National Congress of the Communist Party of China has raised national concerns about environment protection to an unprecedented height. As an environmentally conscious mining company, we are committed to making our business more environmentally sustainable by integrating practices that reduce the environmental impact and carbon footprint of our operations. We have maintained a focus on environmental protection and worked hard to promote the harmonious development of human society and nature, and advance the "Beautiful China" campaign.

Performance in 2017

Comprehensive energy consumption
decreased by **2.5** % year-on-year

COD emissions decreased by
8.5 % year-on-year

SO2 emissions decreased by
4.4 % year-on-year

environmental training
817 times

Environmental training
38,160 person-times

Our **19**
projects were named
"National Green
Construction
Demonstration
Project."

The Guomen Building
Project in Dongxing, Guangxi
was named "National
Green Construction
Demonstration Site."

4 patented technologies
of MCC Baosteel Technology
Services Co., Ltd won Patent
Awards of China Association of
Circular Economy (CACE).

Changsha Research Institute
of Mining and Metallurgy
Co., Ltd was elected vice-
president unit of the Hunan
Provincial Association of Public
Environmental Testing.

Environmental Management

We focus on the core business of metal minerals, continuously strengthen the access to resources and mines at home and abroad, achieve substantial growth in resource trade, effectively guarantee the supply of national metal resources, and improve China's global resource allocation capabilities.

Putting a comprehensive environmental management system in place

We integrate green development practices in our entire production processes, project life cycle, and value chains, comply with environmental protection laws and regulations, make continued efforts to improve the health, safety and environment (HSE) management system, and assess the HSE system on a regular basis to solve its existing problems and ensure it works properly.

Complying with environmental regulators' requirements

With the help of the central environmental protection supervision, we urged and guided the relevant enterprises to take the initiative to carry out environmental protection and rectification to improve the environmental performance of enterprises continuously. The feedback from the central environmental protection supervision concerning the relevant enterprises has all been rectified.



- Prior to inspections by government agencies, our production subsidiaries performed comprehensive self-inspections and ensured all problems identified in self-inspections were corrected in time.
- During inspections, our production subsidiaries were required to cooperate with the relevant authorities, provide them with accurate, complete, and truthful information, strictly abide by laws and regulations, and faithfully fulfill their responsibilities.
- After inspections, our subsidiaries were required to rectify the identified problems strictly in accordance with the authorities' requirements.
- For complex problems, rectification plans were developed as soon as possible and effective measures were adopted to ensure the rectification was completed within the specified time limit in accordance with authorities' requirements.

Strengthening environmental protection compliance reviews of our key subsidiaries

In the reporting period, we carried out an annual environmental protection inspection, focusing on key industries, key subsidiaries, key areas, and weak links in the current environmental management system. Our subsidiaries were required to formulate rectification and review plans to ensure all identified problems and hazards were rectified properly.

Formulating environmental emergency response plans

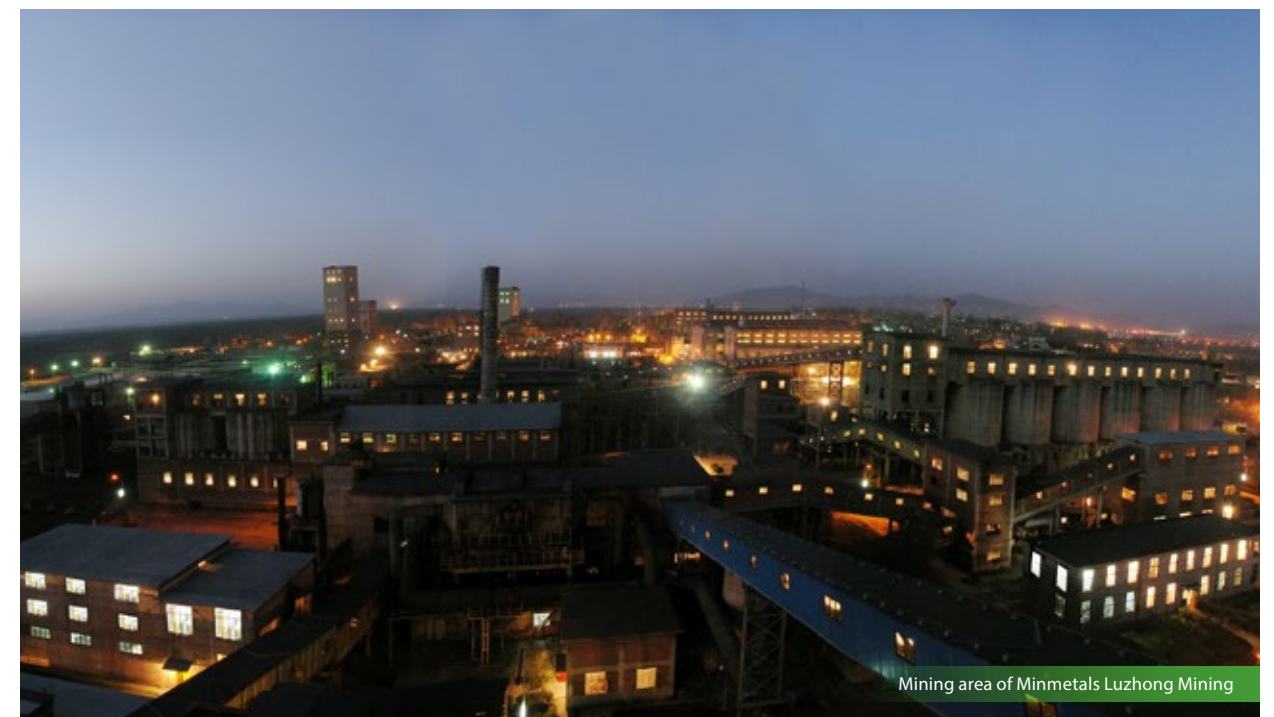
We have organized our subsidiaries that have assessed the environmental impact of their activities and developed and filed emergency response plans in accordance with the requirements of central and local governments.



Case: The environmental emergency response plan of Minmetals Luzhong Mining Co., Ltd was approved by experts

Minmetals Luzhong Mining Co., Ltd ("Luzhong Mining") entrusted Cheng'an Technical Service Company based in Laiwu City to assess environmental risk factors in mining, mechanical processing, explosives depots, tailings ponds and other activities and areas, and develop an environmental emergency response plan for Luzhong Mining based on the assessment results.

In June 2017, the expert review panel of Luzhong Mining, consisting of environmental emergency response experts, representatives of the Environmental Protection Bureau of Laiwu City and the Environmental Protection Bureau of the Laiwu Economic Development Zone, and representatives of villagers affected by Luzhong Mining's activities, held a meeting to review the plan. After reviewing the plan and conducting on-site inspections, the expert panel unanimously concluded that the emergency response plan of Luzhong Mining had been prepared in accordance with relevant laws, regulations, and standards and was feasible, and therefore adopted the plan.



Mining area of Minmetals Luzhong Mining

Resource Efficiency

In order to ensure the reliability of the supply of metals and minerals in China, we attach equal importance to mineral exploration and technological innovation in mining and metallurgy. We are striving to become an innovator in China's metals and mining sector and have achieved a series of major technological innovations. These innovations turn the tailings which used to be regarded as waste into treasure and contribute to the improvement of resource efficiency in the metals and mining sector of China and the world.

Enhancing tailings recovery

In order to extend the service life of the mine and use the original production facilities to recover valuable resources, we conducted a comprehensive feasibility study on the mine tailings, and formulated a technically feasible and economically rational transformation process plan to make the mine tailings valuable resources.



Case: The mineral processing plant of Luzhong Mining improved its tailings recovery process

Luzhong Mining worked together with Changsha Research Institute of Mining and Metallurgy to improve the quality of concentrates and the tailings recovery process at Laixin iron ore processing plant. After the new iron ore processing plant was put into operation, the iron content of concentrates produced at the plant increased by 1.10 percentage points and remained stable at 64.0%, the iron content of tailings decreased by 5.10 percentage points, the concentrate recovery rate increased by 6.90 percentage points, and iron ore concentrate yield increased by 3.24 percentage points. For the full year of 2017, the concentrate output is projected to increase by 40,500 tons, and the revenue of the plant is projected to increase by nearly RMB 30 million.



The Laixin iron ore processing plant reconstruction project was completed

Improving metallurgical technologies

We focus on advancing metallurgical technologies to improve productivity and resource efficiency, reduce the environmental impact of our operations, and increase the use of waste resources.



Case: Hsikwangshan Twinkling Star Co., Ltd adopted cleaner antimony manufacturing processes

Hsikwangshan Twinkling Star Co., Ltd (hereinafter referred to as "Hsikwangshan") took the lead in the cleaner antimony manufacturing process development and application project, a major technology development project in Hunan Province, to improve productivity and reduce the environmental impact of antimony manufacturing. It is estimated that, after the new technology is put into large-scale production, the revenue of the antimony manufacturing industry of Hunan Province will increase by RMB 310 million, the consumption of coke will decrease by 103,000 tons, and an additional 1,985 tons of metallic antimony will be recovered. The new technology is expected to make a great contribution to the sustainable development and the prevention and control of heavy metal pollution in Hunan Province.

Green Growth

We have an accountability system in place for energy conservation and emission reduction and make continued efforts to improve monthly data analysis and the early warning mechanism, track energy-saving and emission reduction indicators and ensure timely and effective early-warning of abnormalities. The total energy consumption of China Minmetals remained stable throughout the year of 2017, comprehensive energy consumption per ten thousand yuan of output value (comparable price) decreased year-on-year, and sulfur dioxide, nitrogen oxide and COD emissions all dropped from the level of 2016. Our energy conservation and emission reduction efforts are well on track.

Energy conservation and emission reduction

We are working hard to refine management, keep the focus on controlling sources of pollution and emissions, and strengthen the management of wastewater, gas emissions, solid waste and hazardous waste. We urge our subsidiaries and affiliates to strictly comply with the new Hazardous Waste Directory and take effective measures to prevent spills and leaks of hazardous waste, prevent hazardous waste from directly contacting rain and prevent emission loss of hazardous waste.

We actively promote environmental governance in key areas and explore ways to clean up the production processes of our mining and metal manufacturing subsidiaries. Our non-ferrous metal smelting plants have improved their acid-making systems to further reduce sulfur dioxide emissions.

We eliminate backward production energy. The key energy-consuming units of the company strictly implemented the national industrial policy, shutting down the backward production energy-using process equipment on schedule, and directly eliminating 8 outdated process equipments in the year, reducing energy consumption by about 241,000 tons of standard coal. Minmetals Mining and Luzhong Mining completed the energy management system construction and certification audit, and the energy utilization efficiency was significantly improved, and the energy consumption per unit of product was reduced by nearly 10%.

In 2017, China Minmetals Comprehensive energy consumption decreased by **2.5%** year-on-year

COD emissions decreased by **8.5%** year-on-year

SO₂ emissions decreased by **4.4%** year-on-year



Case: Hunan Yaogangxian Mining Co., Ltd completed an environmental management project

Located in a high-arsenic area, Hunan Yaogangxian Mining Co., Ltd (hereinafter referred to as "Yaogangxian Mining") is a pioneer in China's tungsten industry and has a 100-year mining history but its environmental protection facilities are lagging behind.

In 2017, the Hunan Provincial Environmental Protection Bureau was authorized to supervise wastewater treatment and Yaogangxian Mining set up a steering group to tackle environmental issues. The steering group developed a comprehensive environmental management program, completed the environmental protection project of Yaogangxian Mining, and completely eliminated all environmental hazards accumulated since the mine was built. It achieved zero wastewater effluent into the Dongjiang Lake and ensured compliance with emissions regulations.

Green construction

We have officially released green construction documents and atlases. Multiple measures have been taken by our operations to promote green construction. Building on good practices summed up in the past, we have comprehensively enhanced green construction management at all of our operation sites. Our green buildings that integrate a host of eco-friendly, low-carbon technologies have won many domestic and international awards.



Case: The Guomen Building Project in Dongxing, Guangxi passed inspection and was named "National Green Construction Demonstration Site"

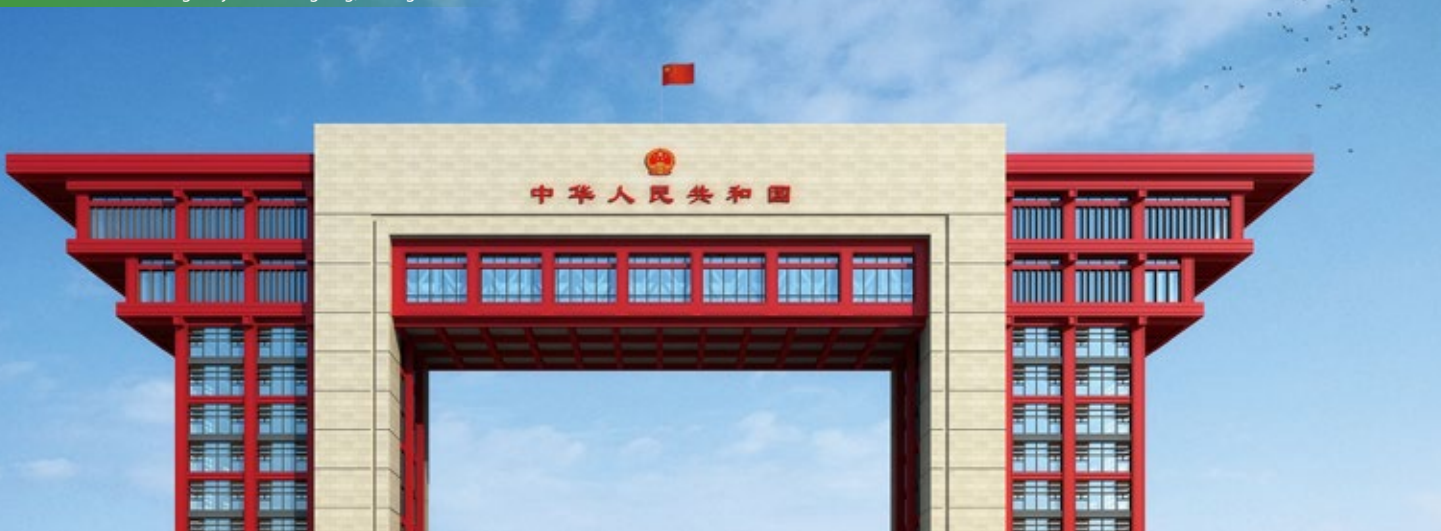
The Guomen Building Project in Dongxing, Guangxi (hereinafter referred to as the "Guomen Building") is a flagship project in Guangxi's economic liberalization campaign. It is the highest, longest, and largest land customs station in South China. It is also one of the most important land ports of entry in China. At the very beginning of the project, China MCC 17 Group Co., Ltd had set up a steering group for green construction and established a green construction management system. It vigorously promoted green building practices and adopted the following energy-saving and environmental protection measures:

- Setting up environmental protection signs, designating noise monitoring points, installing noise and PM2.5 monitoring equipment and automatic sprinkler systems for dust control, and using reclaimed water to wash vehicles;
- Classifying, storing, using and disposing of construction wastes in a scientific and centralized manner;
- Optimizing electro-mechanical and masonry design and construction through BIM technology, minimizing cutting wastes of reinforcement steel bars, reducing cement consumption, recycling standardized protection equipment and fences, and creating paperless office;
- Installing separate meters for water and electricity, assessing water and electricity use efficiency on a regular basis and using water-saving equipment on a large scale;
- Installing automatic control devices for equipment that needs temporary electric power, and using energy-saving equipment, including energy-efficient LED bulbs, tower cranes with frequency converters, solar powered street lighting systems and solar water heaters.

During the construction period, China MCC 17 Group regularly evaluated and analyzed energy efficiency performance, promptly rectified the identified problems and summed up practical experience. With the above measures in place, China MCC 17 Group achieved remarkable results in cutting energy consumption and reducing the environmental impact of the project.

In September 2017, the Guomen Building Project constructed by China MCC 17 Group passed the final inspection with a score of 90.9 and was named as "National Green Construction Demonstration Project."

The Guomen Building Project in Dongxing, Guangxi



Green mining

We strive to integrate green mining practices throughout the entire life cycle of our projects, from mining to utilization, from exploration to reclamation.

Before mining, we focus our efforts on environmental assessment and integrate environmental protection into the mine design. During the mining period, we pay great attention to goaf backfilling, reduce environmental impact of mineral wastes, reclaim waste rock by in-pit backfilling, improve energy efficiency in drainage and ventilation systems of the mine, and minimize the impact of mining activities on the ground surface. During mine closure, we work together with stakeholders to develop and implement closure plans, reduce the post-closure environmental, social, and economic impacts of our mining operations and maximize product recovery from tailings. Furthermore, we also keep the focus on the protection of the land, biodiversity, and cultural heritage in the mining areas, and strengthen the reclamation of tailings.

The key technology for large-scale underground metal mining developed by Minmetals Mining Holdings Limited (hereinafter referred to as "Minmetals Mining") has solved a series of technical problems in filling and mining of underground mines that would produce over 10 million tons. In 2017, the technology was included by the Ministry of Land and Resources into the Directory of Advanced Mineral Resource Development and Utilization Technologies and played an important role in leading the development of the industry.



Case: Minmetals Property Hunan Development Co., Ltd organized a tree-planting event

Planting trees for local communities is a flagship volunteer program of Minmetals Property Hunan Development Co., Ltd. The Company has been running the program for eight years. In March 2017, more than 500 volunteers, including property owners, party members, local residents, teachers and students, participated in a tree-planting event organized by Minmetals Property Hunan Development Co., Ltd. They planted more than 300 trees in Minmetals Wanjiang Waterfront Residential and along the Guitang River to make our community more beautiful.

Biodiversity conservation

MMG implements land and biodiversity management methods in each mine, and provides mitigation management measures for specific animal and plant species, and continuously invests resources to carry out expert testing, seed collection and breeding, and laboratory testing to protect biodiversity and ecosystems. Through the implementation of the land management plan, each mine tries to avoid the impact of the exposed land on the environment and the community, including the management of drainage, corrosion, weeds and invasive plants, important animals and plants, dust removal and temporary greening.

MMG's monitoring of the Dugar River zinc mine in Australia focuses on two endangered species inhabiting the nearby Knapdale Mountains: the purple-necked kangaroo and the anteatr, the numbers of which remain stable. MMG will launch a new biodiversity monitoring activity in 2018 to fund EcoSmartEcology's collaboration with Sunshine Coast University and Queensland University of Technology to conduct research on anteaters, which will be the first large-scale specific study of the species.

Since 2011, MMG has planted more than 85,000 trees in villages near the Concepcion copper mine in Congo. In 2017, MMG continued this work by donating seedlings to local communities on the National Tree Planting Day and continuing to help the local community to cultivate tree seedlings such as native rosewood and Moringa.

In 2017, MMG rebuilt the four in ten dam tailings mine at the Rosberg zinc mine in Tasmania, not only successfully preventing seepage problems, but also improving the ecological environment of the Stitt River. Some fish and other invertebrates have been found to be growing in diversity and distribution, increasing the biodiversity of West Tasmania.

Green office

We make continued efforts to raise our employees' environmental awareness, encourage them to participate in environmental volunteer projects, and increase their knowledge of environmental sustainability. We strive to make our office more environmentally friendly by reducing the frequency of meetings, leveraging video conferencing technology, and reducing carbon footprint of our operations.



Green Business

In the new era, the metal mining industry must focus efforts on innovations in relation to cost-efficiency, green growth and environmental protection. We attach great importance to environmental protection initiatives and strive to deliver more environmental benefits by preventing and controlling environmental pollution, improving the environment and protecting natural resources.

Creating environmental protection platforms

We sum up key energy-saving and environmental protection practices and promote information and resource sharing in areas such as residual energy recycling, treatment of hazardous waste, deep purification of wastewater, and post-industrial environmental recovery.

We develop service platforms for both supply and demand sides of energy-saving and environmental protection services and create an internal market worth more than RMB 100 billion. In 2017, we had 34 operations engaged in energy conservation and environmental protection, and eight clean energy operations, including China ENFI, China Metallurgical South, and MCC Metallurgical Construction Research Institute. They provide strong technical support for environmental management in the group.



Case: China ENFI continued to keep the focus on the development of environmentally friendly non-ferrous metal smelting processes

China ENFI has designed almost all important copper, lead, zinc, nickel, tin, and rare metals smelting projects in China's non-ferrous metal smelting industry. It has been focusing on the development of energy-efficient smelting processes which use recyclable materials. The company has developed a host of advanced smelting technologies, including bottom blown oxygen smelting, low-grade high-arsenic copper ore processing and integrated recycling of multiple metals. These technologies improve resource efficiency and play an important role in driving the development of circular economy.

In the field of copper and lead smelting, the bottom blown oxygen smelting technology developed by China ENFI is one of China's most advanced non-ferrous metal smelting technologies. It performs very well on energy efficiency, recovery rate, and other indicators and is designated as preferred smelting technology by nine ministries and commissions of China. The technology is hailed as "a miracle in the world's metallurgical history" by the British magazine Metal Bulletin.

Protecting the environment

We leverage our experience and capabilities in technology development and engineering design and construction to create a healthy environment and maximize the quality of life for local residents by reducing emissions from our smelting and mining operations and expanding into water environment management, waste-to-energy, and photovoltaic power generation industries.

MCC Group has introduced the "integrated design" business model. This business division provides life-cycle solutions for the construction of sponge cities by embedding the "sponge" concept during the planning, design, and construction stages and keeping the focus on research and development. At present, the division has offered integrated design services to projects such as Wuhan Optics Valley Central City, Shenzhen Houhai Central Park, and Linjiang Avenue, Qingshan District, Wuhan.



Case: Wu Qing Embankment Rehabilitation Project of China First Metallurgical Construction Co., Ltd was the only project in China awarded a C40 Cities Award in 2017

In December 2017, Wuhan Comprehensive Rehabilitation Project of Yangtze River Embankment River Beach – Wuqing Embankment Section, undertaken by China First Metallurgical Construction Co., Ltd, won a C40 Cities Award in the Cities4Tomorrow category and became the only urban sustainability project in China honored at the 2017 C40 Cities Award ceremony.

Wuhan Comprehensive Rehabilitation Project of Yangtze River Embankment River Beach – Wuqing Embankment Section included 110 hectares of beach (7.5 kilometers in length). The project began in October 2013. Phase I was completed in June 2015 and Phase II was completed in June 2017. As an integral part of the Yangtze River Embankment, Wuqing Embankment Section accounts for about 14% of the total length of the existing Yangtze River Embankment in Wuhan City. The project not only improves the section's flood control capability, but also makes the embankment more beautiful by integrating a unique gentle slope design. It integrates the Yangtze River, the embankment, and urban space to create a recreational waterfront space for the citizens. Furthermore, the project adopted the sponge city concept and improved the water environment of the Yangtze River. It is a fruitful attempt of Wuhan City under the Yangtze River Ecological Conservation Strategy.

The C40 Cities Climate Leadership Group is focused on tackling climate change and driving urban action that reduces greenhouse gas emissions and climate risks, while increasing the health, wellbeing, and economic opportunities of urban citizens. Wuhan Comprehensive Rehabilitation Project of Yangtze River Embankment River Beach – Wuqing Embankment Section, as part of the Yangtze River Ecological Conservation Strategy, adopts green growth practices and its role in helping the city tackling climate change has been recognized internationally.



Anhui Maanshan Water Environment Comprehensive Improvement Project



Case: ACRE Coking & Refractory Engineering Consulting Corporation won a metallurgical technology award



MCC Metallurgical Construction Research Institute leverages its low-temperature circulating fluidized bed and flue gas desulfurization, denitrification and dust removal technologies to minimize the emissions of Yankuang Group's three 220t/h circulating fluidized bed boilers that utilize coal sludge and coal gangue.

The desulfurization rate of the revamped boilers is over 99%, the denitrification rate is over 70%, and the dust emission concentration is lower than 5mg/m³, meeting China's ultra-clean emission standards for the thermal power industry. Furthermore, the low operating cost makes large-scale application of these boilers possible.



Building beautiful villages

The Beautiful Village and Smart City Technology Research Institute of MCC provides integrated "County-Town-Township" development solutions. These life-cycle solutions aim to improve the environment of rural areas and create beautiful countryside and smart urban spaces.



A resort town on Luohu Peninsula, Shehong County, Sichuan Province

Case: Lai'an County Water Environment Management PPP Project



The water environment management project of Lai'an County, Chuzhou City, Anhui Province is the first comprehensive regional and basin-wide water environment improvement project undertaken by MCC Huatian Engineering Technology Co., Ltd (MCC Huatian) using the PPP model.

The project takes into consideration the overall urban planning and terrain features of Lai'an County and systematically plans the water system. It integrates water pollution control, water environment restoration, water engineering, urban flood prevention and control, urban landscaping, and remote control technology to solve the existing problems in water management of the county and create beautiful and healthy urban spaces.

Case: Changsha Research Institute of Mining and Metallurgy developed new environmentally friendly rust removal technology



Changsha Research Institute of Mining and Metallurgy developed a high-pressure water jet cleaning system to remove rust from cold rolled strips while achieving "zero" emission. The system independently developed by Changsha Research Institute of Mining and Metallurgy utilizes the high-pressure water jet cleaning process instead of muriatic acid to remove rust.

The system uses recycled water, steel pellets, and rust, thus avoiding emissions of heavy metal ions, acid ions, and dust. It adopts the highest international environmental protection and technical standards. Nearly 50 systems have been put into use to clean strip steel, thin strip steel, wide strip steel and stainless strip steel.

Case: ACRE Coking & Refractory Engineering Consulting Corporation won a metallurgical technology award



In 2017, the "Development and Application of Technology and Equipment for Super Volume Top-loading Coke Ovens" project led by ACRE Coking & Refractory Engineering Consulting Corporation (hereinafter referred to as "ACRE") won the only special prize at Metallurgical Technology Award.

China is the world's largest producer of coke. The coke manufacturing industry is energy-intensive and produces massive amounts of pollutants. ACRE has developed its own super volume top-loading coke ovens. Compared with ordinary coke ovens, the emissions of carbon dioxide, dust, sulfur dioxide, and nitrogen oxides of these large, efficient, and clean coke ovens are much lower. Moreover, they are much easier to operate and maintain, and more energy-efficient.



An integrated resort village project in Yanjin County, Yunnan Province

Be Happy

Employee development has always been a top priority of China Minmetals because employees are the greatest asset of the company. We have a people-centered, science-based human resources management system in place to effectively protect the rights and interests of employees, build harmonious and stable relationships with our employees, and create win-win opportunities for both the company and employees.

Performance in 2017

Trained

317,713

person times

We were named the “**Best HR Demonstration Company**” for the seventh consecutive year by 51job.com

We were ranked among zhaopin.com's Top

100

Best Employers for the sixth consecutive year

We were named the “**Best HR Management Team**” for the fourth consecutive year

We were ranked among Universum's Top

100

Most Attractive Employers for Chinese Engineering Students for the fourth consecutive year

We were named the “**Most Attractive Employer for University Graduates**” by ChinaHR.com for the third time



Stimulating Employee Vitality

We promote the cultivation of talents, continuously optimize the human resources structure, innovate the position system, smooth channels for the growth of all talents, vigorously carry out talent education and training, build a platform for talents to display abilities, and continue to enhance the company's influence in the specialized field.

Employee training

In accordance with the company's development strategy and the "monopole-diversified development" training management model and the classified training and management principle, adhering to the training concept of "all staff provide and receive training", "training is an important part of the work", we vigorously carry out the training for key talents including managerial personnel, party affairs staff, professional technical personnel, professional skills personnel, and strive to create brand projects that share excellent practices and deliver advanced management experience, so as to constantly provide strong support for the company's talents team.

and trained
317,713
person times



China Minmetals "Efficient Reporting Skills" Special Training



Case: MCC held the Sixth Job Skills Competition

Partnership models and employment mechanisms in the engineering design and construction industry are constantly evolving, and the shortage of skilled workers has become a key bottleneck restricting the sustainable development of the industry. In 2017, MCC held the National Metallurgical Construction Vocational Skills Competition and the Sixth MCC Job Skills Competition. The competition is a platform designed to facilitate the development of skilled workers, promote craftsmanship, and build competencies required for the development of the industry and human society.



Case: China successfully defended the champion title of the welding event at the WorldSkills Competition

The biennial WorldSkills Competition is known as the "Olympics of Skills." In 2017, Ning Xianhai from China 19th Metallurgical Corporation won the championship at the welding event of the 44th WorldSkills Competition and Bian Tao won a medallion of excellence at the construction metal work event. China successfully defended its WorldSkills welding competition championship title. These awards also prove that MCC and China are front-runners in welding technology.

Employees of MCC are committed to building a better world. They are showing ambition, superb craftsmanship, and tenaciousness, which are typical qualities of Chinese youngsters and skilled workers, on the world stage.



Ning Xianhai, the champion from China 19th Metallurgical Corporation



Case: We continued to advance the 2025 One Hundred Talent Development Program

In the reporting period, as part of our strategy to become an industry leader and expand value chains, we continued to advance the 2025 One Hundred Talent Development Program and build talent pools to secure access to competencies required for our mid-to long-term development.

- Other employee development programs included the Eagle Plan - Molten Iron River Program of Minmetals Development Co., Ltd, the Eagle Plan - Spark Program of China Minmetals Nonferrous Metals Co., Ltd and the Eagle Plan - 80 Program of Minmetals Land Limited.
- Periodical evaluation reports were formulated to support personalized development and the integration of talent training and utilization.
- We enhanced project management knowledge transfer and capacity building and stepped up professional team building.



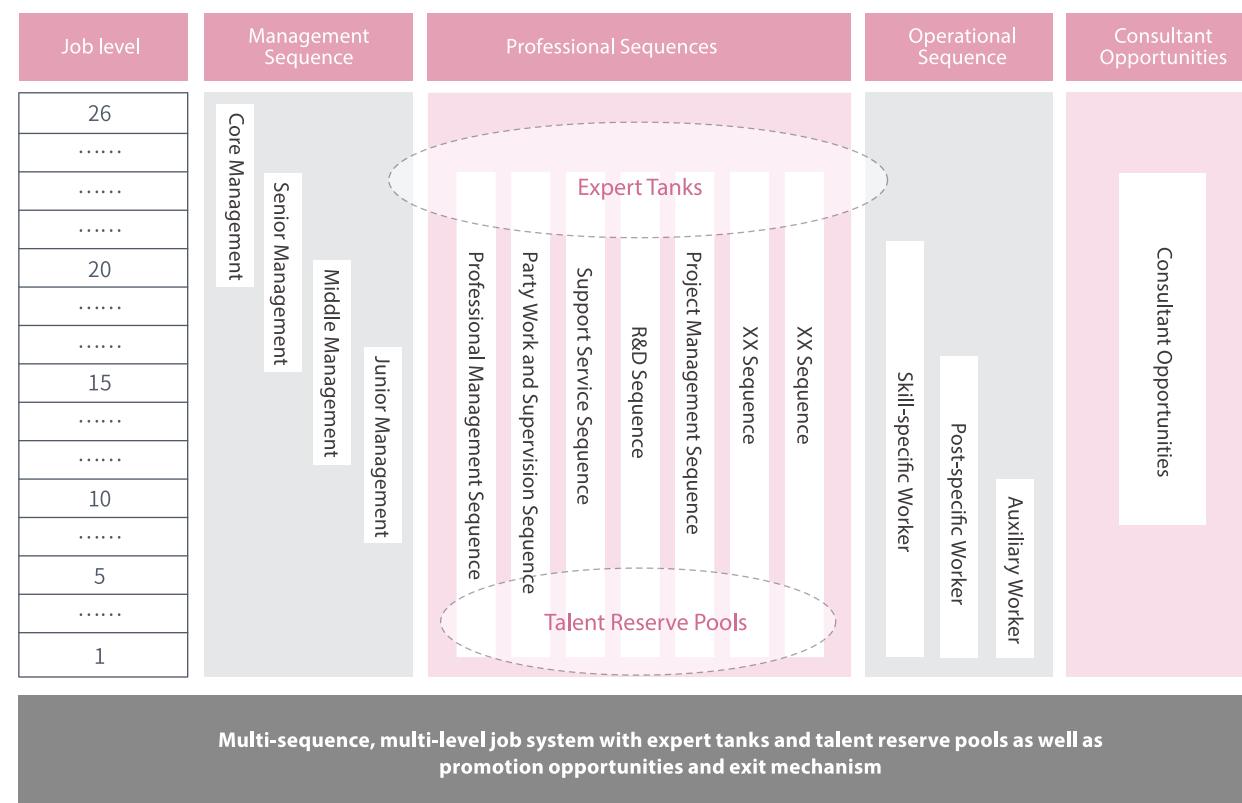
Spark Program' students visit Dexing Copper Mine of Jiang Copper Group

Innovative job system

Building on previous work done in 2016, we continued to optimize the top-level design of the new job system on the basis of pilot test results. The new job system is an effective mechanism designed to stabilize our workforce, offer employees opportunities to learn a multitude of skills through job rotation, and accelerate employee development.

In 2017, we initiated and completed the career path review of our headquarters, opened 17 technical career paths and 13 specialist positions, and completed the recruitment of specialists according to procedures. These technical career paths and specialist positions offer additional growth opportunities to employees, allowing them to clearly visualize and climb up the career ladder.

Job System Overview



To tie in with the new job system, we have strengthened staff deployment authority management and created a hierarchical staff deployment approval system to maximize staff management efficiency.

Employee performance appraisal

Based on the implementation results of the new job system, we have formulated rules on how to link employee performance appraisal results to promotions, transfers, and salaries. We actively strengthen employee performance management, transform performance management into employee development, enhance employees' awareness and understanding of individual performance management and career planning, and urge second-tier subsidiaries to implement a performance-based compensation system.

We have launched mid- to long-term incentive programs and formulated systematic rules on mid- and long-term incentive instruments such as employee stock ownership plans and employee stock incentive programs of tech companies and listed companies.

Retention of key employees

We lay emphasis on retaining employees by providing career development opportunities, improving compensation packages, and building strong relationships with employees. We strive to create a positive work environment where employees are recognized and rewarded for good performance, dedication, and innovation. We attach great importance to the development of leaders, young research talents, skilled workers, and master craftsmen, and make continuous efforts to increase our influence in areas of specialization.

We seek to shape the corporate culture to drive innovation and encourage entrepreneurship and craftsmanship and create a workplace where hard work, knowledge, talents, and creativity are respected.

MCC improved its HR management system





In 2017, MCC convened the conference for commendation of labor models

Case: MCC's top-notch workforce

MCC attaches great importance to employee development and strives to build a stellar workforce. In 2017, the workforce of MCC grew rapidly:

- Yue Qingrui at Metallurgical Construction Research Institute, MCC, was elected academician of the Chinese Academy of Engineering;
- Wang Lijun at Capital Engineering & Research Incorporation Limited (CERI), MCC, was named National Engineering Survey and Design Master;
- Ma Weiqing and other 14 people were approved to enjoy special allowances for experts from the State Council;
- Project managers of 17 projects which won Luban Awards and two projects that won the first prize of the National Metallurgical Industry Excellent EPC Project Award were recognized by the China Construction Industry Association as outstanding project managers;
- Ning Xianhai won the championship at the welding event of the WorldSkills Competition;
- Pei Qingzhu and five other employees were granted the title of National Outstanding High-Skilled Workers, with which the number of National Outstanding High-Skilled Workers at MCC increased to 51.

MCC added **15** experts with special allowances from the State Council

17 new project managers of "Luban Awards"

The number of National Outstanding High-Skilled Workers at MCC increased to

51

Professional managers

In alignment with the requirements of the central government on the establishment of a professional manager system, we have released the Plan for Running a Pilot Program of the Professional Manager System within the Group.

Case: Promoting the professional manager system

In May 2017, to meet its workforce needs, Minmetals International Trust Co, Ltd., a subsidiary of Minmetals Capital Company Limited, hired professional managers in accordance with a science-based, market-based recruitment process. Candidates were recommended by headhunters and internal recruiters and included employees who recommended themselves for the vacancies.

Protecting Employees' Rights and Interests

We have a people-centered corporate culture, strictly abide by the Labor Law, the Labor Contract Law, and other related laws and regulations. We are committed to providing equal employment opportunities and advancing democracy in the workforce and offer competitive compensation and benefits packages. We establish effective complaint mechanisms and strive to build a harmonious relationship with our employees.

Equal employment

We have in place an employment mechanism that encourages diversity and equal opportunity. In the recruitment process, we adhere to gender equality and equal pay for equal work, prohibit the use of forced or child labor, and have zero tolerance for discrimination, harassment, or abuse.

In 2017, the total number of employees was **196,609** (employee)

among which, **162,968** people are employed,

and female employees was **45,200**.

Compensation and benefits

We pay social security contributions for employees in accordance with relevant national policies and protect the legitimate right of employees to social security benefits. We strive to support our employees by building a strong compensation and benefits system.

Stepping up enterprise annuity investment and management

In 2017, to protect employees' rights and interests, we continued to optimize the operating mechanism of the enterprise annuity management committee, set up an annuity investment expert panel to improve annuity management efficiency, and expanded the coverage of the enterprise annuity.

Improving the supplementary medical insurance system

We continued to improve the employee personal accident insurance system to raise the level of protection. As part of our healthy and happy workplace strategy, we organized lectures and other activities to increase employees' knowledge about the benefits we offered.

Democracy in management

We are committed to improving our democratic corporate management system in the form of workers' congress by actively exploring new democratic management mechanisms that are in line with our vision. We focus our efforts on the priorities in corporate reform and development, and on major issues in our operations and matters related to the vital interests of employees.



Case: MCC advanced workplace democracy

MCC makes continuous efforts to advance transparent operation and democratic corporate management. Its workers' congress receives a large number of employee proposals and convenes regular meetings to deliberate on these proposals. In 2017, all decisions related to factory affairs of MCC were made through a democratic process, and the workers' congress of MCC received 522 proposals and voted on 411 proposals. The headquarters and subsidiaries of MCC are working to improve the working mechanism of their trade union, put employees' reasonable suggestions into practice, and improve employee engagement.

decisions related to factory affairs of MCC were **100%** made through a democratic process

the workers' congress of MCC received **522** proposals

voted on **411** proposals

Employee Wellbeing

We have a strong commitment to employee wellbeing and strive to improve employees' mental and physical health by creating a positive workplace environment, promoting work-life balance, stepping up efforts to help employees in difficulty, helping them reduce stress, and reinforcing their sense of belonging and social cohesion.

Supporting employees in difficulty

The interests of employees are no trivial matter. We care for the performance and personal life of employees, and provide timely assistance to employees in difficulty. These measures are part of our efforts to drive sustainable growth and do our part in building a harmonious society. We have established a support system for employees in difficulty to show our care for them.



Survey and interview

We visited the relevant divisions and our eight subsidiaries held a special investigation meeting and formulated the Special Investigation Report on Assistance Provided by Trade Unions of the Group to Employees in Difficulty. The overall thinking of establishing the needy workers assistance system of the Group Labor Union is proposed, with the "four ones" of one institution, one system, one special support fund, and one professional support team as the core.



Employee assistance program

We organized lectures on the establishment and deployment of the employee assistance system, collected information on the first group of employees in difficulty (more than 3,000 employees) under the program, and built a database.



Targeted assistance funds

In 2017, we assisted more than 3,000 employees in difficulty to ensure all employees in difficulty had access to assistance. The establishment of the database of needy employees and the support system provides data and decision support for the Group's party and government organizations to carry out targeted poverty alleviation and help needy workers out of poverty.



A meeting was held to launch the employee assistance program

We attach great importance to the well-being of retired cadres, visit them from time to time, and provide attentive services and targeted assistance to them when needed.

We care for women workers and earnestly safeguard their legitimate rights and interests. On the Women's Day, floriculture training and flower arrangement activities were organized to cultivate their sentiment. Attention has been paid to women's health through holding lectures on women's health to guide them to establish scientific lifestyle and philosophy.

Occupational health

We seek to create a safe and healthy workplace by organizing occupational health exams and screenings, putting occupational hazard inspection and notification processes in place, providing personal protective equipment to employees and ensuring its use, implementing standard working hours, clearly defining job responsibilities, and taking a proactive approach to preventing occupational hazards. In the reporting period, we:

More than **1,300** occupational health trainings

Purchased automated external defibrillators (AED), correct use of which save lives from heart attacks;

Purchased anti-haze masks and hired a third-party professional testing agency to test the indoor air quality and air conditioning system in our office areas;

Improved our fitness facilities and created a positive environment that helped the employees keep fit and relax;

Continued to enhance occupational hazard prevention and occupational safety and took a proactive approach to ensuring the safety of employees.

Inclusive Culture

The power of culture is intangible and immense. Our corporate culture is what links our operations in 60 countries and regions. We work to promote the principle of "cherishing limited resources and pursuing sustainable development" on a global scale, create a harmonious working environment, and celebrate cultural diversity in workplace.

As we continue to expand our business internationally, we begin to place more emphasis on cross-cultural communication and management, cultural sensitivity, and talent development on an international basis.

We seek to create a happy workplace by increasing cultural sensitivity our workforce, organizing sport and cultural activities, strengthening corporate cohesion.



Group headquarters participated football game to enhance friendship with corporates in Shanghai



Calligraphy association



Yoga association



Basketball team competition



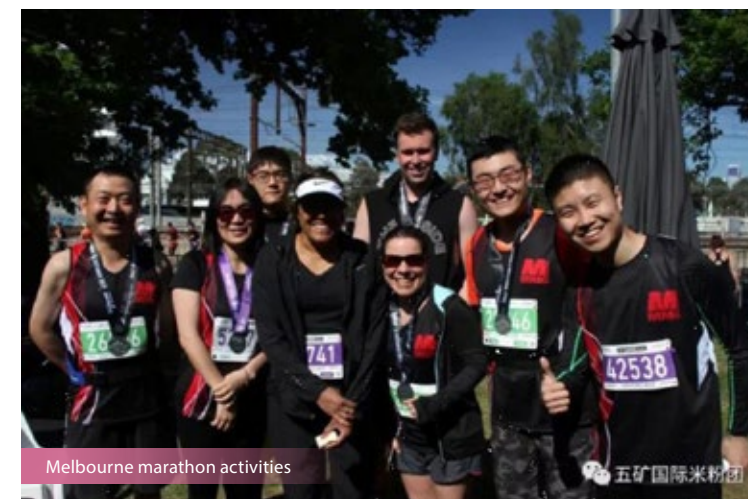
Business Knowledge Competition Awards



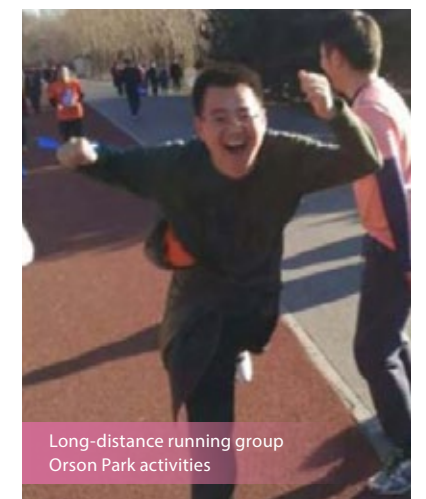
Cycling association



Poetry association



Melbourne marathon activities



Long-distance running group Orson Park activities

Be Harmonious

China Minmetals is an honest, law-abiding global company. We work closely with our partners to create a win-win situation and do our part in promoting sustainable development on a global scale by supporting charity, targeted poverty alleviation, and the development of local communities.

Performance in 2017

We won **the Best Corporate Social Responsibility Program Award** for the second consecutive year

Minmetals Development Co., Ltd. was named **National 5A Integrated Services Provider**

We won **3** Zhan Tianyou Civil Engineering Awards

8 of our projects, including collaborative projects, won Luban Engineering Design and Construction Awards

18 of our projects, including collaborative projects, won National Prime-Quality Project Awards

Integrity

We operate with integrity, abide by international conventions and the laws and regulations of the countries we operate in, and communicate openly and transparently to stakeholders our ideas, approaches and achievements in governance, operation and other aspects to their trust and respect. We also attach great importance to enhancing internal audits and put effective regulations and systems in place to strengthen compliance.

Compliance

In 2017, we continued to improve corporate governance, regulatory compliance, risk control and notification, and major case handling. We summarized nearly 600 pages of policies, regulations, and compliance guidelines to improve our legal compliance and management capabilities.

We continued to improve our internal rules, reviewed nearly one hundred policies to ensure they were legally compliant, revised 10 compliance management programs and further raised the awareness of legal compliance. In 2017, we audited more than 200 contracts.

revised
10 compliance
management programs

audited more than
200 contracts

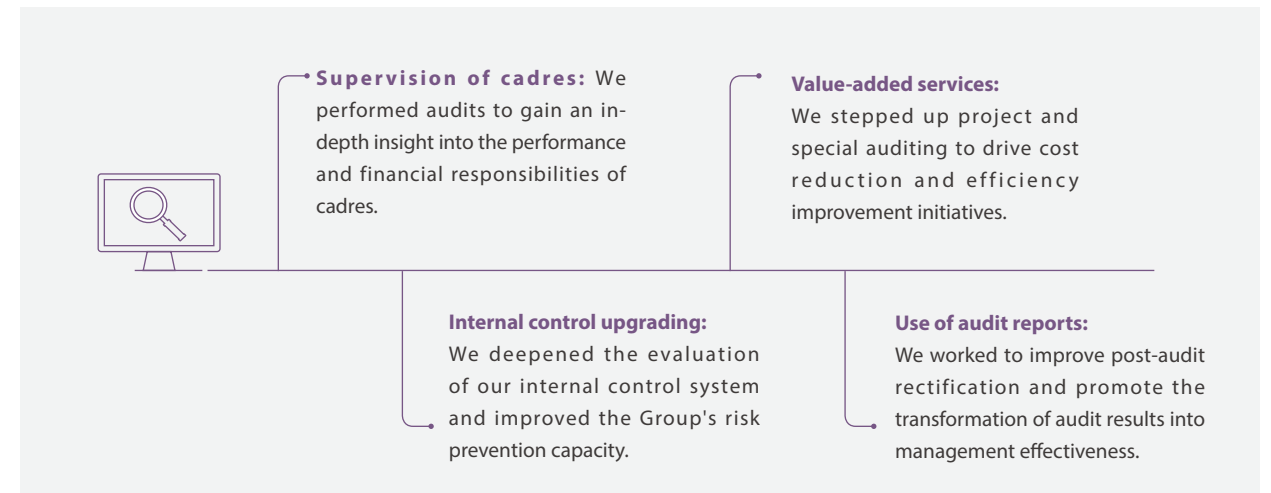
Risk control

In 2017, we focused our attention on management in key areas, issued the Guidelines for Comprehensive Risk Control, and continued to improve and implement major operational risk screening mechanisms and risk reporting mechanisms. We strove to build a good risk culture and strengthen our risk management system by integrating monitoring, reporting, supervision, training, and accountability functions.



Audit and supervision

To meet our operational and management needs, we make continuous efforts to maximize the impact of auditing activities. In 2017, we completed 1,743 audit projects, put forward 5,719 pieces of advice, achieved an increase of RMB 160 million in revenue, and handed 57 people over to supervisory authorities for investigation.



Anti-corruption Initiative

In accordance with the guidelines of the 19th National Congress of the CPC and relevant requirements of regulatory authorities, we move forward with our party building initiatives under the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, integrate party building practices into our day-to-day operations and strive to build a clean and honest Party committee, especially by establishing institutional mechanisms, urging Party members to behave in an ethical and responsible manner, and improving the supervision mechanism.

We resolutely advance our party building initiatives and ensure full compliance with the eight disciplinary rules issued by the CPC Central Commission. In 2017, we sent out more than 3,000 anti-corruption notices, SMS messages, WeChat messages, and emails and conducted 791 inspections.

In the reporting period, we focused our efforts on building an anti-corruption mechanism and improving supervisory mechanisms. Urged by disciplinary committees, our functional departments revised 835 supervisory policies. Our operations carried out 145 rectification and efficiency monitoring projects and reviewed six poverty alleviation projects.

We have an effectively group-wide supervisory mechanism in place. In 2017, to support the Group's efforts to strengthen internal control, get rid of loopholes in our operations, and eliminate corruption risks, we carried out 14 supervision and inspection projects, timely collected information to support informed decision-making, and proposed disposal suggestions.

conducted **791** inspections

carried out **145** rectification and efficiency monitoring projects

reviewed **6** poverty alleviation projects

Partnership

We attach great importance to building strong relationships with our partners, actively expand the scope of cooperation and improve our ability to create value; search for new ways to cooperate with partners, promote multi-faceted partnership, align our competencies to the goals of our stakeholders and local economic and social needs; focus on and actively respond to the expectations and demands of stakeholders while promoting multi-party win-win cooperation.

Communication and cooperation

Our relationships with our partners are built on integrity and mutual benefits. In 2017, we were committed to strengthening cooperation with local governments, local communities, suppliers, clients, financial institutions and other stakeholders to achieve win-win outcomes by combining our competitive advantages.

Cooperation with Government:	Cooperation with Other Companies:	Cooperation with Financial Institutions:	Cooperation with Colleges and Research Institutions:
Hunan Province, Guangdong Province, Yunnan Province, Sichuan Province, Gansu Province, Jilin Province, Fujian Province, Henan Province, Chongqing City, etc.	HBIS Group, Hebei Port Group, Taiwan-based China Steel Corporation, Codelco, KGHM Polska Miedz SA, etc.	China Development Bank, Bank of China, Industrial and Commercial Bank of China, Agricultural Bank of China, China Construction Bank, Bank of Communications, China Merchants Bank, Bank of Beijing, China Export-Import Bank, Industrial Bank, etc.	International Seabed Authority, Tsinghua University, Peking University, Central South University, Hunan University, Qinghai Institute of Salt Lakes of the Chinese Academy of Sciences, Beijing General Research Institute of Mining & Metallurgy, etc.



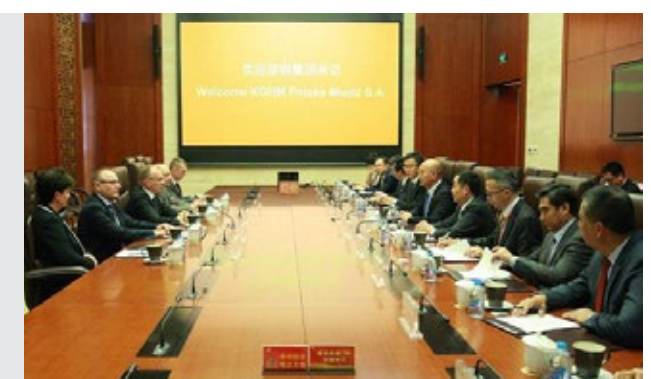
In August 2017, Guo Wenqing, General Manager of China Minmetals and Executive Chairman of the Brazil-China Business Committee, gave an opening speech at the annual meeting of the Brazil-China Business Committee on behalf of the organizer

China Minmetals attended a meeting organized by the Government of the Tibet Autonomous Region and the State-owned Assets Supervision and Administration Commission of the State Council (SASAC) to encourage companies directly controlled by the central government to support the development of Tibet, and signed a strategic cooperation framework agreement with the Government of the Tibet Autonomous Region and a cooperation agreement (2016-2020); China Huaye Group Co., Ltd. signed a financial cooperation agreement with Bank of Tibet Co., Ltd.



China Minmetals and the Government of Chengdu signed a strategic cooperation agreement

In May 2017, He Wenbo, then chairman of China Minmetals, met with Polish Prime Minister Beata Szydło and President of the Management Board of KGHM Radosław Domagalski. He Wenbo and Domagalski witnessed the signing of a letter of intent regarding cooperation between MCC and PEBEKA.



Responsible supply chain

We have built strong relationships with our suppliers based on mutual support and benefits and made continuous efforts to strengthen relevant mechanisms. We only select suppliers with appropriate qualifications. Our suppliers are urged to fulfill their product quality, safety, environmental protection and other obligations. Our relationships with suppliers are at the center of our supply chain responsibility program.



Case: MMG Responsible Supply Chain Management

When selecting suppliers and issuing packages, MMG not only comprehensively assesses its capabilities in business, society, quality and technology, but also considers some non-financial standards, including health and safety management performance, environmental management, local capacity training, social contributions and local employment commitments. When hiring a supplier, MMG requires the supplier's written commitment to comply with the MMG Code of Conduct, the Anti-Bribery Framework, and other relevant standards, policies and processes, including human rights related requirements.

In 2017, MMG regularly reviewed and reported on contract performance of nearly 60 key suppliers, looking for opportunities for improvement and achieving breakthroughs.



Case: Procurement Management Center

In 2017, we establish a procurement management center, set up a group-wide procurement system and developed a procurement program. We launched on-line procurement platforms and developed and revised relevant rules and policies. Our headquarters has put an electronic procurement system in place. We also vigorously promoted electronic procurement practices at our first-tier subsidiaries and further standardized procurement activities at the group level.

Customer value

We attach great importance to product quality and customer services, constantly improve product quality and comprehensive service capabilities through the integration of resources and expertise, and provide customers with high-quality products and comprehensive solutions.



Case: MCC offered one-stop solutions that covered the entire value chain

MCC keeps focus on metallurgical engineering, infrastructure and emerging industries and works to extend its activities up or down the value chains of these industries. It leverages its financing and EPC capabilities to offer one-stop solutions.

MCC regards providing high-quality and satisfactory services to its customers as its ultimate goal. It leverages its financing and EPC capabilities to offer one-stop solutions tailored precisely to customers' needs. These life-cycle solutions integrate a wide range of services from project planning, business model designing, project approval, fund-raising, development, construction, operation to maintenance.

Targeted Poverty Alleviation

We actively support poverty alleviation, resolutely follow the CPC Central Committee's poverty alleviation decisions, and promote innovations for poverty alleviation. Our targeted poverty alleviation efforts have received wide public recognition.

In 2017, China Minmetals 25 units in 17 counties (including 6 counties and 2 villages designated under the fixed-point poverty alleviation program, all of which were still hit hard by extreme poverty). 35 cadres were stationed in the target areas. We also supported poverty reduction in Xinjiang and Qinghai.

We start with improving our poverty alleviation mechanism, formulate poverty alleviation plans and include poverty alleviation programs in our annual budgets. In 2017, we issued a number of policies to support our poverty alleviation efforts:

☑ We ensured the compliance and transparency of our poverty alleviation programs.

☑ We refined our targeted poverty alleviation programs.

☑ We standardized the supervision of our poverty alleviation programs and strengthened fund management of these programs.



Dong Mingjun, deputy secretary of the Party committee and deputy general manager of China Minmetals, visited the six counties and two villages targeted by our fixed-point poverty alleviation program to conduct a comprehensive survey



In September 2017, Zhou Peicheng said goodbye to the students of Chonghua Village Elementary School before stepping down as Village Party Branch Secretary



Case: Village Party Branch Secretary Zhou Peicheng

At the end of June 2017, Zhou Peicheng completed his two-year term of office in her capacity as Village Party Branch Secretary of Zhonghua Village, Jiancha Town, Dejiang County, and voluntarily asked for an extension of her office term at the village for the second time to complete the ongoing poverty alleviation project.

Zhou Peicheng has been granted a multitude of honorary titles, including Outstanding Communist and Outstanding Village Party Branch Secretary in Jiancha Town, Dejiang County, Individual Making Outstanding Contributions to Poverty Alleviation in Dejiang County, Outstanding Village Party Branch Secretary in Tongren City, Guizhou Province, and the provincial-level Outstanding Village Party Branch Secretary in Guizhou Province.

“100 Counties and 10,000 Villages” Poverty Alleviation Campaign

In 2017, China Minmetals continued to advance the “100 Counties and 10,000 Villages” Poverty Alleviation Campaign in accordance with the requirements of the central government, by improving access to water, electricity and roads in designated poverty-stricken counties and providing targeted assistance to poor villages and households and received wide public recognition for these efforts.



Bridges and Roads:

We built roads, bridges and dams in Zhenxiong, Yiliang, Weixin in Yunnan for travel safety and convenience of villagers and rural students. These infrastructure projects have played an important role in driving the growth of local economies and villagers no longer have to rely on animals for travel.



Access to Water

We built flood control embankments, about 300 meters in length, in Xingzhong Village to protect local residents from floods and a multitude of water points, wells, pools and pipelines to increase access to safe drinking water in rural areas.



Broadband Internet Access

After obtaining the approval of the local commercial and industrial administration bureau and the local telecommunication authority, we constructed infrastructure for broadband, about 20 kilometers in length, in Chonghua Village, Dejiang County, to provide Internet access to villagers. We also constructed 165 solar-powered road lamps.



China Minmetals Targeted Poverty Alleviation Project



China Minmetals Targeted Poverty Alleviation Project

Sustainable poverty reduction through industrial development

China Minmetals has taken the lead in promoting sustainable poverty reduction by supporting industrial development, improving self-reliance of local communities and establishing direct assistance projects. We help poor villages establish collective economic organizations, develop agricultural industries such as Chinese herbal medicines, duck farming, and pig farming, and expand distribution channels of agricultural products, including online channels.

We actively attracted investors to Zhenxiong County, Yunnan Province, established **17** major projects and signed investment agreements worth RMB **12.3** billion to drive industrial development of this county.

Minmetals & Jingyi Futures Co., Ltd., a subsidiary of China Minmetals Capital Co., Ltd., helped poor rubbers farmers in Ximeng County, Yunnan Province, which participated in its integrated “insurance + futures” scheme, to get out of poverty by hedging against falling rubber price. These farmers received compensation worth RMB 2.33 million under the scheme.

We provided support to farmers growing Rhizome Gastrodiae (Tianma) in Xiaocaoba Town, Yiliang County, Yunnan Province.

Minmetals Securities Co., Ltd. issued the first corporate bond in Liuzhi Special District, a poverty-stricken county designated by the central government, to support sustainable agriculture.



Case: China Minmetals focused on signature industries and explore new ways to reduce poverty through industrial development

The endowment of natural resources makes Qinglong Village, Luobu Town, Weixin County suitable for the development of agricultural industries. In 2017, China Minmetals invested RMB 1 million to establish Weixin Minmetals Qinglong Trading Co., Ltd. in Qinglong Village. The company cooperated with agricultural production bases and farmers to promote the Chinese herbal medicine industry.

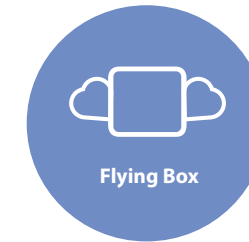
So far, it has planted about 500 mu of Pueraria Mirifica in collaboration with 235 rural households (1,182 farmers) in Qinglong Village. It is expected that the income of farmers in the village will increase by more than RMB 4 million in 2018. The company plans to expand the planting scale of Pueraria mirifica, grow other herbs used in TCM and partner up with more than 660 rural households (more than 3,000 farmers) in 2018. The income of the village is expected to increase by more than RMB 10 million in 2018. The company will lead the Chinese herbal medicine industry and other signature agricultural industries in Weixin County and make a great contribution to poverty reduction in the county by supporting industrial development.

Sport and cultural education

In addition to constructing schools and playgrounds and donating school uniforms and supplies to students, we also enlist public support for physical and cultural education.



We continued to collaborate with the China Foundation for Poverty Alleviation (CFPA) to advance the Care Package Project. In 2017, we donated RMB 500,000 and raised more than RMB 300,000 from employees and citizens through online platforms, all of which was spent to purchase school backpacks for students in three counties in Yunnan. In the past seven years since the project was launched, we donated RMB 7.42 million.



We facilitated the approval of modular school dormitory building projects under the Flying Box Program in Yanliang County and built multi-functional dormitory buildings using modular steel structures at Chayuan Elementary School in Luowang Township. The dormitory buildings can accommodate 200 children, saving them a lot of traveling time from home to school and vice versa. Tuogumei Elementary School Flying Box Project has been approved and will be launched in 2018.



So far, we have raised more than RMB 700,000 from our employees and citizens to help students with difficulties and 40 students from low-income families have received one-on-one assistance under our student assistance program. In 2017, Panzihua Technician College, Sichuan, offered a continual learning opportunity to six students who dropped out of middle school in Chonghua Village, Dejiang County and lowered tuition fees, book fees and travel expenses for them. We also worked with the China Social Welfare Foundation (CSWF) to launch a skill training pilot project in Yiliang County and offered an opportunity to more than 10 children from low-income families to study for free at Dongying Vocational School, Shandong, one of the state-level key vocational schools. Each student will receive a subsidy of RMB 8,300 each year during the assistance period.



Our representatives stationed in Yiliang County raised funds to build reading rooms at four schools and purchased tables, chairs, video equipment, much-needed sports equipment, and other supplies for these schools. They launched book donation events and received more than 3,000 children's books from donors, benefiting more than 700 children. They also actively donated winter gear to students at Bamao Primary School in Qiaoshan Town.

Sanitation and health

We seek to promote wellness - not only for our employees, but for the general public - through environmental protection and management initiatives and rehabilitation projects. We also build sport and recreation facilities for villagers to improve their life quality.

In 2017, we established a standardized clinic in Huanglian Village, Huashan Township, Zhenxiong County, and improved access to health care to 3,049 villagers. We invited a neuroscientist from Beijing Xuanwu Hospital to give lectures and provide consulting services at Zhaotong People's Hospital. More than 40 neuroscientists attended the lecture. We also allocated RMB 47,000 to help five families that fell into poverty due to critical illness in Huayuan County, Hunan Province.

improved access to health care to **3,049** villagers

allocated RMB **47,000** to help five families that fell into poverty due to critical illness in Huayuan County, Hunan Province

Public Good

We believe in giving back to the communities and strive to create positive social impact through a wide range of CSR initiatives from supporting disaster relief efforts, caring for migrant workers, to organizing charitable donations and volunteer activities.



Shared bicycle charity event



Qinghai Love Donation event



Minmetals Real Estate Happiness Charity Rainbow Run

Disaster relief

China Minmetals has a long history of helping people in need. In times of disaster, we actively offer help to get affected people through the crisis. In 2017, Minmetals Land Limited and Minmetals Capital Co., Ltd. actively participated in the fight against the floods in Hunan. The team of the Tibet-based Mangkang Project of China 19th Metallurgical Corporation deployed volunteers and equipment to deliver humanitarian relief to victims of the floods. They repaired roads and rescued stranded people.



Case: China Minmetals participated in earthquake rescue efforts in Jiuzhaigou

At 21:00 on August 8, 2017, an earthquake measuring 7.0 on the Richter scale jolted Jiuzhaigou County, Aba Prefecture, Sichuan Province. China MCC5 Group (MCC5) responded quickly and set up an earthquake relief steering group and emergency rescue teams in the early hours of the next day and deployed more than 20 rescue vehicles and other rescue equipment and supplies. MCC5 Hospital activated an emergency response program immediately and made sure its rescue team was ready to provide medical aid in accordance with the instructions from health authorities at any time. MCC5 also set up an expert panel to assess risks of buildings in the disaster-hit area in Jiuzhaigou.

It received a letter of thanks from the Party Committee and Government of Jiuzhaigou County for its contribution to the earthquake relief work.

Care for migrant workers

In 2017, we continued to strengthen our relationships with our labor contractors and created job opportunities for a large number of migrant workers while satisfying our construction and production needs at the same time. Our relationships with our labor contractors ensure the stability in the supply of labor to meet our needs and help us build harmonious relationship with our workforce.

Many subsidiaries of MCC volunteered to provide health services at no cost to migrant workers and organized movie nights and other interesting activities to enrich the life of migrant workers. They also showed their care for migrant workers and their children by distributing education manuals among children of migrant workers and organizing other volunteer activities.

Other philanthropic work

Employees of China Minmetals are passionate about philanthropic work and giving back. Our operations actively organize various charitable activities and are committed to protecting the rights of the vulnerable groups in our pursuit of harmony and development.



Warm winter activities- orphanage in the winter solstice



Warm winter activities in the winter solstice

Charitable Cause	Charitable Activities
Education	Minmetals Land Limited organized a donation activity for students from low-income families and received 3,521 pieces of clothing, 945 books, and 2,392 school supplies and toys from donors.
	Minmetals Exploration & Development Co., Ltd. had run a student assistance program for three consecutive years in the mining area of Songxian County and built a reading room for Longhe Village Primary School in Dazhang Town.
	The 23rd Metallurgical Construction Group Co. Ltd. had been running an aid program targeting students from low-income families and orphans in Luxi County, Hunan Province for three consecutive years and donated RMB 32,400 in cash grants and supplies worth more than RMB 7,000.
	China Metallurgical Construction Engineering Group Co., Ltd. organized a book donation activity and donated more than 80 books to rural schools.
	The Yuechi PPP Project Department of China 19th Metallurgical Corporation volunteered to construct provisional roads connecting Luodu Central Elementary School to surrounding neighborhoods for travel safety and convenience of more than 2,000 teachers and students.
Blood Donation	The Yinchuan Pipeline Corridor Project Department of China Metallurgical Construction Engineering Group Co., Ltd. donated sport and entrainment equipment and cash grants to students of Xinying Township Central Elementary School in Xiji County, Guyuan City.
	MCC Shen Kan Qinhuangdao General Engineering Design & Research Institute donated cash, books and school supplies to 32 students from low-income families.
	201 volunteer blood donors from Shanghai Baoye Industrial Furnace Engineering & Technology Co., Ltd. donated 40,200 ml of blood.
	189 employees of China 22MCC Group Corporation Ltd. voluntarily donated 57,000 ml of blood.
	44 employees of Zigong Cemented Carbide Co. Ltd. voluntarily donated nearly 14,000 ml of blood.

Charitable Cause	Charitable Activities
Care for Children	Employees of MCC Overseas Ltd. visited children with visual impairments.
	Members of China ENFI Youth Volunteers Association visited the Home of Angels from time to time to care for sick children at the orphanage.
	Employees of China 22MCC Group Corporation Ltd. visited students with difficulties at Fengnan Special Education School in Tangshan City and donated cash, books, oil, rice and other life necessities to more than 100 left-behind children.
Medical Assistance	Volunteers from Minmetals Land Limited traveled to Yushu Tibetan Autonomous Prefecture in Qinghai Province for the 2017 Qinghai Volunteer Trip.
	The Fourth Construction and Engineering Branch of China Metallurgical Construction Engineering Group organized the "Double 11" donation activity to donate clothes and books to left-behind children and low-income families.
	Two subsidiaries of China First Metallurgical Group, Wuhan Property Development Co., Ltd. and Xin'ao Property Development Co., Ltd., joined hands with Puren Hospital to offer free medical services and physical examinations at Yijiang Riverside Residential.
Care for the Elderly	MCC17 Hospital launched the "Women and Health" project and offered free medical services to 80 janitorial and maintenance workers.
	MCC5 provided medical support to towns/townships on a regular basis and insisted on serving one town/township every month.
	Shanghai MCC Hospital launched a community-based health action program. In 2017, it gave 15 health lectures, organized 30 volunteer medical assistance events, served more than 5,300 residents, and attracted more than 300 medical professionals to join the program.
	15 volunteers from MCC Baosteel Technology Services Co., Ltd. visited local senior citizens over 80 years of age.
	10 volunteers from China MCC22 Group Co., Ltd. visited the elderly with mental health issues at the Third Social Welfare Home of Shanghai.

Sustainability Performance

Economic Performance	2013	2014	2015	2016	2017
Operating income (RMB 100 million)	4146.50	3227.57	2003.67	4355	4934
Total taxes (RMB 100 million)	80.04	81.24	80.04	184.36	182.26
R&D investment (RMB 100 million)	8.58	10.61	9.84	60.52	76.23
Number of new patents	212	286	198	3148	3709

Environmental Performance	2013	2014	2015	2016	2017
Year-on-year decline in energy consumption (%)	-1.19	-14.19	-24.01	2.00	2.50
Year-on-year decline in COD emissions (%)	-9.18	-22.83	-18.83	8.30	8.50
Year-on-year decline in SO2 emissions (%)	-19.38	-12.28	-11.15	5.70	4.40
Number of environmental training sessions	15	16	4	267	817
Number of environmental training participants	1266	1405	1770	13670	38160

Economic Performance	2013	2014	2015	2016	2017
Number of employees	171829	170292	143517	192023	196609
Number of female employees	31061	35236	22324	-	45200
Safety investment (RMB 10,000)	42471	46400	39308	189093	299058
Number of seriously injured employees	2	4	2	3	4
Number of deaths	5	4	3	3	16
Number of employee training participants(person-time)	156665	200711	149153	263087	317713
Proportion of contracts executed (%)	100	100	100	100	100

2017

Operating income (RMB 100 million)

4934

Year-on-year decline in energy consumption (%)

2.5

Total taxes (RMB 100 million)

182.26

Year-on-year decline in COD emissions (%)

8.5

R&D investment (RMB 100 million)

76.23

Year-on-year decline in SO2 emissions (%)

4.4

Number of new patents

3709

Number of environmental training sessions

817

Number of environmental training participants

38160

Number of employees

196609

Proportion of contracts executed (%)

100

Number of employee training participants(person-time)

317713

Number of female employees

299058

Number of female employees

45200

Outlook 2018

	Review of 2017	Plan for 2018
 <p>Be Valuable</p>	<ul style="list-style-type: none"> ● Revenue hit record high ● Significantly improving resource development and management capabilities ● Completing deep sea exploration projects ● World-leading engineering design and construction capabilities ● Steady growth in finance and real estate industries over the years ● Completing the reorganization ● Advancing corporate downsizing 	<ul style="list-style-type: none"> ● To improve asset deployment in 12 core business sectors ● To drive innovation in metallurgical ● To fuel growth in emerging industries ● To foster new growth drivers ● To continue to advance corporate reform and downsizing
 <p>Be Innovative</p>	<ul style="list-style-type: none"> ● Driving technological innovation by scientifically planning the layout of technological innovation centers ● Developing key technologies to support 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 increase investment in technological innovation and take the lead on more key technology development projects ● To improve the innovation chain of the industry and create a technological innovation system that supports breakthroughs, progress and start-ups ● To increase the use of digital, Internet and artificial intelligence technologies ● To strengthen cooperation in scientific and technological research and build world-class research and development platforms and innovation centers ● To cultivate innovative tech talent
 <p>Be Safe</p>	<ul style="list-style-type: none"> ● Launching a special safety and environmental protection program during the 19th National Congress of the CPC ● Conducting workplace safety inspections and removing hazards ● Strengthening safety management and implementing a risk classification system ● Learning safety management practices of MMG and improving the safety management system ● Developing occupational health infrastructure 	<ul style="list-style-type: none"> ● To adopt a refined approach to management and improve safety management ● To comprehensively investigate and remove safety hazards and prohibit working under unsafe conditions ● To review and investigate major accidents, identify the persons responsible for the accidents and rectify problems

	Review of 2017	Plan for 2018
 <p>Be Green</p>	<ul style="list-style-type: none"> ● Promoting environmental governance in key areas and exploring ways to clean up the production processes of our mining and smelting operations ● Putting an accountability system in place for energy conservation and emission reduction in place and achieving annual targets ● Establishing energy-saving and environmental protection communication and cooperation platforms ● Promoting green building practices ● Promoting green business 	<ul style="list-style-type: none"> ● To adopt a refined approach to management and standardize environmental protection practices in construction projects ● To focus on pollution prevention, source control and end-of-pipe control, and prevent major pollution accidents ● To prevent major pollution accidents ● To continue to actively promote green business
 <p>Be Happy</p>	<ul style="list-style-type: none"> ● Implementing the new job system and creating effective career development paths ● Implementing the professional manager recruitment pilot program and advancing market-oriented HR management reform ● Improving the compensation system and maximizing the impact of incentive instruments ● Integrating performance management systems and building a group-wide performance appraisal system ● Organizing employee activities, helping employees balance work and life, and stepping up employee assistance 	<ul style="list-style-type: none"> ● To improve the professional management system ● To put a young talent development program in place ● To improve the incentive and disciplinary mechanisms ● To advance the corporate employee development strategy
 <p>Be Harmonious</p>	<ul style="list-style-type: none"> ● Operating in good faith and complying with laws ● Working closely with our partners to achieve win-win ● Promoting targeted poverty alleviation ● Supporting charity giving, volunteer programs and other philanthropic endeavors 	<ul style="list-style-type: none"> ● To comprehensively strengthen risk management ● To consolidate cooperation results, expand the scope of cooperation, and achieve win-win and shared development in more areas ● To drive innovation in poverty alleviation and continue to promote targeted poverty alleviation



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 2017 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 eleventh 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 2017.
- Assurance address is in Tower A, Minmetals Plaza, No.3 Chaoyangmen avenue, Dongcheng district, Beijing China, Where the headquarter located. And we 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 28-29.07.2018.

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(G4) 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 2017. 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 G4 core option.



- The structure of report is complete, the revealed information is clear, easy-understand and available;
- The report feedbacks the stakeholders expectation and requirement through 6 fields, which is Be Valuable, Be Innovative, Be Safe, Be Green, Be Happy, Be Harmonious, in addition, the development of The Belt And Road of China Minmetals is described in a special form, which reflects the political responsibility of China Minmetals as a state-owned enterprise.
- Responsible performance from 2013 to 2017 had been revealed as key performance at the end of the report, which reflect the report comparison.

Suggestion for improvement

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

- Suggest pay attention and introduce GRI standards, the management methods of various issues should be effectively combined with the social responsibility management of China Minmetals, which can improve the internationalization of social responsibility management of China Minmetals
- It is recommend to response the important event which happened in this year, such as safety issue, which can reflect the responsiveness of the report ;
- In supply chain area, we suggest real more quantitative performance indicators.

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.

汉德技术监督服务(亚太)有限公司

The team leader: Ms. Huang Li

Date :02.08.2018

The Authorized person: Mr. Song Haining

Date: 02.08.2018

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

Index

The Implementation of the UN Global Compact's Ten Principles

Ten Principles	Corresponding Actions in 2017
<p>Human Rights</p> <p>Support and respect the protection of internationally proclaimed human rights</p> <p>Not complicit in human rights abuses</p>	<p>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.</p> <p>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.</p>
<p>Labor</p> <p>Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining</p> <p>Elimination of all forms of forced and compulsory labor</p> <p>Effective abolition of child labor</p> <p>Elimination of discrimination in respect of employment and occupation</p>	<p>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.</p> <p>Adhere to equal and standardized employment, ensure that all work is done by legally recognized personnel, prohibit all kinds of employment discrimination, adhere to the principle of fair employment, and establish a competitive compensation and welfare system, attach importance to democratic management of employees, ensure smooth channels of appeal, and build harmonious labor relations.</p> <p>Resolutely abolish child labor, forced labor and employment discrimination, earnestly safeguard the legitimate rights and interests of female workers, establish an assistance system for needy workers, and take the initiative to solve problems of retired workers.</p>
<p>Environment</p> <p>Businesses should support a precautionary approach to environmental challenges</p> <p>Undertake initiatives to promote greater environmental responsibility</p> <p>Encourage the development and diffusion of environmentally friendly technologies</p>	<p>Carry out annual special supervision and inspection of environmental protection, strengthen management of environmental risks and environmental emergency response, and actively cope with challenges of climate change.</p> <p>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, and plant trees and grow seedlings.</p> <p>Conduct scientific and technological innovation, build environmental protection platforms, promote the information and resources sharing in energy saving and environmental protection such as the recovery and utilization of residual heat and energy, the reduction, resource-based, and harmless treatment of hazardous waste materials, the deep purification of acidic wastewater and the ecological environment rehabilitation in enterprise relocation. Reduce pollution emissions from smelting and mining industries and devote to environmental protection projects such as comprehensive water environment control, waste incineration power generation, photovoltaic power generation. Provide a complete solution to constructing the "county-town-village" integrated beautiful countryside.</p>
<p>Anti-Corruption</p> <p>Businesses should work against corruption in all its forms, including extortion and bribery</p>	<p>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.</p>

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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"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Layout and design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Readability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.What are the most important issues to you?

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