



Description of this report

Dear stakeholders,

Thank you for reading the 9th Social Responsibility Report of Metallurgical Corporation of China Ltd. This report is issued annually aiming to have open communication with stakeholders about the social responsibility philosophy and performance in practice. The main body of the report includes three chapters. The first chapter describes the strategic positioning of the Company with a focus on the economic responsibility; based on corporate governance, the second chapter describes the responsibility to internal and external stakeholders; the third chapter describes the environmental and social responsibility of the company from the perspective of sustainable development. Metallurgical Corporation of China Ltd stresses the comprehensive value in economic, social and environmental development, and thus strives to explain the meaning and value of the CSR practice from various aspects, so as to respond to the expectations and requirements of stakeholders systematically.

Reporting Boundary: This report covers Metallurgical Corporation of China Ltd. (referred as MCC hereafter) and its subordinates.

Reporting period: From 1 January to 31 December 2017, and also includes additional information beyond the stated reporting period.

Compilation Conformance

Guidelines to the State-owned Enterprises on Better Fulfilling Corporate Social Responsibilities released by the State-owned Assets Supervision and Administration Commission (SASAC) of the State Council

Environmental, Social and Governance Reporting Guide of Hong Kong Exchanges and Clearing Limited

Guidelines of Shanghai Stock Exchange for Environmental Information Disclosure of Listed Companies issued by Shanghai Stock Exchange

ISO 26000: Guidance on Social Responsibility (2010) issued by International Organization for Standards

GB/T 36001-2015: Guidance on Social Responsibility Reporting by General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China and Standardization Administration of the People's Republic of China

The G4 Sustainable Reporting Guidelines issued by the Global Reporting Initiative (GRI G4)

Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises (CASS-CSR 3.0) issued by Research Center for Corporate Social Responsibility, Economics Division, China Academy of Social Sciences

Description of data in this report

This report truly reflects MCC's proactive performance of economic, environmental and social responsibilities as well as its realization of overall, harmonious and sustainable development. Data in this report are from MCC's official documents and statistical reports as well as the summary statistics of social responsibility practices of the subordinates. The financial data are from MCC's 2016 financial statement, while other data are mainly for the year 2017 and partially for previous years. Unless otherwise specified, the amounts in this report are denominated in RMB.

Reference

For readability, Metallurgical Corporation of China Ltd. is referred to as "MCC LTD", "MCC", "the Company" or "we". In this report, and its controlling shareholder – China Metallurgical Group Corporation—is referred to as "MCC GROUP".

Access to this report

This report is published in Simplified Chinese, Traditional Chinese and English. In case of any discrepancy, the Simplified Chinese version shall prevail. This report is released to the readers in printed edition (with recycled paper) and in PDF, and the latter can be downloaded from the website of MCC (<http://www.mcc.com.cn>).

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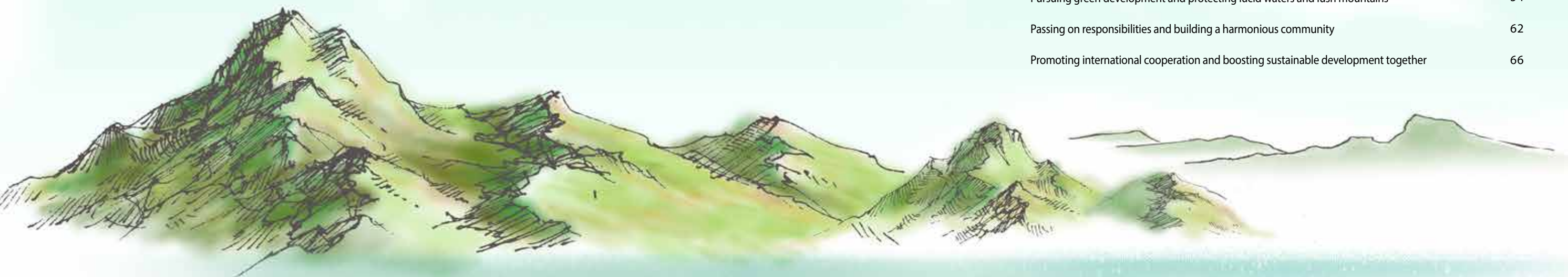
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Chairman Message



Great achievements come from great aspirations, and cannot be made without diligence. In 2017, MCC further carries out the new development philosophy of "innovation, coordination, green development, openness and sharing", and accelerates development under the guidance of the vision of "Focusing on the MCC's main business and building a better MCC". As a result, the business performance sets a new record for the history of the Company. The total value of newly signed contracts for the past three years achieved an annual increase of RMB 100 billion, reaching a new record of RMB 604.901 billion; the revenue was RMB 244.00 billion with a year-on-year increase of 11.13%; the total profit reached a new high of RMB 8.975 billion, up by 17.35%, which marked the forward momentum of steady development. The Company maintains the state of steady growth.

We keep pursuing the coordination between national development and enterprise development, contributing to the development of the modern economic system. While giving full play to the great strength and potential of innovation-driven development, MCC unswervingly promotes the traditional metallurgical industry to be "higher, stronger, and more pioneering", and speeds up the building of the "National Team" with best metallurgical construction and operation services in the world, thus serving the transformation and upgrading of global steel industry with the new supply which is of higher quality, green and intelligent. MCC unswervingly promotes the development of infrastructure construction with focuses and characteristics, thus serving the new-type urbanization with breakthroughs in products in areas including city transportation infrastructure construction, high-end house construction, middle and high-end real estate and steel structure. MCC unswervingly promotes the leading and rapid development of emerging industries to expand its advantage, thus serving the development of a "Beautiful China" with its outstanding competitive advantages in the construction of underground integrated utility corridors, theme parks, the beautiful countryside, and the water environment treatment industry.

We keep building the world wholeheartedly and striving for excellence, aiming to press ahead together with the stakeholders and pursue win-win cooperation. Focusing on the cornerstone of management improvement in engineering construction, we win the satisfaction of customers and the good reputation in the market by providing systematic solutions, full-life-cycle engineering services and high quality engineering construction. With integrity as the foundation, we conduct a wide range of strategic cooperative alliance with local governments, domestic and foreign enterprises and institutions to share resources and complement each other's advantages and achieve common development. We care for the development of employees, provide smooth career development channels and improve the abilities of employees to make MCC "the ideal highland that the young yearn for, the platform for the middle-aged to develop business and the harbor for elderly care", and improve the sense of belongs, achievement and happiness of employees. The Company always shares the achievements with stakeholders through harmonious and mutual beneficial cooperation and joint value creation.

We keep pursuing environmental-friendly, open and inclusive development to create a sustainable future. Striving to be a resource-saving and environmental-friendly enterprise, we respect and protect nature, and conforms to natural laws. Committed to the development a community of ecological environment and green development with shared future, we promote the comprehensive conservation and recycling of resources and improve the utilization efficiency of resources. Focusing on targeted poverty alleviation, we assign backbone employees to full time poverty alleviation positions, who actively promote poverty reduction and make contributions to the society. We also actively participate in activities for poverty alleviation and education support, as well as charities and donations around the world, and enhance international cooperation on production capacity and equipment manufacturing while engaged in the "Belt and Road" initiative. At the same time, we promote localized management of employees, foster local industrial upgrading, economic development and social progress and drive the development of "a community with shared future for humanity"

Achievements belong to the past, and a good future is created through hard work. The year 2018 is crucial to promoting quality development of MCC. In face of the new ear, new mission and new journey, employees of MCC aspire to make achievements and will make remarkable achievements. We will further study the spirit of the 19th National Congress of the CPC, and take the Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era as guidance. Upholding the strategic position to "being a national team of metallurgical construction, the main force of infrastructure construction, the pacesetter of emerging industries, and insisting on taking the road of high-tech and high-quality development in the long term", we will vigorously promote the corporate spirit of "Never delaying, never slacking". Firmly adhering to CSR philosophy, we strive to be a world-class city operator that is competitive around the world and a provider of systematic solutions for industrial development as well as full-life-cycle services for engineering projects, and maximize the comprehensive value in economic, social and environmental development. By opening the glorious chapter of "Better MCC", we aim to contribute to sustainable development of the society and the realization of the Chinese dream of national rejuvenation.

Board Chairman

（劉文俊）

About Us

Company profile

Headquarters: Beijing, China

Stock short name: MCC

Stock Code: 601618, HK1618

Business sectors: engineering construction, real estate development, equipment manufacturing and resources development

Metallurgical Corporation of China Ltd. (MCC) is an extra-large enterprise in China. As the earliest steel industry construction strength of new China, MCC is the pioneer and main force in steel industry of China.

From the construction of "the cradle of the Chinese iron and steel industry" – Ansteel in 1948 to the construction of WISCO, Baogang group, TISCO, Pangang group, Baosteel, to name but a few, its subsidiaries have undertaken the planning, investigation, design and construction of the key facilities for the production of nearly all large and medium iron and steel enterprises in China, thereby making it the founder of the "iron and steel backbones" of China. As the largest and strongest metallurgical construction contractor and metallurgical operation service provider in the world, MCC "builds the world with heart", and prides on taking 90% of the domestic metallurgical construction market and 60% of the international metallurgical construction market.

In December of 2017, MCC Group set up MCC, which was listed in Shanghai and Hong Kong in September of 2009.

According to the strategic position to "being a national team of metallurgical construction, the main force of infrastructure construction, the pacesetter of emerging industries, and insisting on taking the road of high-tech and high-quality development in the long term", MCC takes on the national responsibility of leading the metallurgical industry in China to a higher level by using its top-notch core techniques in the field of metallurgical engineering, irreplaceable integration advantage in the entire industrial chain of metallurgical construction and constant ability of reform and innovation. Relying on the excellent abilities in research investigation, construction and service, MCC accelerates the upgrading and transformation, and establishes the integrated system of "four beams of eight columns" to become a leading force in national infrastructure construction. Always pursuing innovation as the new engine and new driver of enterprise development, MCC undertakes the tasks of being the pioneer, innovator and leader in developing emerging industries, creating a new "visiting card" of promoting sustainable development in the new normal.

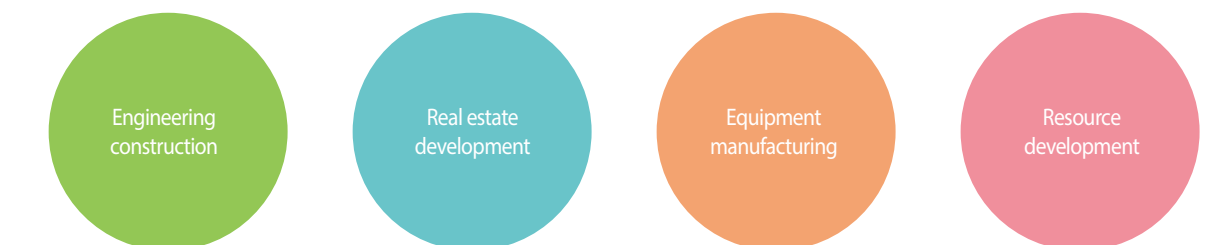
In 2017



Corporate philosophy

Corporate mission	Corporate vision	Strategic positioning	Corporate spirit	Concept of social responsibility
Creating value Rewarding Shareholders Benefiting Employees Making success	Focusing on MCC's main business Building a better MCC	Being a national team of metallurgical construction The main force of infrastructure construction The pacesetter of emerging industries Insisting on taking the road of high-tech and high-quality development in the long term	Never delaying Never slacking	Developing innovatively and sustainably Paving the future of the world together

Business sectors



For the engineering contracting sector, one of the largest engineering contractor in the world as well as the metallurgical engineering contractor with longest operation history and strongest professional design, construction as well as service capacities in China. Relying on the excellent abilities in research investigation, construction and service, MCC actively promotes upgrading and transformation, and makes great achievements in engineering contracting sector.

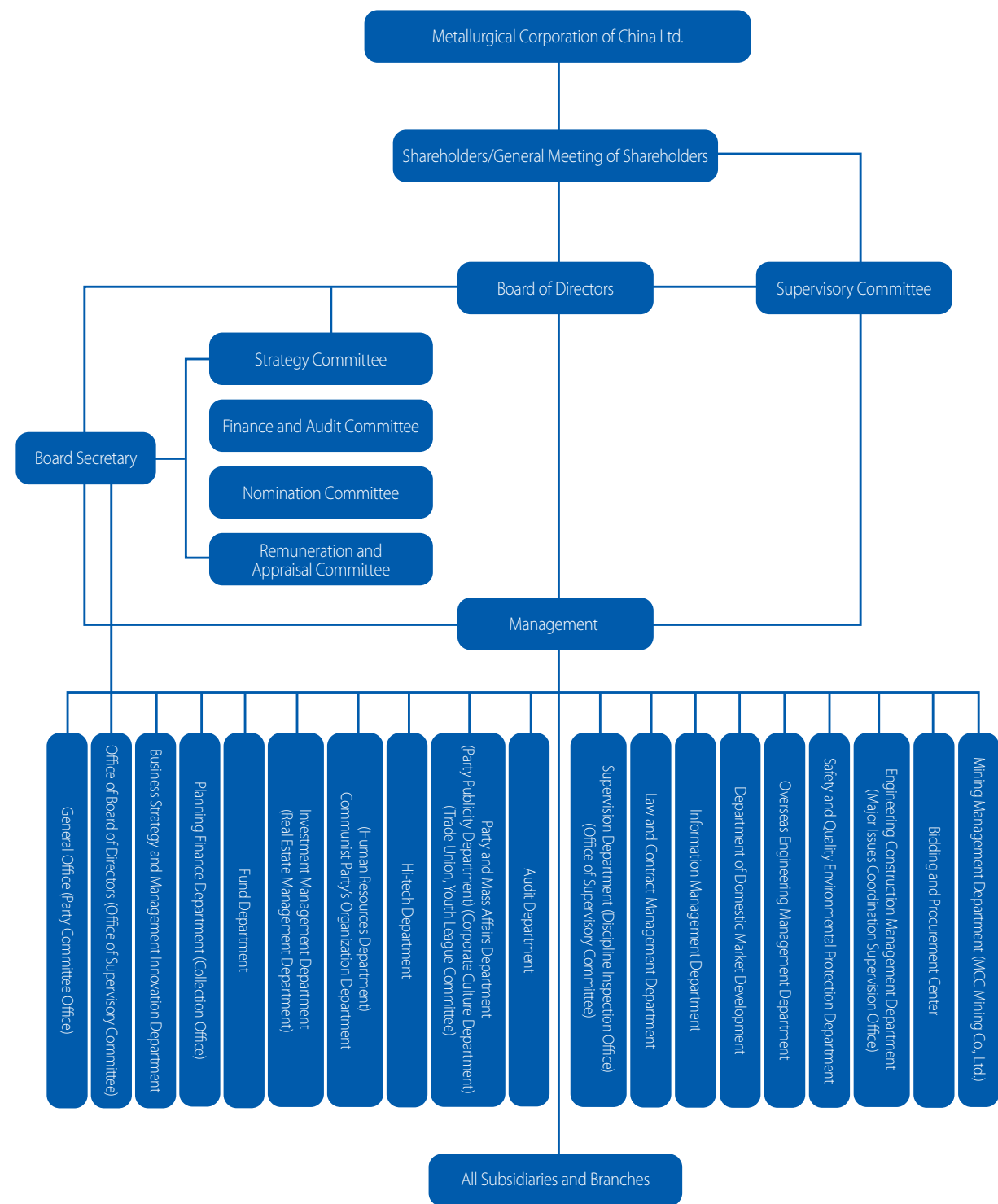
In this sector, the Company is one of the first central enterprises with real estate being part of their principal business approved by SASAC (State-owned Assets Supervision and Administration Commission). The real estate development brand of the Company – "MCC Real Estate" has already enjoyed a good reputation.

In the sector of technical equipment manufacturing, MCC is one of the large manufacturing enterprises of metallurgical equipment in China that can manufacture core metallurgical equipment with its own independent intelligent property rights and produce complete sets of equipment. In the meantime, the Company is also China's largest steel structure manufacturer which gains the prominent position in the R&D, design, manufacturing and installation of steel structure.

In this sector, the Company is one of the large Chinese enterprises engaged in overseas resources development. It owns the mining rights of many resources development projects exploring iron ore, copper, nickel, cobalt, lead, zinc and other metal mineral resources. Besides, the Company is rated the Top 10 world largest polysilicon production enterprises for several consecutive years, and it is an influential polysilicon production enterprise in the world.



Organizational structure



Subsidiaries

As of 31 December 2017, MCC had 48 wholly-owned subsidiaries and holding subsidiaries in China and abroad, which are:

Central Research Institute of Building and Construction Co., Ltd.	MCC Baosteel Technology Services Co., Ltd.
Beijing MCC Equipment Research & Design Corporation Ltd.	MCC Communication Construction Group Co., Ltd.
China ENFI Engineering Corporation	MCC Northeast Construction and Development Co., Ltd.
Capital Engineering & Research Incorporation Ltd.	MCC Inner Mongolia Construction and Investment Co., Ltd.
CISDI Group Co., Ltd.	MCC Southern Construction and Investment Co., Ltd.
WISDRI Engineering & Research Incorporation Limited	MCC Rail Transit Co., Ltd.
Huatian Engineering & Technology Corporation, MCC	Metallurgical Corporation of Central China Ltd(Henan) Branch
ACRE Coking & Refractory Engineering Consulting Corporation, MCC	MCC Utility Tunnel Science and Technology Development Co., Ltd.
Zhongye Changtian International Engineering Co., Ltd.	MCC Real Estate Group Co., Ltd.
Northern Engineering & Technology Corporation, MCC	MCC Tongsin Resources Ltd.
Shen Kan Engineering & Technology Corporation	MCC Australia Holdings Pty Ltd.
MCC Wuhan Surveying-Geotechnical Research Institute Co., Ltd.	MCC Jinji Mining Development Co., Ltd.
China First Metallurgical Group Co., Ltd.	Ramu Nico Management (MCC) Limited
China Second Metallurgical Group Co., Ltd.	MCCFC Ltd.
China Third Metallurgical Group Co., Ltd.	MCC Financial and Leasing Co., Ltd.
China MCC5 Group Co., Ltd.	MCC International Engineering Group Co., Ltd.
MCC TianGong Group Corporation Limited	MCC Overseas Ltd.
China MCC17 Group Co., Ltd.	Vietnam Engineering & Technology Corporation, MCC
China Metallurgical Construction Engineering Group Co., Ltd.	China MCC International Economic and Trade Co., Ltd.
China 19th Metallurgical Corporation	MCC (Guangxi) Mawu Expressway Construction Development Co., Ltd.
China MCC20 Group Corp., Ltd.	MCC Holdings (Hong Kong) Co., Ltd.
China 22MCC Group Corporation Ltd.	MCC-SFRE Heavy Industry Equipment Co., Ltd.
Shanghai Baoye Group Corp., Ltd.	MCC West Australia Mining Co., Ltd.
China Huaye Group Company Limited	China No. 13 Metallurgical Construction Co., Ltd.

Honors and awards in 2017



Economic honors and awards

Ranking **8th**

The Company ranked 8th in the Top 250 Global Contractors released by ENR.

Ranking **149th**

The market value of A and H shares of the Company increased by 12% year on year and reached RMB 91.9 billion, ranking 149th in the Top 500 Chinese Listed Companies with the Highest Market Value.

Baa1
(BBB+)

Moody's, one of the three largest credit rating agencies has raised twice the rating of MCC to Baa1 (BBB+).

Level A
(the best)

The Company was awarded as the Level A (the best) listed company in information disclosure by Shanghai Stock Exchange.

Best investor relations

Best performance in sustainable development

On the award ceremony of 2017 China Financial Management Award Gala, the Company won Best Investor Relations Award and Best Performance Award for Sustainable Development.

MSCI

The A-shares of the Company were among the first batch to be included in the MSCI Emerging Markets Index.

Top five

Guo Wenqing, Board Chairman of MCC, was selected as one of the Top 100 Excellent CEOs in China announced by Harvard Business Review and Top 5 CEOs of Central Enterprises.

Excellent corporate bond issuer

The Company won the title of Excellent Corporate Bond Issuer by SSE.



Honors and awards in science, technology and quality

4 awards

The Company won four National Science and Technology Awards, ranking first in winning this prize among all metallurgical and construction central enterprises.

The 1st place

The Company takes the first place in the number of Chinese Patent Award of Excellence and has won the Chinese Patent Gold Award for three consecutive years.

18 awards

The Company won 18 Metallurgical Science and Technology Awards and won the Metallurgical Science and Technology Special Award as the first member for the first time.

18 prizes

The Company won 18 prizes in the third China Construction Engineering BIM Competition, one of the top construction central enterprises in terms of the number of prizes.

3 awards

The Company has won 3 Tien-yow Jeme Civil Engineering Prizes.

8 prizes

The Company has won 8 Luban Prizes for Construction Projects (including participation).

18 awards

The Company has won 18 National High Quality Engineering Awards (including participation).



Honors and awards in environmental protection

19

Nineteen of the Company's projects have been listed "National Green Construction Demonstration Projects in Construction Industry" in 2017.

Demonstration Construction Site of Green Construction in China

The gatehouse project in Dongxing city, Guangxi province won the honor of "Demonstration Construction Site of Green Construction in China".

18 awards

Four patents of MCC Baosteel won China Circular Economy Patent Award.



Guiding by the strategy and carrying out new development concepts

As the social principal contradiction in our country has transformed, and our economic development changes the priority to quality development instead of high-speed growth, MCC advances with the times and puts forward the strategic position of "being a national team of metallurgical construction, the main force of infrastructure construction, the pacesetter of emerging industries, and insisting on taking the road of high-tech and high-quality development in the long term", so as to contribute to building the modern economic system.

We implement new development concepts and have formed core competitiveness due to "specific professionalization and strong industrial chain". We pace up transforming ourselves into world-class urban operator, industrial development systematic solution provider and engineering project full-life-cycle service provider, and thus supporting our country's deepening of the supply side structural reform and accelerating the construction of an innovative nation.



Zhanjiang Steel Base of Baosteel

Promoting advancement and upgrading advancement and upgrading as the leading national team of metallurgical construction

66 By being the national team of metallurgical construction, we aim at not just influencing ourselves or the country, but the whole world; we put our eyes on neither the past nor the present, but the future. 99

—Guo Wenqing, Board Chairman of MCC

In the new era, the global iron and steel industry is greener, more intelligent and more service-oriented. MCC always stands at the height of the international level and the industrial level, gathers talents from eight business sectors and 19 business units of metallurgy industry, and continuously iterates, upgrades and sharpens core technologies to maintain the leadership in the industry. MCC holds and further strengthens its advantage in industrial chain integration to maintain its irreplaceable position. While continuously innovating and reforming to expand both internal and external markets and create new jobs, MCC accelerates the cultivation of the best “national team” in metallurgical construction and operation in the world and shoulders the national responsibility of making its way into a higher level and onto the center of the global arena.

Focusing on green construction, energy conservation and environmental protection, technical improvement and technological innovation, we provide quality operation services to iron and steel enterprises and create new supplies of better quality. During last five years, MCC has undertaken the overall planning and design, and supply, design, construction, production and operation of major technological units of the only two new 10-million-ton level iron and steel complexes in the world-Zhanjiang Steel Base Project and Formosa Ha Tinh Steel Project in

Vietnam, applying a large number of core equipment and independently developed technologies with relevant indicators all reaching the world's leading level, and fully displaying the Company's independent innovation capacity.

In 2017, due to outstanding reputation, MCC won the trust of all clients in national large-scale metallurgical projects and major iron and steel new projects along the route of “Belt and Road”. The value of newly signed contracts in metallurgical engineering reached RMB 78.857 billion, representing a year-on-year growth of 72.3%. Newly signed national projects included Hebei Zongheng Fengnan Iron and Steel Project, China Baowu Steel Group Corporation Project, and Shandong Iron & Steel Group Rizhao Base Project. New overseas projects included Indonesia Dexin Iron and Steel Project, and new overseas contracts included general turnkey contract with Spanish ACS Group, and Tata Steel Limited Iron and Steel Coke Oven Project.

Nonferrous metallurgy is an important part of MCC's metallurgical engineering business. As the trailblazer and pioneer of nonferrous metallurgy in China, MCC has undertaken more than 90% of the copper, lead, nickel and tin smelting projects across the country, leading the global development direction in nonferrous metallurgical industry.



Indonesian Krakatau Steel 1.2 Million Ton Turnkey Iron Making Project



Hebei Zongheng Fengnan Iron and Steel Project



Shandong Steel Group Rizhao Base



Malaysia Kuantan Industrial Park 3.5 Million Ton Steel Engineering Project

Case Zhanjiang Steel Base Project boosts supply side structural reform by injecting new momentum

General Secretary Xi Jinping pointed out that the ultimate purpose of the supply-side structural reform is to meet demands, and the priority is to improve quality and efficiency of the supply system.

In 2012, against the backdrop of sluggish global economic growth, MCC put forward a supply side structural reform solution for Baoshan Iron & Steel Co., Ltd., which suggested weeding out backward capacity, setting up a high-quality Carbon Steel Plates Base focusing on ecology, high technology and high economic benefits, and launching an unprecedented battle of driving force transformation.

Zhanjiang Steel Base Project costs 41.5 billion yuan, 40% lower than the original investment plan. It's planned to produce 8.23 million tons of molten iron, 8.928 million tons of molten steel and 9.44 million tons of rolled steel every year. After two years of hard work of over 20,000 MCC employees, this world-class ten-million-ton level low-carbon plates and iron & steel base occupying over 12 km² was finally completed, with 31 indicators reaching first class in the world.

In 2017, Zhanjiang Steel Base was put into full production and operation, and became a production base with best cash cost under Baosteel Co., Ltd. This steel-making project won the Luban Prize for Construction Project in 2017.

Ecological Green Steel Plant

Zhanjiang Steel Base is a "green carbon steel production base with the world's highest efficiency". By applying 116 energy saving and environmental friendly technologies, its indicators in technique, environmental protection and energy consumption reach the world's leading level, many among which reach China's highest level.

- Intelligent and enclosed eco-friendly stockyard helps realize clean production -- "using coals while not seeing coals, using ores while not seeing ores, transporting materials while not seeing materials", serves as the first iron-included solid waste treatment center in the world, and realizes 100% internal recycling use of mud with iron, which is the first case in China.
- The comprehensive utilization rate of solid waste has reached 99.93%, which is the highest in the country;
- Flue gas desulfurization efficiency is over 95%;
- The recycle rate of water resources is more than 98%, which is the highest in the country, and realizes "zero discharge" of sewage;
- Emissions per ton of steel are the lowest in the country;

The Most Competitive Industrial Project

MCC has applied world-class engineering technologies and the most advanced self-developed core technologies to the Zhanjiang Steel Base Project to increase the overall technical level and localization rate of the project. The project under MCC's technological support has an overall localization rate of more than 97%, and is highly efficient, low-cost and with highest competitiveness.

7-meter coke oven reaches the world's leading level in energy saving and automation level.

The gas handling capacity is 31% higher than that of the existing one.

A number of economic and technical indicators such as iron utilization rate, floor area per ton steel, comprehensive utilization rate of solid waste, labor productivity and distance of molten iron transportation have exceeded the international advanced level.

Metallurgical Operation Services in the Whole Industrial Chain

With outstanding managerial expertise, technical advantage and good services, MCC provides services to Zhanjiang Steel Base such as equipment overhaul, production, machinery operation and technological transformation, and provides whole-industrial-chain and whole-process metallurgical services from raw material procurement to finished product transportation, so as to help Zhanjiang Steel meet standards in production, efficiency and consumption.

Boosting Regional Development

Zhanjiang Steel Base specializes in producing high-quality carbon steel plates, and is favored by customers at home and abroad. The completion and operation of the project have also driven the planning and construction of the surrounding iron & steel supporting industrial park.

As of the end of 2017, 60 steel projects have been settled and the total planned investment is about 10.3 billion yuan.

In 2017, Zhanjiang Economic and Technological Development Zone where the project is ranked 57th among all national development zones, which was its highest ranking since its establishment. The economic development of Zhanjiang is also marching ahead step by step.



Zhanjiang Steel-Making Project—the World's Largest and Most Advanced Project of Its Kind

Case Building the most advanced iron and steel corporation in the world

The Formosa Ha Tinh Steel Project is currently the largest investment project in Vietnam, and the largest iron and steel complex in Southeast Asia. In the project, MCC is in charge of overall planning, comprehensive consultation and the design, equipment supply and construction of dozens of projects, and is the biggest contractor and equipment supplier of the project.

The ignition of No.1 Blast Furnace of The Formosa Ha Tinh Steel Project (covering an area of 4,350 cubic meters) in May 2017 represented that China's first super large blast furnace overseas contracted by a foreign partner was put into production.

Providing First-Class Services and Management

MCC not only tailors integrated consultation services (ICS) to owners and submits overall designs, but also finishes financing feasibility reports to attract investment. The project adopts project management system and whole-process management platforms that are widely accepted in the world, and has formed a management mode focusing on data, forms and information as well as a strict equipment quality control system.

Building Intelligent Steel Plant

The project adopts MCC's self-developed blast furnace intelligent decision-making system and stockyard free flow control technology to realize intelligent and automated production operations. Through combining results from industrial big data software, experts' experience and abundant practices, it provides owners with accurate analysis and decision-making suggestions to enhance the level of intelligent production.

Building First-Class Environmental Friendly Steel Plant

The project adopts a number of technologies independently developed by MCC, including high-efficiency, low-consumption and super-large blast furnaces, high blast temperature, long-life and externally-fired hot blast stoves, high-efficiency coal gas dust-removal technology, eco-friendly energy-saving drum water granulating slag technology, and high blast temperature and oxygen-enriched large coal injection technology, to realize green and energy-saving production.

Enhancing Self-Sufficiency of Vietnam's Iron and Steel Industry

In the past, Vietnam was completely dependent on importing hot-rolled steel plates for producing cold-rolled steel plates, galvanized steel plates and steel pipes. After the project is put into production, it will reduce Vietnam's high dependence on importing middle- and high-end hot-rolled products and alloy steel. The Formosa Ha Tinh Steel Plant's production capacity is gradually released will continuously enhance the self-sufficiency of Vietnam's iron and steel industry.

The project is also the first iron and steel construction project that is completely undertaken by a Chinese company in foreign countries. It sets the benchmark for Chinese overseas iron and steel projects in whole-process and all-function services, and is a model project in metallurgical construction for the reference of international production capacity and equipment cooperation in the future.



Morning View of Blast Furnaces in the Formosa Ha Tinh Steel Project Plant

Taking the lead in transformation as the main force of capital construction

In order to make China's supply capacity better meet the people's growing, constantly upgrading and personalized demands for better life, MCC actively innovates the business model and strives to be the main force for the country's capital construction, and has gained achievements in city transportation infrastructure construction, high-end house construction, middle and high-end real estate and steel structure, which has greatly improved people's travel, painted a new look of the city, and helped people enjoy better lives.

> Traffic and municipal Infrastructure field

With rich design experience and project management ability and with the support of strong technical equipment and construction ability, MCC is able to form strong construction service ability in urban traffic and infrastructure construction field including expressways, bridges, roads, airports, harbors and rail transits, and has built the unique brand of "MCC Traffic and Municipal Infrastructure".



Shuilong Bridge in Guizhou Sanli Expressway Project



Tianjing Metro Line 6-R3 Project



Tongliao (Inner Mongolia)-North Shandong Expressway

> High-end house construction field

Aiming at building intelligent, green and landmark buildings, MCC continuously innovates technologies in terms of super high-rise buildings, large-scale public venues and large urban public facilities and forges "MCC high-end house construction" brand.



Chongqing News and Media Center



Chengdu Magic Cube Art Performance Center

> Medium and high-end real estate field

Actively grasping the opportunity of new-type urbanization, MCC propels the development of hot spot regions such as Beijing-Tianjin-Hebei Region, Pearl River Delta and Yangtze River Delta, and prioritizes improving product quality and building brand image instead of blindly expanding business scale. We are on a green real estate development route that advocates green building and pays attention to protecting the ecological environment.



Heyue Series of Commercial Real Estate Products—Nanjing Heyue Harbor



MCC Xinglong—Great Wall Spring Breeze Town



Beijing MCC Virtuous Residence

> Steel structure field

While strengthening the industrial steel structure, MCC vigorously develops steel structure used for civil buildings and infrastructure, studies and develops relevant technologies and increases economic benefits of steel structure business, so as to create a competitive “MCC steel structure” brand which leads the national market and also has global competitiveness.

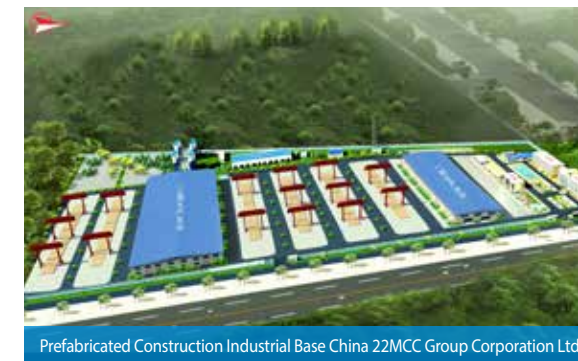
MCC has established Tiangong High-end Fabricated Construction Technology Institute to give full play to technical and talent advantages in fabricated construction, and innovate as well as develop more and better highly efficient and green fabricated construction systems. In 2017, MCC was approved five fabricated construction industrial bases by the national government.



Chongqing International Circus City Project



Phoenix International Media Center



Prefabricated Construction Industrial Base China 22MCC Group Corporation Ltd.



Graduate School at Shenzhen, Tsinghua University Innovation Base Construction Project (phase II)

Creating better city image and boosting the development of Wuhan Optics Valley

Case

Wuhan Optics Valley is a national optoelectronic information industrial base featuring "optics". China Optics Valley Convention & Exhibition Center (COVCEC) and Optics Valley Avenue Renovation Project undertaken by MCC as the general contractor strongly boost the infrastructure construction of "Talent Base Constructed by Central Enterprises" and "National Demonstration Base for Entrepreneurship & Innovation" in Wuhan Optics Valley.



The inspiration of COVCEC's façade design came from hollowed ivory ball, a Chinese traditional handicraft.

Boosting the development of Optics Valley Chinese Sci-tech City

COVCEC is located in a core block of Wuhan Optics Valley Central City, and is the only convention & exhibition center targeting technology market segmentation in China. It is an important public function zone in Optics Valley Central City which undertakes the mission of holding the annual OVC EXPO (Optics Valley of China International Optoelectronic Exposition and Forum), complements the convention function of surrounding urban areas and serves as a window for Wuhan Optics Valley to discover the world and display itself to the world.

Gaining achievements in engineering quality

MCC strictly implements quality management methods to ensure the one-time acceptance of 422 sub-engineering projects under this project with the evaluation of "good quality" and wins the first prize of Excellent Welding Engineering awarded by China Association of Engineering Construction Welding (CECWA), the Shanghai Municipal Quality Engineering Gold Steel Award, and 2017 Hubei Provincial Quality Structural Engineering Award.

Carrying out safe and methodical construction

MCC formulated *Safe and Civilized Standardization Construction Plan* for projects. The project was awarded "2017 Hubei Safety and Civilization Standardization Construction Site", "National Green Construction Demonstration Project" and "2017 National Standardized Construction Site in Work Safety".

Applying and innovating new technologies

MCC fully promotes and puts into application 30 new sub-items under the 10 major categories of construction technologies in the project, acquires one provincial and ministerial-level construction method, three enterprise-level construction methods, and gets approved 14 patents for invention, seven among which are patents for utility models. The project was awarded "National Model Project in New Technology Application".

Paying attention to energy saving and environmental protection

The project uses unique geometry metal wire frames as its façade to reduce 30% of energy usage of air conditioners, and uses multiple energy saving technologies and products such as hollow double-layer low-e ultra-white glass and thermal storage peak-regulation and balancing technology for air conditioners, so as to realize outstanding performance in saving energy and protecting the environment.

Pushing forward infrastructure construction

In Wuhan Optics Valley, MCC also undertakes the Renovation Project of Optics Valley Avenue, a key arterial road in the rapid transit system of Wuhan urban development zone (five rings and 24 radiation lines) and an important southern outlet road for citizens in Wuchang and Hankou. The whole avenue is elevated, with 6-lane two-way roads and a total length of about 4.8km.

Carrying out safe and methodical construction

The project strictly implements standardized and normalized management in terms of scheduling and safe, methodical and eco-friendly construction. Zero safety accident due to quality problem occurs during construction.

Applying BIM 5D construction management platform

The platform provides data support to the project to realize effective decision-making and precise management, so as to reduce changes during construction, shorten the construction period, control costs and improve quality.

Building intelligent construction site

The project adopts technologies such as new-type Internet of Things and cloud computing to display the real-time status of the construction site on a unified data sharing platform.

Carrying out pipeline moving and renovation

The project has a specific pipeline construction department that has established a pipeline moving, renovation and protection system and strictly implements the pipeline excavation and reporting system.



COVCEC Avenue Renovation Project

Multiplying innovation as the excellent pacesetter of emerging Industries

As the 19th CPC National Congress has put forward the idea of speeding up reform of the system for ecological progress and building a beautiful China, MCC will expand its technical advantages in “water, electricity and gas” gained from 70 years of development experience in metallurgy and other industries to use in civil and municipal areas. With its capital strength and business model innovation as the “multiplier”, MCC becomes a leading enterprise in areas including the urban underground integrated utility corridor, large theme parks, sponge city, smart city, beautiful village, water affairs, fabricated construction, and health and elderly care industry. MCC will provide more high-quality and eco-friendly products to meet the growing demand of people for beautiful ecological environment.

> Underground integrated utility corridor field

As the pioneer of underground integrated utility corridor in China, MCC relies on its integrated utility corridor Research Institute to give full play to advantages in providing whole-industrial chain integrated services, tailor-making solutions for owners, and providing one-stop high-quality services, and guides the overall integrated utility corridor industry development in China.

MCC proactively promotes the construction of intelligent integrated utility corridors, adopts intelligent expert system and big data technology to transmit and integrate information in different phases from planning, design, construction, operation to maintenance. We have built the GIS-BIM integrated intelligent service platform to conduct full-life-cycle smart management and control of integrated utility corridors. In 2017, MCC released self-developed and China's first local standards for fabricated corrugated steel integrated corridors technology, and undertook major projects such as Hebei Hengshui Comprehensive underground integrated utility corridors. MCC integrated utility corridor Science and Technology Development Company started operation in Xiongan New Area as one of the first batch of enterprises entering the area.



Renmin Road Section of Xi'an underground integrated utility corridor Project in Shaanxi province



underground integrated utility corridor Project in Sili Road, Siping city, Jilin province



North-South Artery Construction Engineering Project of Jilin Hada Bay underground integrated utility corridor

> Sponge city construction field

By relying on MCC Sponge City Technology Research Institute, the Company innovatively puts forward the business model of “comprehensive design”, integrates the concept of “sponge” into project construction, planning and design, uses technological R&D as the core and provides whole-process solutions for sponge city construction. Currently, MCC has successfully carried out projects including Wuhan Optics Valley Central City, Shenzhen Deep Bay Central Park and Linjiang Avenue in Qingshan District, Wuhan.



Baolong Longhu Sports Park Construction and Baolong Area Road Renovation Project



Sponge Industrial Park of Kunming Iron and Steel Group



Black and Odorous Water Treatment and Sponge Engineering Project in Downstream Section of Yuxi River, Yunnan province

> Beautiful village and smart city construction field

By relying on MCC Beautiful Village and Smart City Technology Research Institute, the Company provides integrated “county-town-village” beautiful village construction solutions, provides full-life-cycle services and strives to become the “creator of beautiful countryside life”. By the end of 2017, MCC has successfully explored dozens of beautiful village projects and smart city projects, showing its ambition of contributing to the important mission of beautiful village and smart city construction.



International Tourism Town in Luohu Peninsula, Shehong, Sichuan province

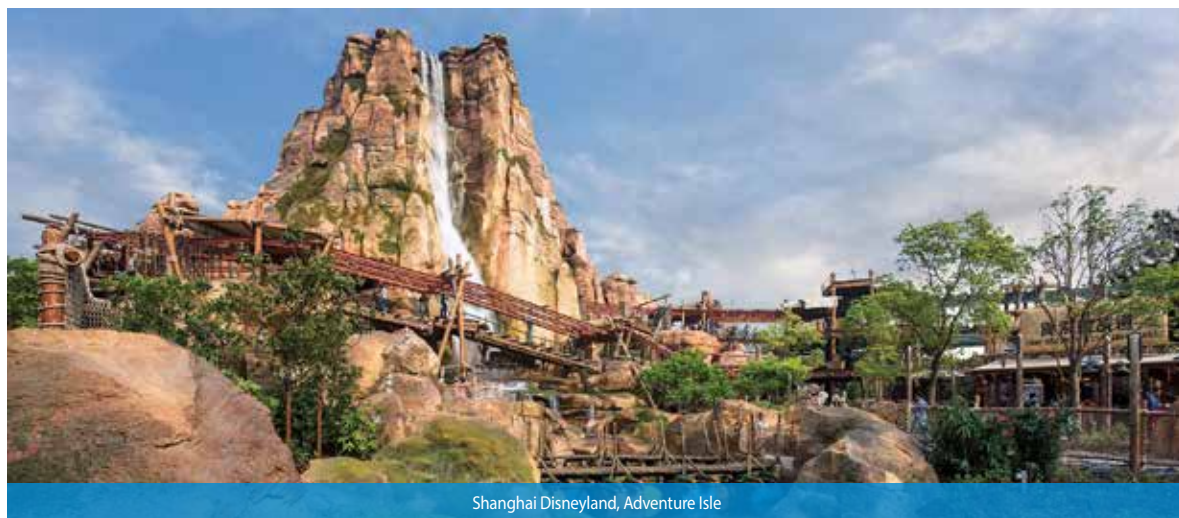


Whole-County Tourism and Beautiful Village Construction Project in Yanjin County, Yunnan Province



> Theme engineering projects field

By relying on MCC Theme Park Technology Research Institute, the Company vigorously develops theme engineering projects such as theme parks, cultural projects, Universal Studios and ecological new cities and becomes the flagship enterprise in theme engineering project construction in China.



> Health and elderly care industry field

By relying on MCC Health and elderly care Industrial Technology Research Institute, the Company puts emphasis on whole-industrial chain R&D and marketization of health and elderly care, including investment (financing), consultation, planning, design, development and construction, operation and management. We provide full-life-cycle services that integrate all factors of health and elderly care industry including "medical treatment, rehabilitation, elderly care, health care, tourism, entertainment and culture".



> Water environment governance field

By relying on MCC Water Environment Technology Research Institute, the Company has established a water affairs investment & operation industrial chain that covers whole-process services including design, construction, transport, operation and management and productive services, and has become a systematic "one-stop" service provider with a leading edge in water affairs industry.



Studying and developing fabricated corrugated steel integrated utility corridors to cure urban diseases

Case

Underground integrated utility corridors are regarded as “blood vessels” and “nerves” of cities because they serve as the transmission medium and transmit energy and information; they are necessary material bases for the existence and development of cities, and are “lifelines” of cities. MCC combines the economic “new normal” and supply side reform, and researches and develops corrugated steel integrated utility corridors to help cure urban diseases and promote the cut and shift of iron and steel production capacity.

Concentrating on studies and exploring development paths

- Scaling up R&D input: MCC established China's first comprehensive integrated utility corridors technology research institute and invested 20 million yuan to actively support the R&D of fabricated corrugated steel integrated utility corridors.
- Providing technical support: MCC conducts all-around and in-depth cooperation with science and research institutes to provide first-class technical support and authoritative technical assurance.
- Learning from advanced experience: MCC studies hard the advanced achievements of corrugated steel integrated utility corridors in China, and invites top scholars and experts to its research institute for exchange and discussions.
- Exploring development paths: MCC discusses about the factors, difficulties and development paths of corrugated steel integrated utility corridors with first-class Chinese enterprises in this field.
- Overcoming major difficulties: MCC combines pipeline demand and structural styles to overcome difficulties including wide domain of walker in soil mass parameter selection, modeling, large number of units and huge amount of computation.
- Carrying out pilot plant tests: MCC completed the utility tunnel pilot plant project in Wuyi county of Hengshui city and all data in the 50m trial section test met technical requirements.



Fabricated Steel underground integrated utility corridors Project in Wuyi county, Hengshui city

Ensuring the leadership in the development of underground integrated utility corridors with multiple advantages

Compared with traditional cast-in-place reinforced concrete integrated utility corridors, corrugated steel ones have the following advantages:

- Simple construction with low costs: Saving nearly 30% construction period and 10% total cost.
- Guaranteed endurance quality: Increasing 20% of service life due to strong anti-knock ability and non-deformability.
- Stability, reliability and easy assembling: Homogenous material, high stability, easy transporting and assembling, nearly zero rate of spoiled products.
- Social environment friendliness: Reducing negative influence on the city view and the lives of citizens with nearly no dust, no noise, no principal and revolving materials entering the neighborhood, and easy and fast assembling.
- Promoting the development of the industrial chain: The manufacture of corrugated steel integrated utility corridors relies on introducing in and updating technologies and equipment on the basis of those for traditional integrated utility corridors. Therefore, the process could promote the transformation and upgrading of enterprises, create new jobs, and improve the technical skills of workers.

Big Data service provides a shortcut for the development of Guizhou

Case

The 19th CPC National Congress pointed out that the Internet, big data and artificial intelligence, and the real economy should be deeply interconnected. Regarding the development of a national big data pilot zone as the key facet, Guizhou province clearly defines big data action as a strategic move to better lead the economic transformation and upgrading, improve the provincial government's administration and governance and serve the general public. Based on the concepts of “boundlessness, resilience, ecology, humanity and innovation”, MCC has made major breakthroughs in the application of big data in future urban development and rural rejuvenation, helping the construction of “Guizhou on the Cloud” and truly realizing the use of big data in developing industries, improving government administration and brining benefits to people.

Building Guizhou's “brain”

In 2017, MCC undertook the construction of the Bulk Data Management and Control Command Center in National Big Data Pilot Zone (Guizhou). The Bulk Data Management and Control Command Center is based on “big data and block chain” as core technologies to create a “brain” facing future city construction, which fully integrates and accesses political, commercial, and civil big data to realize the “collection, interconnectivity and application” of bulk data resources, and promote the openness and sharing of data resources.

Precisely attracting and including enterprises

MCC Guizhou Big Data Precise Enterprise Attracting and Including Cloud Platform adopts big data technology to strengthen research on major problems in industrial chain, hi-tech area and industrial structure. Till the end of 2017, the cloud platform has launched service promotion facing government organs in over 150 counties, towns and cities in Guizhou; the number of enterprises entering the data center has reached over 23 million; enterprise information has covered over 50 dimensions; the number of patents has reached over 12 million; over 100,000 information entries of senior talents and over 1000 categories of policy information at municipal, provincial and national levels have been provided. The total amount of data entries on the platform is over 200 million.

Serving urban and rural development

In 2017, MCC constructed Guizhou Zhujian Cloud (Big Data Supervision Cloud Platform for Urban and Rural Construction) project, which can improve the informatization level of housing and urban & rural construction, strengthen market supervision and develop individual housing management, construction market management, survey and design management and overall village & township construction. The cloud platform plays an important role in promoting the integration of urban and rural areas and achieving scientific, harmonious and leaping development in Guizhou.



Insisting on new development led by high technology and quality

Innovation is the primary driving force for development. The systematic, comprehensive, and complex features of metallurgical engineering have enabled MCC to possess technological advantages with a complete range of disciplines and outstanding innovation capabilities, and promoted MCC to take the road of high-tech construction in the long term. As a national innovative enterprise, MCC has a group of R&D and reserve projects in its core business areas, and has gained an irreplaceable edge in metallurgical industrial chain integration. The technological edge's extension, fission and aggregation in non-metallurgical fields lay a foundation for MCC's technical advantage in all fields, all industrial formats and the entire industrial chain in and related to the construction industry.

> National Innovation Demonstration Platform Construction (2017)

Number of approved National Technology Innovation Demonstration Enterprise

1

Number of approved second-batch Industrial Energy Conservation and Green Development Evaluation Centers

4

Number of approved first-batch National Fabricated Construction Industrial Bases

5

> National Science and Technology Awards (2017)

Number of National Science and Technology Awards

4

Among which, 3 are second prizes of National Prizes for Science and Technology Progress, and 1 is the second prize for Technological Invention. The total number ranked first among Chinese central enterprises in metallurgy and construction.

> Chinese Patent Award of Excellence (2017)

Number of the 19th Chinese Patent Gold Award

1

Number of the 19th Chinese Patent Award of Excellence

19

Effective patents

21,004

Invention patents

5,650

The number of awards of MCC ranks the first among all Chinese companies. MCC have won China Patent Gold Award for three consecutive years. As of the end of 2017, MCC had a total of 21,004 effective patents, of which 5,650 were invention patents.



> Metallurgical Science and Technology Award (2017)

Number of Metallurgical Science and Technology Awards

18

Won the Outstanding Award for Metallurgical Technology Award for the first time as the first member; won First Prize for Metallurgical Technology Award for the first time since the establishment of the front-line working group.

> Construction Engineering BIM Competition Award (2017)

Number of prizes of China Construction Engineering BIM Competition

2 First Prizes

Number of prizes of China Construction Engineering BIM Competition

6 Second Prizes

Number of prizes of China Construction Engineering BIM Competition

10 Third Prizes

> A Sci-Tech Research and Development Team

In 2017, MCC's employee Yue Qingrui was appointed academican by Chinese Academy of Engineering; Ning Xianhai, another MCC employee, won the gold medal of the Welding Competition in WorldSkills Competition. Till the end of 2017, MCC has:

Number of members of Chinese Academy of Engineering

2

Number of National Engineering Survey and Design Masters

13

Number of Engineering Experts included in the National New Century Hundred, Thousand and Ten Thousand Talent Project

4

Number of Experts enjoying special allowances from the State Council

Over 500

Number of Chinese Skills Award winner

1

Number of Gold medalists in WorldSkills Competition

2

Number of National Technical Experts

51

Number of Science and Technology Talents

Over 18,000





Pursuing steady and long-term progress and building a better MCC

Over the years, we stick to the core philosophy of “value-based thinking and profit-oriented development”, focus on high quality and new development, and press ahead to create value for stakeholders, through which we develop the ability of sustainable development and strength to defeat all kinds of risks and challenges. With an open mind, we serve stakeholders with sincerity, take the interests and expectations of stakeholders into consideration and adhere to the principle of mutual benefits, thus promoting win-win cooperation and building a better MCC.



Zhuhai Shizimen Central Business District Project



Carrying out steady operation to promote sustainable development

A steady and effective management mechanism is not only the cornerstone of sound operation for an enterprise, but also the key to ensure the fulfillment of social responsibilities. MCC constantly optimizes corporate governance and strengthens risk management. Pursuing honesty and trustworthiness as well as lawful operation as the foundation, MCC promotes compliance management with integrity and steadily fosters business development to create economic values and increase the return to shareholders.

> Corporate governance

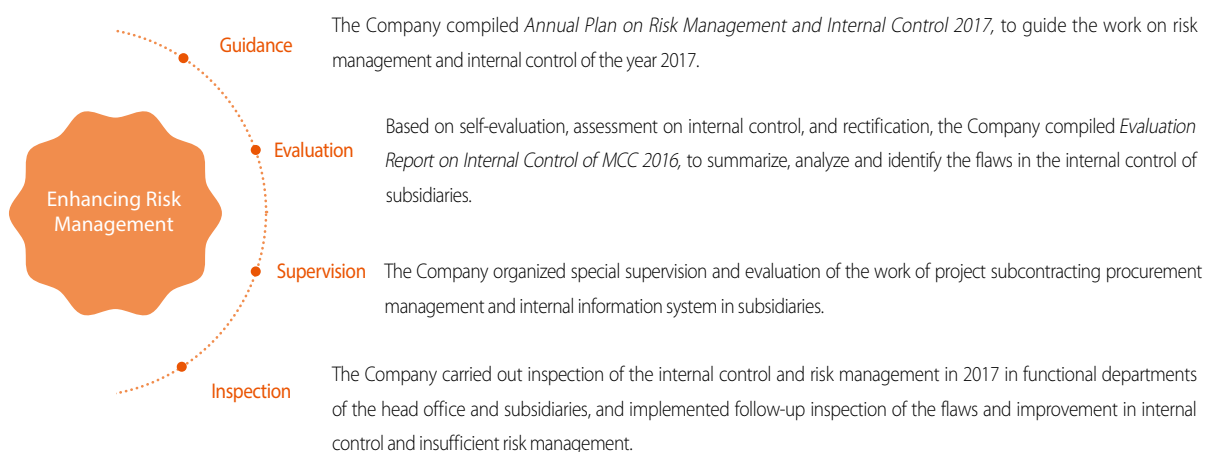
On the basis of strict compliance with laws, regulations, and requirements of regulatory rules in domestic and overseas regions where the Company is listed, MCC includes Party-building work into the Articles of Association. MCC revised the implementation measures of decisions and systems of "Three Major and One Large" (policy-making of major issues, appointment and removal of major cadres, decisions on the investment in major projects and the use of large amount of money) and the Rules of Procedures of the Party Committee. MCC further clarifies the scope of rights and responsibilities between the Party Committee, Board of Directors, Board of Shareholders and Management and established a corporate governance system featuring clear division of work, effective checks and balances, and coordinated operation. MCC regulates the submission procedures of the board of shareholders in subsidiaries and strengthens the assessment of Articles of Association of subsidiaries, so as to improve corporate governance.



> Risk management

The Company established and improved the internal control system featuring "risk-oriented and system-based management with process as link and system as the key facet", as well as the internal control and risk management and assessment system featuring "the combination of self-evaluation by subsidiaries and on-site inspection by the Group, and the combination of internal inspection and internal audit". By doing this, MCC effectively enhances the internal control management and the ability of risk prevention.

In 2017, the Company dealt with 45 "zombie" companies in extreme difficulty, and cut down 92 legal entities. The Company has continuously strengthened capital risk management and control, made breakthroughs in centralized management of accounts, enhanced management in budget management and planning, and set up a monitoring system for foreign exchange accounts.



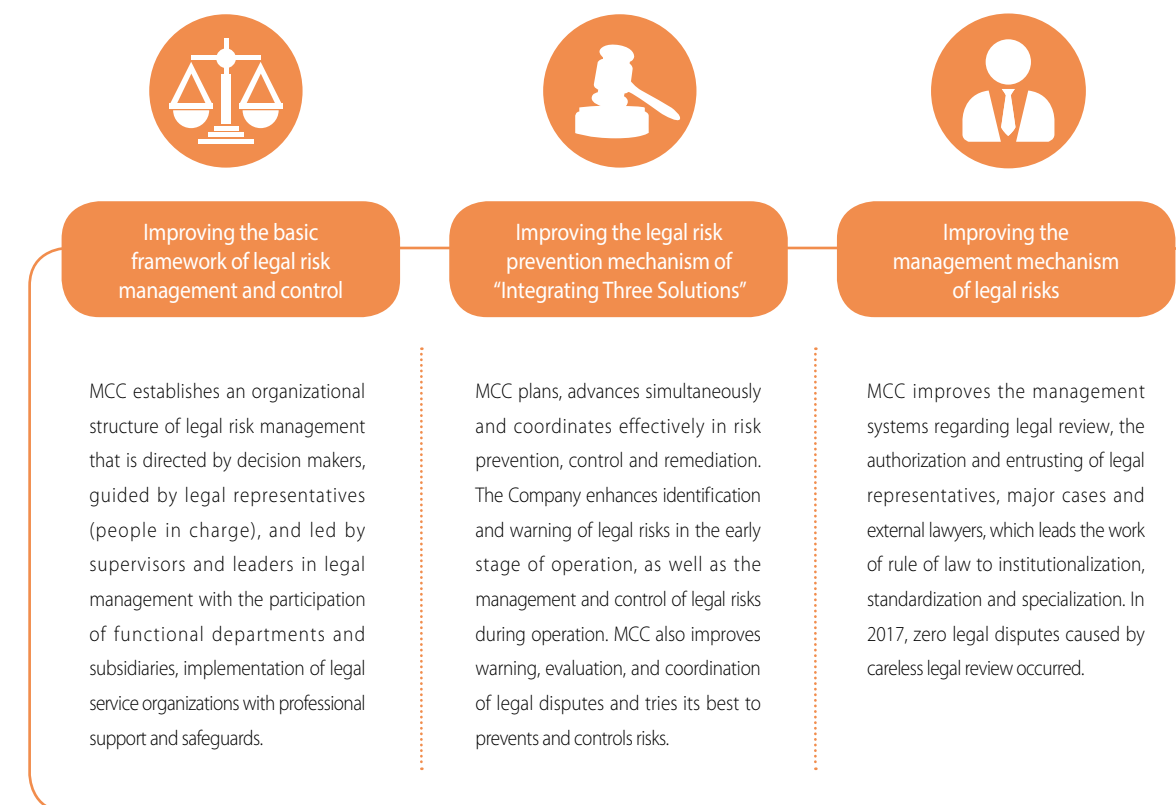
> Anti-corruption and advocacy of clean corporate culture

The Company strengthened the discipline and examination, improved supervisory mechanism, implemented accountability system, and enhanced education on clean corporate culture to establish the long-term mechanism against corruption themed "To dare not, cannot and will not conduct corruption". In 2017, 2418 *Party's Corruption-Free Building Responsibility Statements* were signed and 806 people received corruption auditing.

- The Company further promoted the standard of "stressing both integrity and ability with the integrity as the foundation; respecting and selecting talents with the emphasis on performance", signed the Party's Corruption-Free Building Responsibility Statement and included the corruption-free standard into the evaluation system of comprehensive performance of subsidiaries.
- The Company carried out the Corruption-Free Education Month activity with the theme of "Holding in Awe, Emphasizing Ethics and Strengthening Discipline."
- The Company carried out inspection. The Company inspected 18 subsidiaries, talked to 1,363 cadres and other staff, revised 537 regulations, ensured the implementation of rectification and reminded and warned leaders and cadres with notifications and messages before major holidays and conferences.
- The Company set up the open hotline email address and telephone hotlines to clear the reporting channel and increase the source of information.

> Integrity and compliance with laws and regulations

The Company always regards integrity and compliance with law and discipline as the foundation. MCC has established the legal system of "two-level management and integration of impetus, execution, and assistance" on the basis of "two-level management". The Company has optimized the risk preventing system that integrated with three solutions and improved the specialization, standardization and informationization of case management.



Striving for excellence and starting excellent projects

MCC plays a leading role as a central enterprise in carrying out strict management of projects, strengthening safety systems, and steadily advancing the construction of projects. The Company also wholeheartedly fosters excellent projects, adopts lean management and enhances the control over projects.

In 2017, the Company acquired 5 special-grade qualifications in municipal management and housing construction, 32 special-grade general contracting construction qualifications. Among the 30 triple special-grade enterprises around the country, 6 of them are from MCC, which takes up 20% of the total.

> Providing Quality Services

In accordance with the requirements of clients, MCC provides systematic solutions and full-life-cycle services for engineering projects, as it regards satisfying service in good quality as the ultimate goal.

Providing the Whole Industrial Chain Services

- MCC is a provider with capabilities in financing and investment, integrating design and construction of engineering contracting, as well as operating throughout the whole industrial chain.
- Focusing on metallurgical engineering, capital construction and emerging industries, the Company makes investments, maps out industrial lay out, and allocates resources to promote the forward and backward extension of the industrial chain.
- The Company provides clients with excellent full-life-cycle services along the whole industrial chain, which includes project planning, designing commercial modes, project examination and approval, financing and investment, developing, constructing and maintenance.

Clearing the communication channel with clients

- MCC builds up the regular communication mechanism with major customers and meets their requirements through various channels such as visiting, investigation, meeting and exchanges.
- MCC expands communication channels through internet and multimedia including the official website, WeChat official account and mainstream press to secure a greater influence of MCC.
- MCC pays irregular visits to employees to check on projects so as to improve them based on customers' opinions, and at last increase customer loyalty by satisfying and impressing them.

Emphasizing the protection of customers' privacy

- MCC always informs customers of area and scope regarding the use of their information and tries its best to avoid the information leakage.
- MCC signs confidentiality agreements to ensure the security of customers' information.

> Promoting Strict Project Management

Engineering projects are the source of profits and the foundation of development. While pursuing management improvement of major engineering projects as the key facet, MCC promotes subsidiaries to strengthen the refined management and enhance standard management of engineering construction. The year 2017 is the "The Year of Improvement in Engineering Construction Management" of MCC. In 2017, we took a series of measures to improve the project management.

The Company held the first meeting about the project management system, gave the first special training for project managers and released 20 major engineering projects of the Group for the first time.

The Company proactively carried out on-site study and exchanges at the site of engineering projects, with 2 events of on-site study at model construction sites with more than 300 people attending in total.

MCC held the activity of "Quiz about Comprehensive Quality Management of Central State-owned Enterprises (SOEs)" with more than 9,000 people entering the quiz online.

Special training class for project managers

Case

MCC carried out "MCC's Special Training Class for Project Managers 2017" to improve the ability of engineering managers and optimize the cultivation mechanism for project management talents. During the training, expert and lecturer gave fabulous lectures focusing on popular industrial issues including project planning and standardized management, legal risk prevention, contract claims management, refined management and control of project costs throughout the whole process, analysis of PPP mode and the application of BIM and fabricated construction.

The training class further improved the performance and specialized level of project managers to enhance management and control over major projects and enable MCC to achieve leapfrogging development.



Special Training Class for Project Managers



> Strengthening Safety Management

Scientific and effective safety management is the top priority for the sustainability of a company. MCC continuously optimizes the work safety accountability system and safety management system, enhances inspection and supervision over work safety and strengthens identification and emergency responding system on hidden dangers. The Company also increases the safety awareness and ability of managers and front-line workers to improve its capability in safety protection and ensure safe engineering.

Establishing Safety Management Platform

Firmly keeping the red-line and bottom-line awareness of work safety in mind, MCC consolidates the foundation of safety management, carefully studies the essence of important governmental documents, builds a safety management system featuring diversified operation and implements the general requirement of "Same responsibility for leaders in Party committees and governments, two duties for one leader, and accountability for duty neglect."

The Company issued the *Responsibility System for Production Safety in Headquarters Functions and Staff from MCC Group and MCC and Responsibility List Template for Production Safety in Subsidiary Companies of MCC*, so as to specify responsibilities of each department and workers in terms of work safety.

Specifying
Responsibility

Accountability

The Company compiled the *Accountability Regulation on Production Safety Accidents in MCC Group and MCC* to specify the accountability for managers responsible for production safety accidents and strengthen the financial and administrative punishment on the person responsible for the accidents.

Safety Management Measures of MCC



General Inspection on Work Safety

Implementing Work Safety Measures

MCC consistently enhances daily supervision, inspection and on-site management, undertakes special inspection and process monitoring in key areas and prevents and identifies risks. Taking emergency-responding management and troubleshooting as the key facet, the Company strictly monitors the safety in construction and strengthened safety controls.

Safety Monitoring

MCC enhances monitoring over work safety on site and adopts the three-level inspection mechanism as well as other means of inspection. In 2017, MCC undertook safety inspection over 1,828 projects in 25 subsidiary companies and rectified problems found in a timely manner.

Identification of
Hidden Dangers

MCC establishes and improves the double-control mechanism, i.e. graded management and control over safety risk and troubleshooting and governance mechanism, to better identify, prevent and control risks. The Company also employs modern information technology to promote the construction of Internet Plus troubleshooting and governance mechanism. Pictures taken before and after the rectification of accidents and hidden dangers would be reported to ensure that the rectification is completed and achieve close-hoop management.

MCC sets up emergency management system for work safety to specify division of responsibilities; the Company enhances the development of emergency rescue base and rescue team to ensure that the division of emergency work responsibilities and coordination are explicit, resources are available and the direction is effective. In 2017, the Company invested RMB 586.986 billion in emergency rescue and carried out 3,544 drills of emergency rescue and the total number of participants reached 76,005 person-time.

MCC organized the activity of "development of standardized engineering construction sites in work safety in 2017". In 2017, 8 projects from MCC won the award of "Safety and Civilization Standardization Construction Site in Engineering Project", which sets a good example of safe and methodical construction.

Emergency
Management

Building the
"Standardized
Construction Site"

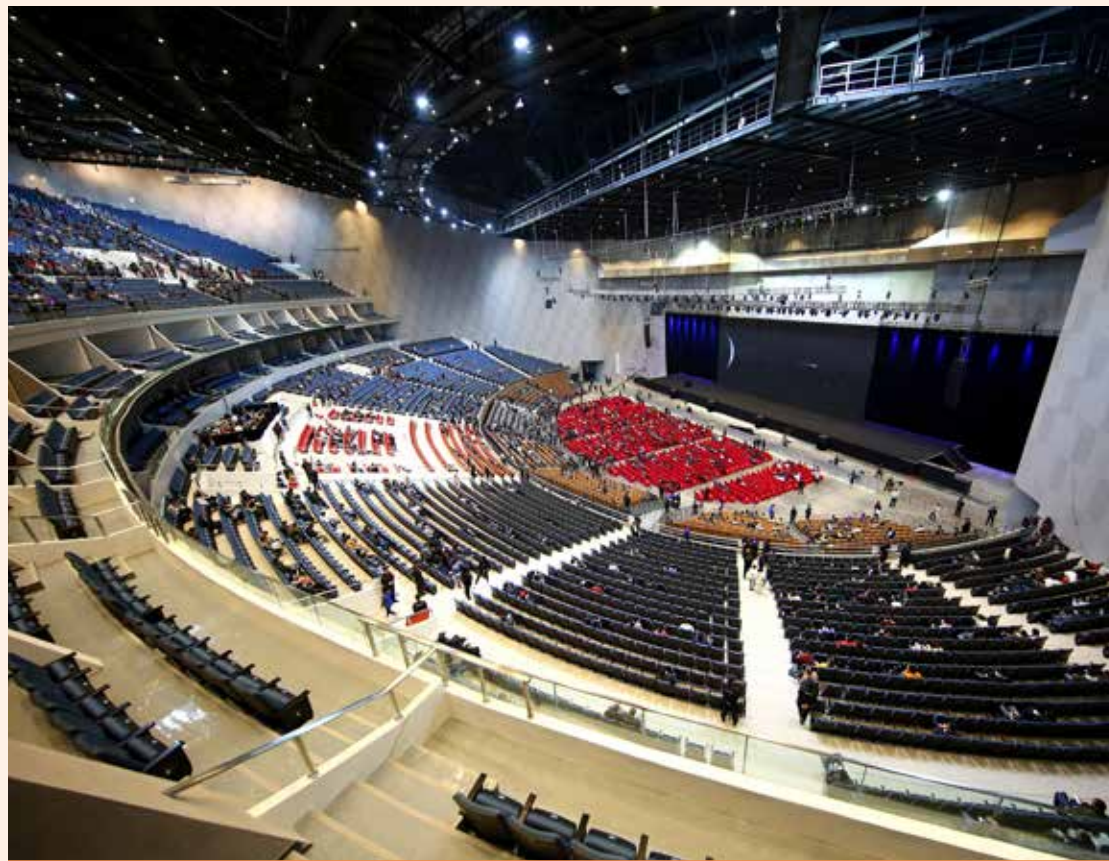


Carrying out the Emergency Drill

National AAA Level Safety and Civilization Standardization Construction Site--The Project of Chengdu Magic Cube Art Performance Center Case

Invested and constructed by MCC, Chengdu Magic Cube project was finished on July 18th, 2017, and won the honors of "Standardized Safe and Methodical Construction Site" in Sichuan province and "National AAA Level Safety and Civilization Standardization Construction Site", which is the achievements of MCC's standard management of safe and methodical production.

Chengdu Magic Cube Art Performance Center is special in architectural style, varied in cantilever structure. It has long cantilevers, many joints in columns, beams and reinforcing bars, so there will be higher requirements in technology and management in safety. Synchronized removal of steel structure of different area will be applied to remove steel structure of the dome. With two total stations, people are able to observe from 15 observing points and adjust the volume of steel to be removed next. The whole steel structure will be slowly transformed and structural stress will be adjusted and distributed accordingly, to ensure stability and safety of the whole structure.



No pillar can be seen inside the broad space of Chengdu Magic Cube Art Performance Center, with no blind angles for audiences even at a height of over 40 meters

Improving Safety Quality

Safety Culture reflects an enterprise's attitude towards safety management regulations. MCC promotes all-round development of safety culture system and trainings about safety knowledge, fulfills corporate responsibilities, and raises workers' awareness and ability of work safety to improve management ability of relevant employees to secure work safety.

Safety Training

- MCC develops a complete safety training system covering all staff and implements the corporate responsibility for work safety education and training. In 2017, 93,620 people took part in the training for health and safety.

Work Safety Month

- MCC develops a complete safety training system covering all staff and implements the corporate responsibility for work safety education and training. In 2017, 93,620 people took part in the training for health and safety.

Safety Communication Platform

- MCC develops a monthly column about work safety in the journal *China Metallurgy*. In 2017, we published 36 articles related to work safety to show the achievements in safety management and set up a platform for exchanges in management experience.

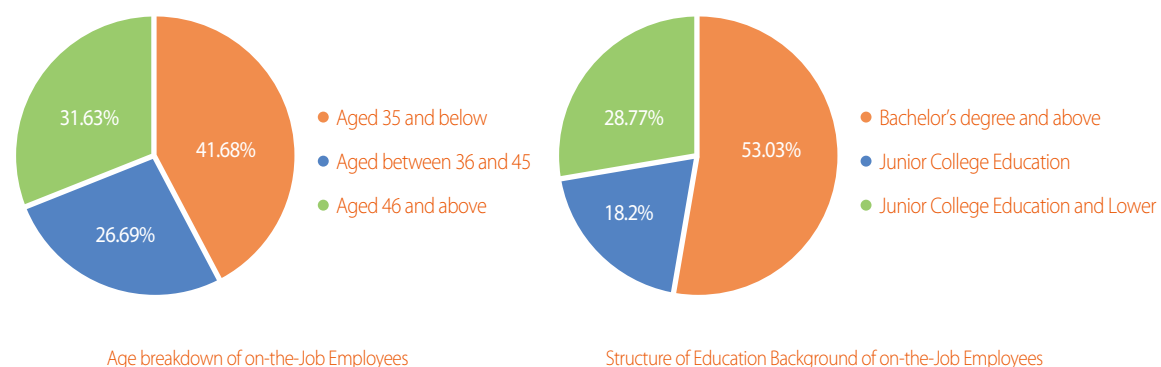
Measures for Safety Culture Construction



The Safety Training Symposium

Building a happy home and sharing achievements

MCC highly respects labor, knowledge, talents and creativity and promotes the modern spirit of worshipping labor, skills and creativity. The Company, regarding its staff as the biggest advantage and fortune, continuously optimizes the talent teams, emphasizes talent cultivation, provides good career development channels, safeguards workers' interests and rights, and improves their working and living environment, so as to increase their sense of belonging, achievement and happiness and develop a harmonious corporate culture.



> Promoting the development of employees

MCC, dedicated to promoting the joint development of the Company and staff, improves the career development channel of management and professional talents, optimizes the development environment for staff, and creates various opportunities for them to study and communicate to offer broader development space for them. We emphasize the commendation of model workers and excellent workers to stimulate all the staff to be diligent, aspiring, devoted and innovative so as to have greater say and influence in specialized fields.

By the end of 2017, there were 1,105 senior technicians in MCC. 43 professional talents have won prizes in national skills competitions.

Carry out Training for Employees

The Company, with talent cultivation as the highlight of talent management, continues to follow the hierarchical management mode and vigorously carries out education and training work for managers, professional and technical personnel and skilled personnel, etc.



Holding the 6th Professional Skill Competition

Case

With changes in the ways of engineering contracting and employment, the development of high-skilled talent team has been a necessity for the healthy and stable development of the industry. MCC initiated and held the "National Professional Skill Contest for Metallurgical Construction Industry and the 6th Professional Skill Competition of MCC" as the best platform for the development of high-skilled talents in metallurgical construction area, to promote the spirit of industrial craftsmanship and form a large force to foster the industrial and social development.

Another Gold Medal in Welding in World Skills Competition

Case

World Skills Competition, the so-called "Skills Olympics", is held every two years. During the 43rd World Skills Competition in 2015, Zeng Zhengchao, a worker from China 19th Metallurgy Corporation, won a gold medal in welding, which was the first golden medal of China in WorldSkills Competition. In 2017, Ning Xianhai from China 19th Metallurgy Corporation won the first place in welding, too, and Bian Tao won the Medallion for Excellence in construction metal work, which not only defended China's championship in welding, but also showed that China's welding techniques had achieved world-class level.

"Mcc, A Partner of Choice". MCC contestants showed the proactive image, excellent skills and perseverance of Chinese youths and technicians to the world.



Ning Xianhai, at the WorldSkills Competition



Improving the Employment System

The Company has planned to carry out the organized selection and open competition for recruitment in accordance with the organizational structuring and post allocation as well as the daily performance, performance evaluation and career development requirements of employees, so as to form a high-quality team of specialized cadres.



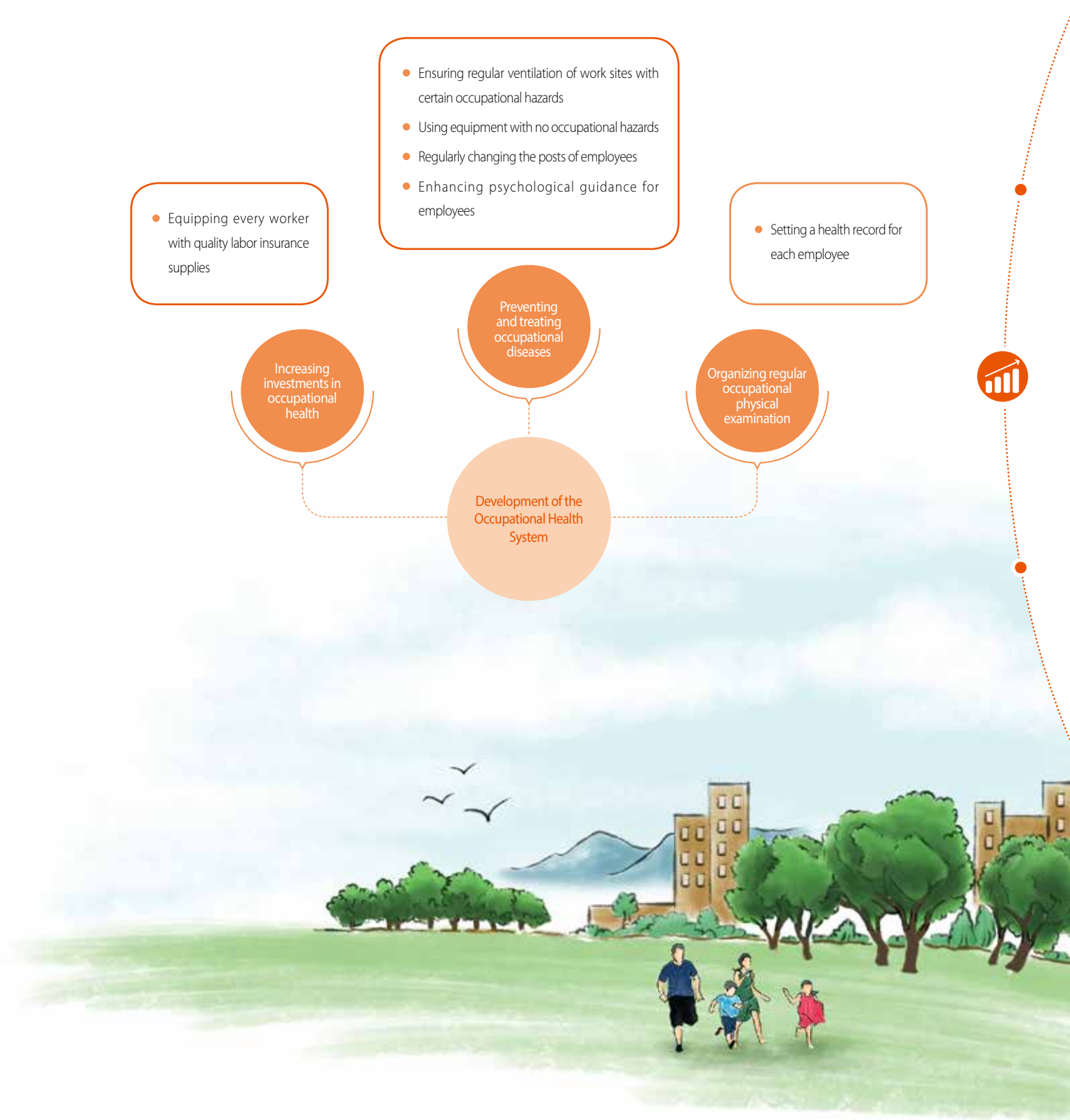
> Safeguarding interests and rights of employees

Adhering to the "people-oriented" principle, MCC safeguards the legitimate interests and rights of employees and actively promotes harmonious and stable labor relations.

- The Company strictly abides by the labor laws and regulations, pursues the equal and non-discriminatory labor employment policies, opposes forced labor and eliminates the use of child labor.
- The salary system with external competitiveness and internal fairness has been established in accordance with the principle of "salary based on the related post, and performance related pays".
- Social insurances and housing provident funds are paid in full and on time for employees. Supplementary pension plan is undertaken in a standard manner and employees' day-off is appropriately arranged.
- The Company continuously promote transparent corporate affairs. Congress of workers receive proposals from employees, discuss and settle them, which promotes democracy in corporate management. Trade unions have been set up and improved in both the headquarter and subsidiaries, so as to gather rational suggestions and safeguard employees' rights of democratic supervision. In 2017, the implementation rate of transparent corporate affairs of MCC was 95% and the employee's congress settled 411 proposals.
- The Company safeguards the legal rights and special interests of women employees and organizes quizzes about laws and regulations in protecting interests and rights of female employees, so as to offer a better environment for them.

> Paying attention to occupational health

Paying great attention to the management of employees' self-protection awareness and ability, we issued *Occupational Health Management Measures of MCC Group and MCC*. Adhering to the guideline of "giving priority to prevention while combining prevention with treatment", MCC continuously upgrades the occupational health system by organizing lectures on professional knowledge, sports meetings and other activities, thus creating a safe and healthy working environment for the staff.



> Caring for employees' life

Valuing humanistic care, MCC cares for employees' work and life by improving their working and living environment, solving employees' difficulties and holding activities in various forms to provide care, and achieves coordinated development of employees and the Company.

Helping Employees in Need

The Company sets up long-term mechanism and accountability mechanism to assist needy employees. We began the construction of assisting system for employees in difficulty, proactively identified their concerns to offer timely assistance. In 2017, we invested RMB 3.692 million to help employees in need, totaling 4,490 person-time; we visited 3,965 families in need and provided subsidies of RMB 2.744 million for them; we provided financial aid to 255 students to get to school who were children of employees in difficulty.

Balancing Work and Life

The Company organized various recreational activities aiming to improve the cultural quality of employees and promote active cultural life of employees. With the purpose of strengthening the Company's cohesive force, MCC actively carried out healthy and inspiring activities to constantly enrich the employees' spiritual and cultural life, improve the sense of happiness of employees, enhance the cohesive force of the company and to build happy MCC.



The activity of "Learning from Leifeng, Fostering New Ethos and Being a Civilization Ambassador" of China Metallurgical Construction Engineering Group



MCC Yoga Class

Pressing ahead together and pursuing win-win cooperation

Attaching much importance to the communication and cooperation with stakeholders, MCC raises suppliers' awareness and ability of sustainability and builds a responsible supply chain to promote a harmonious and interactive relationship, and relative win-win cooperation. The Company also emphasizes on a wide range of strategic cooperative alliance with local governments, domestic and foreign enterprises and institutions to share resources and complement each other's advantages and achieve common development.

> Developing a responsible supply chain

Integrating procurement and bidding with CSR concepts like energy consumption, emission-reduction, etc., the Company promotes green procurement to ensure environmental-friendly production. We also implement streamlined, standard and information-based procurement, and firmly oppose all illegitimate competition and corruption in accordance with the principle of "Openness, fairness and justice".

In 2017, 48 centralized bidding projects were completed through of open bidding, which saved RMB 402 million with a saving rate of 1.55%.

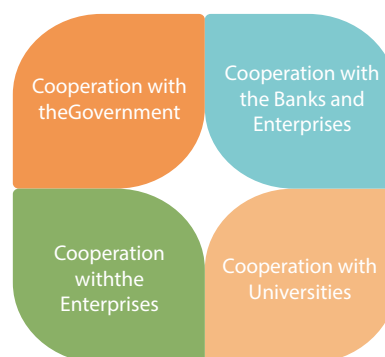


> Carrying out cooperation with various organizations

MCC strengthened the cooperative exchanges with government and among businesses. Last year, we signed 18 agreements on strategic cooperation with local governments and large central SOEs, and became the contractor of numerous influential projects of infrastructure construction and emerging industries, such as the engineering PPP project of expanding and rebuilding the road section from Qingshuiyi to Zhonghe of the G30 Lianyungang-to-Horgos Highway, National Sliding Center project of the 2022 Beijing Winter Olympics, the northern city-surrounding highway project of Lanzhou, two highway projects in Dingxi, Gansu, the water park project on Ocean Flower Island in Hainan, and EPC general contracting of sponge project and the treatment project of black and odorous water in the downstream of Yuxi River in Yunnan, just to name a few.

We signed strategic cooperation agreements with local governments of Zhengzhou city, Tongliao city, Bao'an District in Shenzhen and Shantou city.

We signed strategic cooperation agreements on highways, airports and tourism projects with Gansu Provincial Highway Aviation Tourism Investment Group, Co., Ltd., China Communications Construction Co., Ltd., China Railway Construction Corporation Limited, and China Railway Group Limited.



We further expand the scope of cooperation with financial institutions and cooperation fields.

We proactively strengthen exchanges with major universities, and recruit high quality graduates of the year.



The Signing Ceremony between MCC and Baise Municipal Government



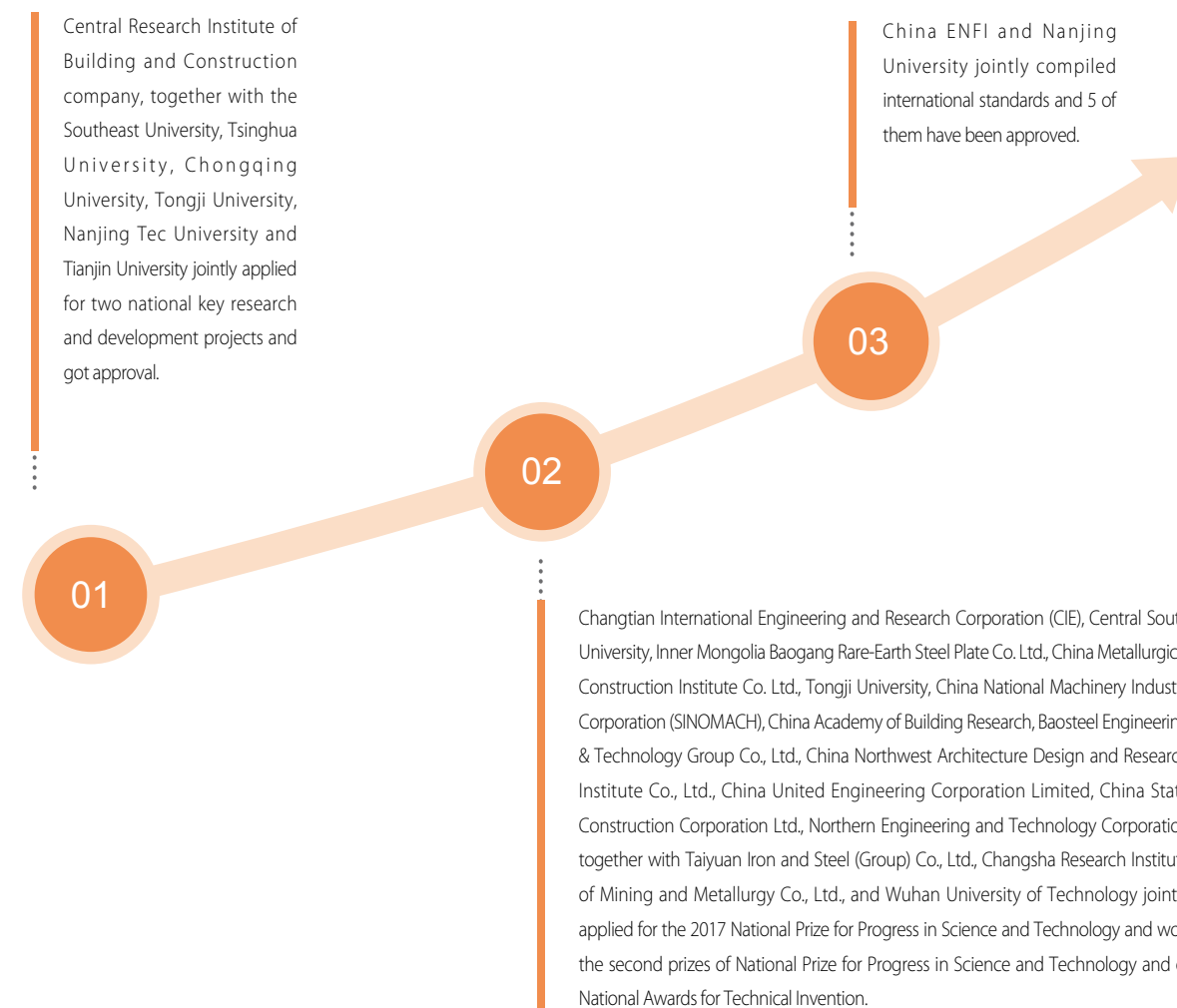
The Signing Ceremony between MCC and Beijing Enterprises Holdings Limited



The Signing Ceremony of PPP Projects of the Second Patch of Roads in Gansu

> Promoting industrial development

MCC organized technological exchanges and cooperation in the integration of production, education, research and application. We, together with universities and enterprises, jointly applied for the National Key Research Program and funds for R&D in science and technology to share complementary advantages and promote technological advancement in the industry.



Two Industrial Standards in Machinery Fill the Gap of the Industry

Case

On Dec. 2017, *The Compilation Principles of Multidirectional Precision Forging Technology of Valves and Valve Bodies and Universal Technical Conditions for Multidirectional Precision Forging Technology of Valves and Valve Bodies* of MCC were issued officially, which would come into effect from April 1st, 2018. The standards resulted from China's independent R&D. Their research, compilation and issuance would effectively improve the supporting design and productivity in forging high-level valves and valve bodies and promote the steady and standard development towards high-end products in the area. The two standards would consolidate the foundation for multidirectional development of domestic forging industry of valves and valve bodies, and promote energy and material saving as well as consumption reduction in the forging industry.



Setting a good example to take on responsibilities and striving for a good future

Our mission decides our responsibility. As the first central enterprise "going global", while upholding the social responsibility concept of "developing innovatively and sustainably, paving the future of the world together", MCC is committed to building a harmonious world that enjoys lasting peace and common prosperity so as to create a new model of modernization that ensures harmony between human and nature



The Guomen Building Project in Dongxing city, Guangxi province



Pursuing green development and protecting lucid waters and lush mountains^①

Human and nature are in the community of shared life. MCC respects and protects nature, and conforms to natural laws. While prioritizing the protection of the ecological environment and pursuing green development, MCC lays emphasis on preventing ecological damage and environmental pollution from the source, strengthen ecological and environmental protection and improve the efficiency of resource utilization, and conduct business in areas related to environmental protection to promote a beautiful China.

> Implementing strict environmental management

In compliance with the *Environmental Protection Law of the People's Republic of China* and the requirements of *Interim Measures for the Supervision and Administration of Energy Conservation and Emission Reduction at Central Enterprises (GZW Decree No. 23)*, MCC strengthens assessment of environmental performance, further carries out investigations of environmental risks and sets up a green management platform featuring accountability and prevention with a better management system and sound operating mechanism. The Company continues to optimize the environmental management system. In 2017, 111 subsidiaries of MCC have passed the ISO14001 environmental management system certification.

Total energy consumption

1.53 million standard coal

Energy intensity

0.067 ton of standard coal/RMB 10,000

The data is from the energy conservation and emission reduction report, which covers the greenhouse gas produced in domestic production and operating activities.

Improving the environmental management system

MCC and its subsidiaries set up leading groups of energy conservation and emission reduction, formulates the MCC Interim Measures for the Supervision and Administration of Energy Conservation and Emission Reduction and MCC Measures for Environmental Protection and Resource Saving Administration to guide and regulate the work of energy saving and environmental protection management

MCC sets up the platform of big data to promote online statistical information of energy saving and emission reduction, promote standard safety and environment management, and improve the online monitoring system

Improving statistical monitoring

Strengthening assessment of environmental performance

MCC specifies the goals of energy saving and emission reduction, and adopt assessment as well as rewarding and punishment measures, so as to urge subsidiaries to carry out energy saving and emission reduction with focuses and targets

MCC organizes publicity and education activities about energy saving and emission reduction, strengthens efforts to build a professional team of energy saving and emission reduction, and advocates green office work to raise the awareness of employees to protect the environment

Spreading the idea of environmental protection

Measures of MCC to strengthen environmental management

> Conducting green business

Attaching much importance to environmental protection, MCC takes advantage of its experience and ability in technology development as well as engineering design and contracting, and carries out various projects related to environmental protection such as the sewage treatment plants, power generation by waste incineration and photovoltaic power generation projects, which improves the living environment and standards of people.

Promoting energy saving and emission reduction technology

MCC increases efforts in technical research and development and develops a series of new technology and products, which meet the demand of energy saving and emission reduction in metallurgical and construction industry, bring great social and economic benefits, and provide strong technology and service support to the transformation and upgrading of the metallurgical and construction industry.

Great achievements in sintering flue gas comprehensive management technology in China

Case

The treatment of sintering flue gas has been one of the difficulties in environmental protection in the iron and steel industry. It is a major and urgent issue to reduce the emissions of SO₂, NO_x and Dioxin in sintering flue gas.

Since 2008, MCC has been working on the multi-pollutant treatment technology to reduce pollutants in sintering flue gas. In 2012, MCC develops the synergy mechanism among industries, universities and research institutes by cooperating with Tsinghua University, Baosteel and Xiangtan Iron and Steel Group. In 2017, the "research on key equipment and technology for integrated and efficient purification of flue gas pollutants with activated carbon process" of MCC is appraised by experts, which is advanced in the world. This technology:

01

It is a comprehensive flue gas treatment technology that is good for resource recycling.

02

It is currently the most advanced flue gas cleaning technology in the field of sintering flue gas cleaning.

03

It can remove multiple pollutants at the same time including the SO₂, NO_x and Dioxin, heavy metal and dust.

04

The system does not produce toxic by-products.

05

The by-product sulfuric acid is of high quality, and the activated carbon power can be used as the blast furnace fuel, which contribute to high efficient utilization of resource.

06

It saves the investment and maintains a low running cost. The investment amounts to 60% of that of similar equipment in China.

07

It maintains a high operation efficiency with 100% main engine synchronization rate.

^① In the environment part, the energy consumption and pollutant discharge are categorized according to business sectors including the "engineering service", "equipment manufacturing", "resource development" and "other industries". The business sectors are slightly different from the sectors categorized in the 2007 Annual Report of MCC, which include the "engineering contracting", "real estate development", "equipment manufacturing" and "resource development". Among them, the energy consumption and waste discharge in "real estate development" sector is included in the "engineering service" sector in this report; the energy consumption and waste discharge in environmental protection business (waste incineration and sewage treatment) of the "engineering contracting" sector as well as in nonferrous metals business (polysilicon business) of the "resource development" is included in the "other industries" sector here. The classification is to comply with the sectors classified in the monthly report of energy conservation and emission reduction. Besides, as the major engineering contracting business is conducted in China, the energy consumption and pollutant discharge data in the "engineering service" sector only covers domestic business for the moment.

Construction dredging materials 3D printing

Case

It has been an industrial problem to treat construction dredging materials. Each year, around 2 billion tons of construction waste is produced in China, among which nearly 10% are the dredging materials. It is believed in the industry that to pile up the dredging materials needs more than 20,000 mu land. At the same time, there might be a hidden danger in piling up dredging materials.

The construction spoil 3D printing technology independently developed by MCC, can not only cope with dredging materials and reduce costs, but also improve the efficiency of traditional construction method by 50 times with the containerless and standardized production mode.

To take a residential building complex of 200,000 square meters as an example, it produces nearly 150,000 cubic meters of dredging materials. Even if it only takes 5 kilometers for the clearance of dredging materials, the costs for transportation and clearance reach RMB 7.5 million. The dredging materials 3D printing technology reduces these costs and RMB 1 million more for dust treatment. Also, it is good for the reduction of motor vehicle exhaust emission and haze control by reducing the transportation of dredging materials and materials for the wall and pavement.

Solid waste treatment

As the first design enterprise to adopt city waste incineration power generation in the industry, MCC has been the only design enterprise with Class A comprehensive design qualification. It is also the only enterprise with the integrated abilities and strengths in investment, consultation, design, complete equipment as well as construction and operation for projects of power generation by waste incineration.

Volume of waste being treated

569,294 tons

Electricity generated by waste incineration waste incineration

231,544,400 kWh

Developing clean energy

Playing an important role in promoting the development of new energy industry for environmental protection, MCC upholds the development concepts of supporting R&D-driven development and the new energy industry, strives to make technological breakthroughs with a focus on the new energy such as the photovoltaic energy, and makes great achievement in the whole industrial chain of photovoltaic energy and become the leader in this field.

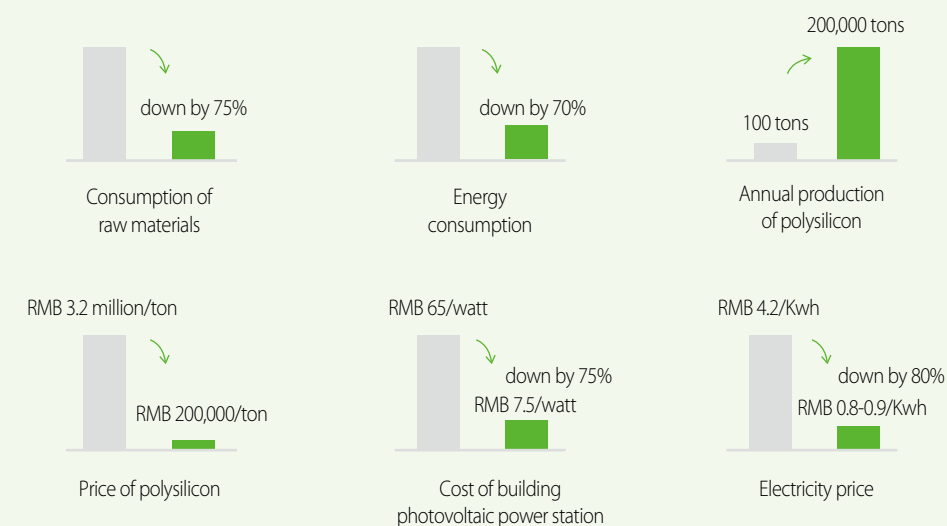
Independently developing the new polysilicon production technology featuring high efficiency, energy saving and environmental protection, which fills the gap in China

Case

Polysilicon is a kind of ultrapure new energy material. It is a key essential material in production of basic circuits and semiconductors, and also a core material for the rapid development of PV power generation industry. In 2017, "the polysilicon production method" of China ENFI won the "Chinese Patent Gold Award".

To solve the problems hindering polysilicon production and demand, China ENFI creatively recovers the "off gas" in traditional production technology to the reaction process, which improves the recycling rate of process gas to 99.99%, lowers production cost by 80%, and solves the key problem hindering the mass production of the industry. As a result, China ENFI has developed an internationally advanced polysilicon production technology system with a scale of ten thousand tons, accelerated the integration and use of advanced technologies around the world, and promoted the rapid and leapfrog development of polysilicon industry in China.

China ENFI formulated and participated in the formulation of several polysilicon industrial standards at home and abroad, established the polysilicon industrial standard system in China. With these efforts, China ENFI improves the polysilicon industrial standards and the industrial standard system, provides technological support to polysilicon product upgrading, work safety, as well as energy saving and emission reduction, and stimulates the development of the whole industrial chain of PV industry.



Water environment management

Committed to improving ecological environment, MCC focuses on areas that need more attention such as the water environment, city sludge treatment, and rural water affairs with technological innovations. In 2017, the volume of wastewater treatment reached 433 million tons.

Comprehensive management PPP project of water environment in Lai'an county

Case

The water environment comprehensive management project in Lai'an county is the first of Huatian Engineering & Technology Corporation, MCC covering the whole region and basin with the PPP mode. Combining with the master plan and topography of Lai'an county, the project maps out a systemic plan for the river system and integrates water pollution control, water ecosystem restoration, water project operation, urban flood protection and drainage improvement, urban landscape and remote control, so as to solve problems including the weak flood control and drainage system, black odor water, discharge of rain and waste water, damage of ecosystem, waste of the water resource, as well as poor water function, and achieve the goals of "clean water, lush bank, and beautiful landscape" and "water in the city, and city in green".

- Water pollution control: optimizing the existing pipe network and setting up the pollutant interception pipe network along the river to realize the separation of rain and wastewater; adjusting the scale and operating capability of industrial wastewater treatment plants and domestic wastewater treatment plants to make sure the discharge meets relevant standards.
- Water ecosystem restoration: building constructed wetlands for tail water purification from the wastewater treatment plants to further improve the quality of water discharged into rivers for ecological water compensation; building rain ecosystem parks to intercept, absorb, and purify the suspended solids and pollutants at high concentration before the initial rain and surface runoff flow into the river; establishing the submerged forest ecosystem restoration system in the river for natural water restoration and degradation of pollutants in the water.
- Water environment operation: setting up the "Internet plus" water environment operation and management center to conduct real-time monitoring and management of the river, fluctuation of the lake water quality index, variation of water level, as well as the growth of aquatic plants; conducting real-time collection and monitoring of the water quality, water flow, and clogging in the pollutant interception pipe network; implementing remote control of water diversion and supplement facilities and sluice operation; controlling the operation of remote equipment by sending real-time data and pictures through the mobile application, so as to improve the efficiency, instantaneity and safety of river management.

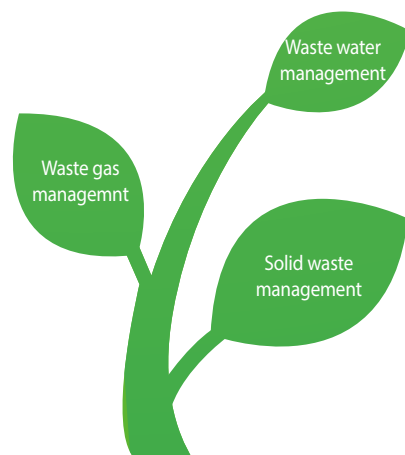
> Promoting green construction

Actively advocating sustainable development, MCC promotes green construction and management, and formulates the Green Construction Demonstration Atlas of MCC to foster green construction demonstration construction sites. In 2017, 19 of the Company's projects have been listed "Green Construction Demonstration Projects" of the National Construction Industry.

Strengthening the treatment of waste water, waste gas, and solid waste

MCC takes various measures including improving design, using clean energy and raw materials, adopting advanced technology and equipment, improving management and promoting comprehensive utilization. By doing this, MCC cuts pollution from the source, improves the efficiency of resource utilization, and reduces the production and discharge of pollutants in the process of production, service and use of products, so as to reduce or remove the harm to health and environment. In 2017, the SO₂ emissions reached 31,230 tons, and the recycling rates of non-hazardous solid wastes in the "engineering service" sector¹ were all above 22%.

- Improving the production process, upgrades the manufacturing equipment, and innovating modes of clean production, so as to reduce the emissions of SO₂, NO_x and particulate matter.
- regularly monitoring the pollutant concentration in the waste gas emitted to make sure the emissions meet the requirements of relevant laws and regulations.



- formulating corresponding waste water management systems to conduct effective management and control of domestic water, production water as well as industrial water, and make sure the discharge of waste water meets the standards of relevant regulations.
- non-hazardous solid waste: strengthening the recycling of non-hazardous solid waste
- hazardous waste: according to the Standard management System of Hazardous Wastes, promoting the standard management of hazardous wastes in subsidiaries, such as putting up signs of hazardous wastes, making management plan for hazardous wastes and exploring the recycling of solid wastes to improve the overall management.

Reducing pollution through upgrading and improvement

Case

The old shot-blasting machine caused air pollution. To answer the call of energy saving and emission reduction, China MCC20 Group Corporation invested RMB 1.7 million to buy 2 new shot-blasting machines. The new VOCs emission reduction equipment put into practice can absorb VOCs through confined space spraying and reduce emissions by 90% through catalytic combustion treatment. As a result, air pollution is largely reduced.

Promoting proper use of resources

Actively implementing policies about water resource management, energy management, and land resource management, MCC strengthens efforts in water saving management, improves energy efficiency, and uses land resources properly.



Water resource management



- encouraging subsidiaries to reduce water consumption with technological improvement and improve the utilization efficiency of water resource
- to save water from the source, construction enterprises should include the water saving index in sub-contracts or service contracts and set the limit of water consumption according to the projects
- adopting advanced water saving technology in the construction
- setting up rainwater collecting facilities in the construction site

Energy management



- using equipment with energy saving functions
- calculating energy consumption of major energy consuming construction equipment regularly
- stop using energy-intensive equipment
- shortening the transportation distance of materials and reducing energy consumption
- using renewable energy in the construction site properly

Land resources management



- land conservation: planning the general layout of construction to make full use of the space and reduce land use as much as possible
- land protection: taking measures to prevent water loss and soil erosion; restoring vegetation, and excavation and backfill after the construction

¹ The energy consumption and pollutant discharge data in the "engineering service" sector only covers domestic business for the moment.

promoting efficient use of solid wastes with technological innovation

Case

Metallurgical slag is a kind of solid waste produced in the production process of metallurgical enterprises. MCC Baosteel makes technological innovations to produce hollow partition boards of metallurgical slag and concrete with solid waste, during which the utilization rate of metallurgical slag is over 80% and the performance of products meet the standards and requirements of *Ash Concrete Hollow Partition Board* (GB/T 23449-2009).

With this technology, the wallboard factory with an annual production of 400,000 square meters is expected to dispose 1 million tons of steel slag, slag, and fly ash slag, reduce the consumption of cement and coal by 300,000 and 35,400 respectively, and decrease the emission of CO₂ by 218,400 tons and the use of natural stones by about 400,000 tons.

Addressing climate change

In the background of global warming, MCC pays attention to the emissions and management of greenhouse gas. Committed to technological innovation, MCC reduces the emission of greenhouse gas in operation from the source to weaken the impact of operation activities on climate change. In accordance of the *Guidelines on Greenhouse Gas Emission Accounting and Reporting* released by National Development and Reform Commission, domestic subsidiaries strictly calculate the greenhouse emissions and establish the greenhouse emission calculation systems, which promotes low-carbon development of the Company.

Greenhouse gas emissions¹

5,888,231 tons

Greenhouse gas emission intensity²

0.26 tons/RMB 10000

Overseas greenhouse gas emissions in resource development³

8,311,824 tons

^{1,2} The data is from the energy conservation and emission reduction report, which covers the greenhouse gas produced in domestic production and operating activities including greenhouse gas emitted through the consumption of fuels (range 1) and electricity (range 2).

³ The data covers greenhouse gas emitted through the consumption of fuels (range 1) and electricity (range 2) in overseas mining and production activities. The calculation of range 1 greenhouse gas emissions is based on relevant heating power conversion factors in *Sustainability Reporting Guidelines, Version 3.0*, and greenhouse gas emission factors in *2006 IPCC Guidelines for National Greenhouse Gas Inventories Chapter 2 – Stationary Combustion*; The range 2 greenhouse gas emissions are calculated with tools according to the *Greenhouse Gas Protocol*.



Protecting ecological environment

MCC is committed to protecting ecological environment and strives to explore harmonious development between nature, society and our projects. All construction units provide timely protection and restoration to valuable trees and river systems, and terrains with humanistic or historical value, so as to lessen the negative impact of construction and operation on local environment and communities.

Strictly following the Green Mine Convention, resource developing enterprises conduct mining activities properly, take measures to prevent water loss and soil erosion and protect local ecological environment; after the mining, enterprises take land reclamation measures timely such as environmental greening and conservation of water and soil, so as to carry out the idea of green and sustainable development throughout the whole life cycle of the mining activities. MCCT Sindak Project is located in the desert hinterland with extremely harsh natural environment. Since the project is started, full attention has been paid to environmental protection and reshaping of the environment. We organize tree planting activities every year and raise awareness of employees to protect environment in daily life. During the past fifteen years of operation, local environment where the project is carried out has been greatly improved with trees and flying birds.

> Passing on the concept of environmental protection

MCC organized the activity of energy saving awareness week themed “being a part in energy saving, and promoting green and shared development”, aiming to raise the awareness of employees to save energy and reduce emissions with publicity activities; MCC continuously provides themed training programs such as about green construction to employees in related area to improve their professional skills. In 2017, MCC has provided trainings about green construction as well as about Safety and Civilization Standardization to over 1,300 employees of middle or senior management of 10 subsidiaries.



China Metallurgical Construction Engineering Group organizes the volunteer activity of “clean homeland”

Passing on responsibilities and building a harmonious community

As a global challenge, poverty alleviation is also the primary goal of The 2030 Agenda for Sustainable Development of the UN. In 2015, the General Secretary of CPC Central Committee Xi Jinping at the core started the campaign of poverty alleviation. Poverty alleviation has entered the final rush period and is a hard nut to crack. Keeping the historical mission and social responsibility in mind, MCC earnestly carries out major decisions and policies of the Party Central Committee and the State Council, and supports China to win the battle of poverty alleviation through poverty relief practices such as targeted poverty alleviation and donations.

> Target for poverty alleviation

Always attaching great importance to poverty alleviation, MCC provided support to Yanhe Tujia autonomous county and Dejiang county of Guizhou province in the new period of fixed-point poverty alleviation and development. MCC firmly implements decisions of the Central Committee and fully plays its role in winning the battle of poverty alleviation as a central enterprise.

In 2017, the invested funds totaled up to RMB 7.8417 million and the donated materials can be converted to RMB 60,000. MCC has assisted 568 registered people in need to get rid of poverty.

Establishing the leading group and deciding the guiding principle

We have established the leading group of fixed-point poverty alleviation, which consists of an office specially in charge of guiding, coordinating and implementing fixed-point poverty alleviation activities

Doing investigations and research and deciding the way of poverty alleviation

The poverty alleviation group with its office members holds work symposiums with the visiting teams, organizes special investigations and research on poverty alleviation, establish the work communication mechanism and decide the general requirements for poverty alleviation with "development-orientated poverty reduction and joint development" as the core

Assigning employees to take the temporary post and focusing on long-term development

We have assigned 6 employees in twice to serve the temporary positions of Deputy Magistrate and the "First Secretary", which lays the foundation for "project-driven poverty alleviation" and "industry driven poverty alleviation".

The Poverty Alleviation Mechanism of MCC

Zhou Peicheng, the "First Secretary"

Case

In August of 2015, as the "First Secretary" assigned by MCC, Zhou Peicheng, the young Party member, traveled a long distance to Chonghua village of Jiancha town of Dejiang county, Guizhou province, with the trust and responsibility from MCC, and conducted poverty alleviation activities.

The young girl from the city take villagers as "her family". Despite the narrow and rugged mountain road, Zhou Peicheng visited all the 16 villager groups, drew the "Map of the People", and made the "heart-to-heart card of cadres and people" of Chonghua village.

To help people get rid of poverty and be better off, Zhou Peicheng tried to find the root of poverty and solved problems step by step. In September of 2016, to accelerate the poverty alleviation in Chonghua village and help the growth of children, Zhou Peicheng, who was supposed to come back to the city, proposed to prolong her term in Chonghua village and it was approved.

Zhou Peicheng has made achievements in current stage of poverty alleviation. She was awarded as the "Excellent Member of the CPC" and "Excellent First Secretary" in Jiangcha town of Dejiang county of Tongren, Guizhou province. She was also awarded as the "Advanced Individual of Social Poverty Alleviation" of Dejiang county of Tongren, Guizhou province, the "Excellent First Village Secretary" of Tongren city of Guizhou and of Guizhou province.



In September 6th, 2017, Zhou Peicheng was leaving and students in Chonghua village primary school reluctantly bid farewell to her

Fund raising

she communicated with MCC, the county Party committee, county government, town Party committee, town government and other institutions and raised funds of over RMB 3 million to build the cement road of 12 kilometers connecting the villager groups.

Visiting local people

she helped villagers to do farm work and cared for empty-nesters and leftover children

Voluntary teaching

she organized donations of stationery to help six students in need to study in MCC19 Polytechnical School.

Developing industries

she promoted the growth of flue-cured tobacco for 500 mu, walnut for 1,500 mu, Sichuan pepper for 200 mu and gastrodia elata for 4,500 square meters. She also promoted pig breeding which requires little investment and develops fast with much benefits.



> Caring for migrant workers

In 2017, the Company continuously strengthens cooperation with subcontractors. While further satisfying the needs of construction, the Company provides jobs to migrant workers, and achieves steady labor supply and harmonious labor relations. While undertaking a large number of national infrastructure construction tasks, the Company fulfills its social responsibility as a large company.

Several subsidiaries of MCC has organized free clinics for migrant workers, released information brochure about caring for children's education, and organizing provided free film shows to enrich the cultural life of migrant workers in spare time.

> Organizing public welfare and charity activities

MCC pursues common and harmonious development between the enterprise and local communities. With much attention to public welfare, the Company organizes volunteer activities to give back to the society, and makes full use of its advantages in funds and talents to contribute to the development of harmonious society and common development with local communities.

Investments in public welfare and charity

RMB **4.25** million

Number of employees serving as volunteers

8,087



Caring for the elderly	<ul style="list-style-type: none"> MCC Baosteel Technology Services Company organized 15 volunteers to send greetings and blessings to the elderly above 80 in the community. 10 volunteers from China MCC20 Group Corporation went to The Third Social Welfare Institute of Shanghai to provide care for the elderly people with dementia.
Supporting development of education	<ul style="list-style-type: none"> China Metallurgical Construction Engineering Group Company organized "book donation" activities and totally donated over 80 books to help build reading corners in rural schools The Yuechi PPP project department of China 19th Metallurgical Corporation voluntarily built a temporary road for Luodu Central Primary School, which provided 2,000 students and teachers a safe and comfortable road to school. The Yinchuan integrated utility corridor project department of China Metallurgical Construction Engineering Group offered recreation and sports equipment and student grants to Xinying Central Primary School in Xiji county of Guyuan city. Shen Kan Qingdao General Engineering Design and Research Institute Corporation provided student grants, books and stationery to 32 students in need
Organizing donations	<ul style="list-style-type: none"> The Four Construction and Engineering Branch of China Metallurgical Construction Engineering Group organized the donation activity themed "Love in Single's Day, No One Alone" to donate clothes and books to leftover children and families in need.
Organizing voluntary blood donation	<ul style="list-style-type: none"> 201 employees of Shanghai Baoyejianshe Industrial Furnace Engineering & Technology company participated in the blood donation, and totally donated blood of 40,200ml. 189 employees of China 22MCC Group Corporation voluntarily donated blood of 57,000ml.
Carrying out earthquake relief work	<ul style="list-style-type: none"> China MCC5 Group set up the leading group for rescue and relief work and the rescue team to participate in the relief work in Jiuzhaigou county of the Tibetan Qiang Autonomous Prefecture of Ngawa in Sichuan province. The project department of China 19th Metallurgical Corporation in Markam county in Tibet, organized employees and prepared instrument to do rush repairs of damaged roads and rescued people trapped by the flood.
Caring for children	<ul style="list-style-type: none"> MCC Overseas organized visits to visually impaired children. China ENFI Young Volunteers Association organized employee volunteers to visit "Angel Home" and provide care for sick orphans. China 22MCC Group Corporation visited the Fengnan Special Education School in Tangshan and delivered comforts to exceptional children. China MCC5 Group organized young volunteer service activities themed "Caring for migrant workers and their children" in nearly 10 project departments.
Providing medical help	<ul style="list-style-type: none"> Xin'ao property management company of MCC Real Estate Wuhan company held a large free clinic together with Puren Hospital in Yijiangpan Park neighborhood to provide free body check for residents. China MCC17 Group Hospital held a large free clinic themed "Care for women and health" to provide over 80 sanitation workers with free clinic. China MCC5 Group regularly provides voluntary services of targeted medical assistance in towns and serve one town each month. Shanghai MCC Hospital started the volunteer program of "MCC with you, campaign of providing health services to communities". Medical staff went to 35 neighborhoods, organizations and schools in Baoshan District and Jiading District, during which they gave 15 lectures on health, offered 30 free clinics, served over 5,300 residents with more than 300 medical workers involved in these activities.



Promoting international cooperation and boosting sustainable development together

Upholding the principle of extensive consultation, joint contribution and shared benefits, MCC actively participates in opening up and regional development strategies, further integrates with the global value chain and goes global together with Chinese technology, equipment, standards and management. During this process, MCC makes joint efforts with stakeholders in the opening up, sharing responsibilities and benefiting local community or the world. In 2017, there had been 32,200 employees of MCC overseas, among whom there were 10,753 Chinese employees.

Developing the world-class nickel and cobalt resource project

Case

Ramu Nickel Project is a large international project of MCC in Papua New Guinea focusing on the development, construction and operation of nonferrous mining, which carries out the national strategy of "going global" and pioneers in implementing the "Belt and Road" initiative.

With total investments of RMB 12.275 billion, the project is the biggest overseas nickel and cobalt resource investment project of Chinese enterprises by now, and also the biggest investment project of China in the south Pacific. The proved and controllable nickel ore reserve of the project is more than 7,800 tons with the total resource reserve of 140 million tons.

The designed service time in mine is 20 years and the prospective reserves are expected to support 40 years. With years of hard work and efforts, Ramu Nickel Project has been the fastest to reach designed productive capacity with the lowest investment for per ton of nickel and lowest cash costs for per ton of nickel. In 2017, the project maintains stable production and overfills the production target by 8%. At the same time, all the technical and economical indexes precede the designed value with controllable safety and environmental management and stable local relations.

Setting a good example for the industry

Ramu has systematically adopted new process, new technology and new equipment in the production and management of laterite nickel, thus setting a good example in participating in the "Belt and Road" initiative. MCC successfully adopted the laterite nickel hydrometallurgy technology in a project for the first time. Based on this project, MCC obtains 1 international patent and 16 domestic patents, and applies the technologies in projects.



Ramu Ni-Co Smelter in Papua New Guinea

By the end of 2017, the project and relevant technologies successively won the first prize of the Science and Technology Award by China Nonferrous Metals Industry Association, the first prizes of Excellent Consultation Award and of Excellent Engineering Design Award announced by China National Association for Nonferrous Metals Industries Construction, and awards at ministerial and provincial-level such as the Chinese Patent Award of Excellence.

Maintaining stable operation of the project

Equipped with internationally advanced technology, the project is the first successful case of applying laterite nickel hydrometallurgy technology in projects, with which the process is properly connected, the performance in environmental protection and work safety meets the requirements of the strictest operation and management standards, and remarkable social and economic benefits have been created.

Since it entered the construction period, the project has witnessed 3 earthquakes of 7 magnitude or greater, 4 tsunami warnings, 20 landslides. Despite that, the mine, long-distance pipelines and the smeltery keep running well, roads and bridges crossing the public area maintain normal operation, and all function well including the wharf, the residential area of employees as well as the residential area of local people along the project that we assisted to build. At the same time, there is no changes in the environmental protection inspection data.

Promoting development of local communities

The project makes positive changes to local communities, and brings benefits for stakeholders, which has great significance for the social economic development of Papua New Guinea and local communities.

In 2017, the project provided business opportunities worth PGK 7.786 billion, brought PGK 24.284 million to local catering industry, and invested PGK 7.344 million and PGK 2.134 million for security and land & environment compensation respectively. The annual expenditure reached PGK 41.548 million, which shows that MCC fulfills the duty of MOA. Ramu was honored as the "Model of Social Responsibility Fulfilment" by the Papua New Guinea national chamber of commerce in mining and oil industries.

In November, 2017, employees of Ramu rescued 17 drowning people in the sea nearby, among them there were two children, and found 2 bodies. After the rescue, Ramu immediately connected local police and hospital to send the survivors to receive examination and treatment.



Rescuing drowning people

> Promoting international production capacity cooperation

As the largest and strongest metallurgical construction contractor and metallurgical operation service provider in the world, MCC actively participates in the development of the "Belt and Road" initiative, undertakes a number of projects with internal influence in Vietnam, India, Turkey, Malaysia, Indonesia and Brazil and promotes comprehensive international cooperation in production capacity and equipment manufacturing with new driving forces.

Developing the most competitive steel rolling project in Southeast Asia

Case

Initiated and jointly promoted by state leaders of China and Malaysia, Malaysia-China Kuantan Industrial Park is a major inter-governmental cooperation project, which has been listed as a major project of the "Belt and Road" initiative and the demonstration base for cross-border international production capacity cooperation.

Malaysia Malaysia-China Kuantan Industrial Park 3.5 Million Ton Iron and Steel Engineering Project is the first park project. As the whole industrial chain service provider for integrated steel enterprises in Kuantan, MCC is responsible for overall design, complete sets of equipment production in core sectors, and most construction tasks. In December, 2017, the line and rod rolling production lines designed by MCC was put into operation and entered the pilot production period.



Kuantan integrated steel project adopts a series of core technologies and equipment developed by MCC. The picture shows the sinter cooling chamber under construction, which adopts sintering machine comprehensive sealing technology, the generator ring cooling machine and the whole set of equipment.

Improving local industrial development

Malaysia is a traditional agricultural-based country. MCC provides internationally advanced overall design for the integrated steel plant, and establishes a rolling line with the most advanced technology and highest automation level, which largely promotes the industrial development of Malaysia.

Driving local economic development

The project is designed to produce 3.5 million tons of high-end rod and wire and H-type steel with the markets covering Southeast Asia and surrounding area. Once the project is completed, it will attract a large number of upstream and downstream enterprises to concentrate in the park and become an iron and steel industrial base, which will further drive the development of the tertiary industry and promote local economic development. The project represents the innovative exploration in international production capacity cooperation between China and Malaysia while they implement the "Belt and Road" initiative, which shows a noticeable demonstration effect on promoting bilateral economic development of China and Malaysia.

Boosting exports of quality capacity in China

The project improves the system integration ability of China's iron and steel industry and the competitiveness of core equipment to "go global". MCC boosts the exports of core technologies, core equipment, project management and operation services through providing design services, and offers the most competitive "Chinese solutions" to the iron and steel industry of Malaysia.

> Carrying out localized management of employees

MCC furthers its expansion of the overseas market. With the management experience of overseas projects and a combination of measures and strategies, MCC continues to make innovation and promote the transformation of traditional management mode to localized management for overseas project.

International management

Increasing the proportion of local employees

Sub-contractor selection

Using local labors or labors from surrounding areas and cultivating a local labor cooperation team for long-term cooperation

Protection of rights and interests of local employees

In compliance with local laws and regulations, formulating the recruitment system, and holiday system and salary system.

Communication with local owners

Actively participating in the activities held by local owners, and hiring the local safety officer to deal with relations with local government, trade unions and residents.

Cultural integration

Focusing on the characteristics of local culture and customs in overseas market, identifying the difference with domestic cultural customs and gradually promoting effective integration between the corporate culture with local culture.

Training for local employees

Teaching local employees about advanced operating skills to provide professional skills to local employees for their development.

Measure designed by MCC for localized management



China 22MCC Group Corporation discusses technical issues with the project owners of the Russian KIMKAN iron mine's concentrating mill



An employee gives performance with her families on the Chinese New Year Party of the subsidiary in Algeria



China 19th Metallurgical Corporation carries out localized management in Namibia



> Protecting local environment

Adhering to the idea of green development, MCC follows local environmental laws and regulation, improves the environmental management system and enhances communication with stakeholders related to eco-environment protection. While carrying out the principle of resource saving and environmentally friendly development in the whole process of international cooperation on production capacity and equipment manufacturing, MCC prevents environmental risks and protects local eco-environment.

Reducing the impacts on local environment as much as possible

Case

The CKE airport expressway project in Sri Lanka is the first expressway there. Taking the impacts on environment and the utilization efficiency into consideration during the construction, MCC established and improved the environmental management system, continuously improved its technology and procedure, and blended the idea of environmental protection into each parts of project development and construction so as to reduce the impacts on local environment as much as possible.

Protection of aquatic creature

Building circular waterways for the migration of fish and shrimps



Noise reduction

Setting up sound barriers in populated areas and major tourism areas and using the rotary drilling rig in the construction of pile foundation to reduce noise

Wastewater treatment

Building the oil-water separation tank in the reclamation road section in the sea where the rain flows into the lagoon after sedimentation

> Improving local people's livelihood

MCC actively promotes the construction of supporting infrastructure and industrial development in the surrounding area of the project, enhances local employment and improves the conditions of energy use, drinking water, medical care and education, so as to enhance local people's livelihood. In 2017, the Company invested RMB 4.178 million to help the development of local communities.

Bringing hope to the Gobi Desert

Case

Baluchistan is the largest province in Pakistan with smallest population and unbalanced economic development. The Saindak Project of MCC Tongsin Resources Ltd. creates benefits by developing the mineral resources in the deserts in west Pakistan, which haven't been explored for a long time, and promotes regional economic development, thus improve the strength and image of the national industry of Pakistan.

Promoting local development

Over the past 15 years, the total value of materials that the project purchased in Pakistan has reached almost 500 million dollars. Only in the area of transportation, the project has paid about 30 million dollars to local transportation service providers for the transportation of materials.

Providing access to safe drinking water

We purchased vehicles specially for water delivery, which provided safe drinking water to almost 2,000 villagers in the five villages nearby for free.

Improving local medical condition

The hospital of the project department provided free physical examination, diagnosis and treatment to people in surrounding area, and cut or exempted their expenses for medicine and vaccines. We provided over 6000 examinations, diagnoses and treatments, reducing and exempting costs of millions rupees.

Supporting talent cultivation

We organized more than 8,000 training classes with the attendance of over 80,000 Pakistani employees

Improving local energy use

We installed transmission facilities to supply electricity free of charge in villages nearby, which enabled villagers to use electricity in daily life. The electricity supply for villages nearby costs almost 800,000 dollars each year.

Promoting local education

We funded and managed Saindak school, which allowed over 600 students who live around the project area to receive free education. we also assisted the bureau of mines of the provincial government to build mining training school, and invested almost 30 million rupees together with the owner to build technical training schools.



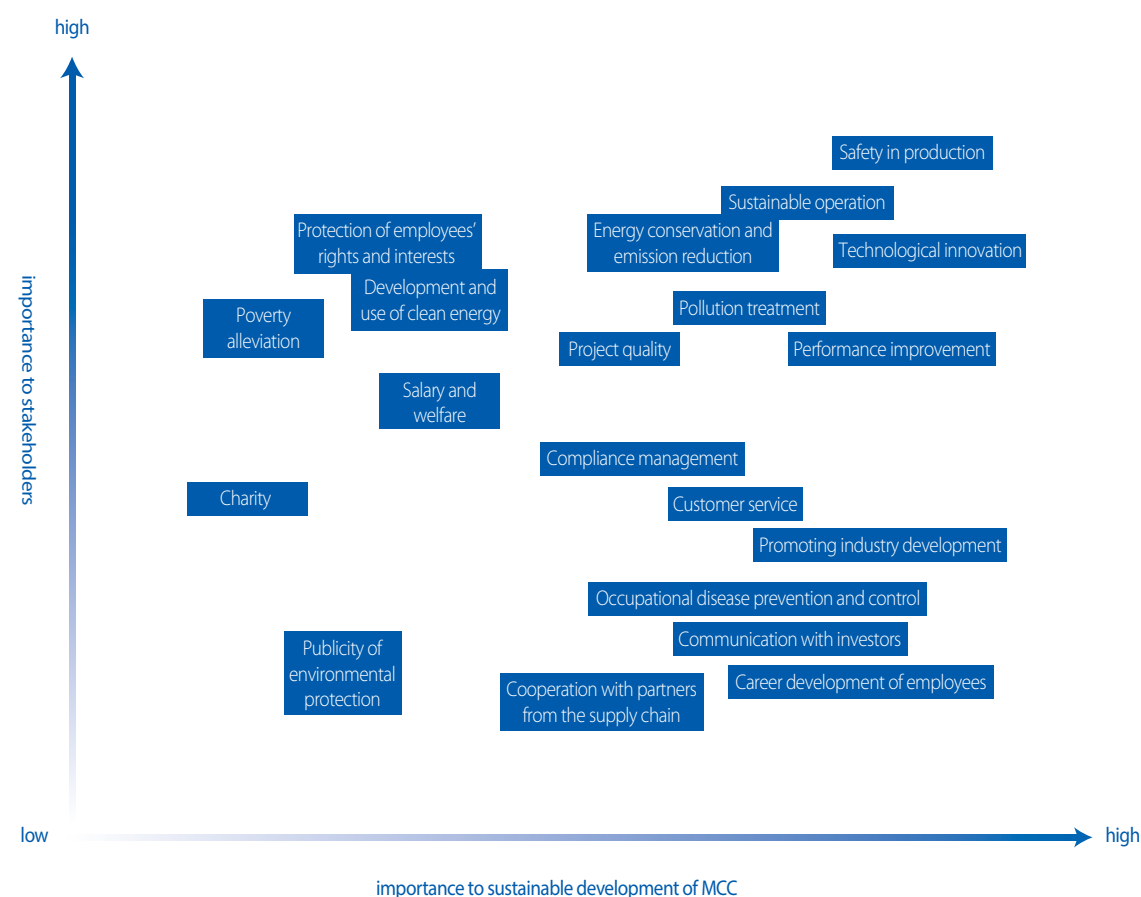
Social responsibility management

With "developing innovatively and sustainably, paving the future of the world together" as the social responsibility philosophy, MCC continuously enhances the awareness of corporate social responsibility, and establishes and improves social responsibility management system to create more economic value, social value and environment value for stakeholders.

Identification of material topics

Based on various channels including research on national macro policies, analysis of social responsibility standards home and abroad, company development strategy and plans, industry benchmarking as well as interviews of and surveys on stakeholders, we identify material topics on social responsibility of MCC in 2017.

By analyzing "importance to stakeholders" and "importance to sustainable development of MCC", we have worked out a matrix of sustainable development topics of MCC.



Analysis of material topics

Stakeholder Engagement

Based on the operation and business, MCC innovates the mode of communication and interaction with stakeholders, identifies key issues on social responsibility, actively responds to the expectations and requirements, and constantly improves CSR performance to realize common development together with stakeholders.

> Strengthening information disclosure

MCC formulated the *Information Disclosure Management System of Metallurgical Corporation of China* and *Inside Information Management System of Metallurgical Corporation of China* to regulate information disclosure and ensure that information is disclosed truly, timely, accurately, legally, and completely. The Company also intensifies efforts to protect inside information confidentiality, adheres to the fairness principle in information disclosure, and increases the information disclosure of business related to emerging industries, the PPP project, science and technology achievements as well as business operation in this industry, so as to enhance the transparency of information disclosure. In 2017, we have disclosed 319 announcements and relevant documents. The Company is awarded by SSE as the Level A (the best) listed company in information disclosure.

> Relationship with investors

Formulating the *Management System of Relationship with Investors of Metallurgical Corporation of China* and other systems, MCC regulates the management of relationship with investors, strengthens communication with investors and protects the legitimate rights and interests of investors, especially medium and small investors.

Regular promotion

We held annual performance communication meeting of 2016 and interim communication meeting of 2017. We had further face-to-face communication with over 50 investors and showed the operation of MCC to the capital market timely.

Active communication

By organizing various activities such as roadshows, visits and telephone conferences, we have covered research on all A-share security traders in construction industry, and covered A-share "New Fortune" star security traders of "Industrial Securities" and "Guotai Junan Securities".

Receive investors

In 2017, we received almost 40 research interviews of investors at home and abroad.

Communication mode innovation

We had effective communication with various publicity channels such as the multimedia annual report, live webcast of performance conference, and making speeches in meetings.

Measures for strengthening communication with investors

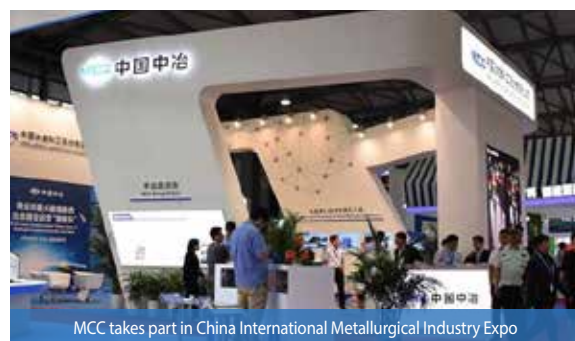


MCC holds the annual performance communication meeting of 2016 in Beijing

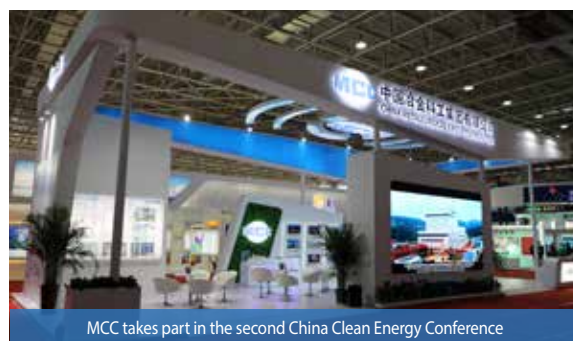
Board Chairman Guo Wenqing won the honor of "Top 100 Outstanding Entrepreneurs" in the 17th forum of Top 100 Chinese listed enterprises; Li Yuzhuo, secretary of the board, won the honor of "Top 100 Best Secretaries in China"; The Company won the award of "Top 100 Ethical Enterprises in China"; Li Yuzhuo also won the "China Securities Golden Bauhinia Prize" of Best Secretary; the Company also won the awards of "Best Relationship with Investors" and "Best Performance in Sustainable Development".

> Strengthening brand publicity

Focusing on the main tasks" of recasting "national strength" and telling "the most important story" in the reform history of state-owned enterprises and the improvement of the Party's leadership, MCC praises and develops the brand; while active communicating with media, MCC has directly released more than 300 and forwarded 4,300 in-depth external publicity newsletters through over 40 mainstream media; MCC makes live broadcast of crucial stages of domestic and overseas projects with major projects of MCC constantly broadcast through channels of CCTV; on the new media index list of Top 500 Chinese enterprises announced by the news center of SASAC (State-owned Assets Supervision and Administration Commission) of the State Council, the WeChat account "better MCC" ranked the 19th, which ranked the 7th on the new media index list of central enterprises and won 5 awards in the "focusing on the main tasks" of recasting "national strength" and telling "the most important story" in the reform history of state-owned enterprises.



MCC takes part in China International Metallurgical Industry Expo



MCC takes part in the second China Clean Energy Conference

Shareholder communication chart

stakeholders	Expectations and requirements	Communication and responses
shareholders	<ul style="list-style-type: none"> To obtain the returns on investment To obtain satisfactory market capitalization To protect rights and interests To know about MCC's operation 	<ul style="list-style-type: none"> To improve the profitability To strengthen market value management To hold shareholder meetings To timely disclose the information
Customers	<ul style="list-style-type: none"> To provide high-quality products To continuously improve the service quality To stick to equal and mutually beneficial cooperation 	<ul style="list-style-type: none"> To keep close contact with customers To provide rich products and services information To improve the complaints handling mechanism
Environment	<ul style="list-style-type: none"> To conserve energies and reduce emissions To protect the ecological environment To conserve resources 	<ul style="list-style-type: none"> To adopt the green design and construction To protect the ecological environment To achieve the green office
Creditors	<ul style="list-style-type: none"> To continue to improve the value of MCC To minimize risks and operate prudently To repay capital with interest on schedule 	<ul style="list-style-type: none"> To disclose routine information To issue regular reports To receive visitors
Staff	<ul style="list-style-type: none"> To protect legitimate rights and interests of staff To provide them with good welfare and development opportunities To provide them with healthy and safe working environment 	<ul style="list-style-type: none"> To hold the congress of workers and staff regularly To establish smooth internal communication channels To improve staff training system and provide the staff with occupational protection and physical check
Partners	<ul style="list-style-type: none"> To achieve win-win cooperation and common development To be open and fair and keep promises 	<ul style="list-style-type: none"> To hold high-level meetings To conduct daily communication To disclose procurement information To hold regular meetings To conduct multi-channel cooperation and research
Industry	<ul style="list-style-type: none"> To promote fair competition To promote the industry development To promote the industry management level 	<ul style="list-style-type: none"> To enhance research and development capabilities To participate in industry development forums
Governments and regulatory institutions	<ul style="list-style-type: none"> To implement government policies and regulatory rules To maintain and increase the value of state-owned assets To operate lawfully, pay taxes according to law and create jobs 	<ul style="list-style-type: none"> To participate in the formulation of relevant policies and implement them To welcome inspection and supervision To report actively and deliver themed reports To carry out strategic cooperation
Communities	<ul style="list-style-type: none"> To protect community environment To support public welfare To create job opportunities for the community To promote local economic development 	<ul style="list-style-type: none"> To sign joint construction agreement To participate in community projects To carry out activities for public good
Media	<ul style="list-style-type: none"> To ensure information disclosure and transparency 	<ul style="list-style-type: none"> To enhance information disclosure

Outlook 2018

The year 2018 marks the first year of fully implementing the spirit of the 19th National Congress of the CPC, and a crucial period for connecting the implementation of the 13th Five-Year Plan. In the new era, under the guidance of the strategic position of “being a national team of metallurgical construction, the main force of infrastructure construction, the pacesetter of emerging industries, insisting on taking the road of high-tech and high-quality development in the long term”. MCC will focus on building a “higher, stronger, and more pioneering” national team and developing the main platform for project management and control of subsidiaries.

We will insist on scientific development to improve comprehensive benefits. We will improve the modern enterprise system and governance capability. Starting from the regional integration of steel structure, we will accelerate the adjustment of industrial distribution to improve the efficiency of resource allocation; while maintaining the definite competitive edge of metallurgical construction national team, we will improve standardized and delicacy management, lay emphasis on high-end marketing, expand overseas market and achieve coordinated development.

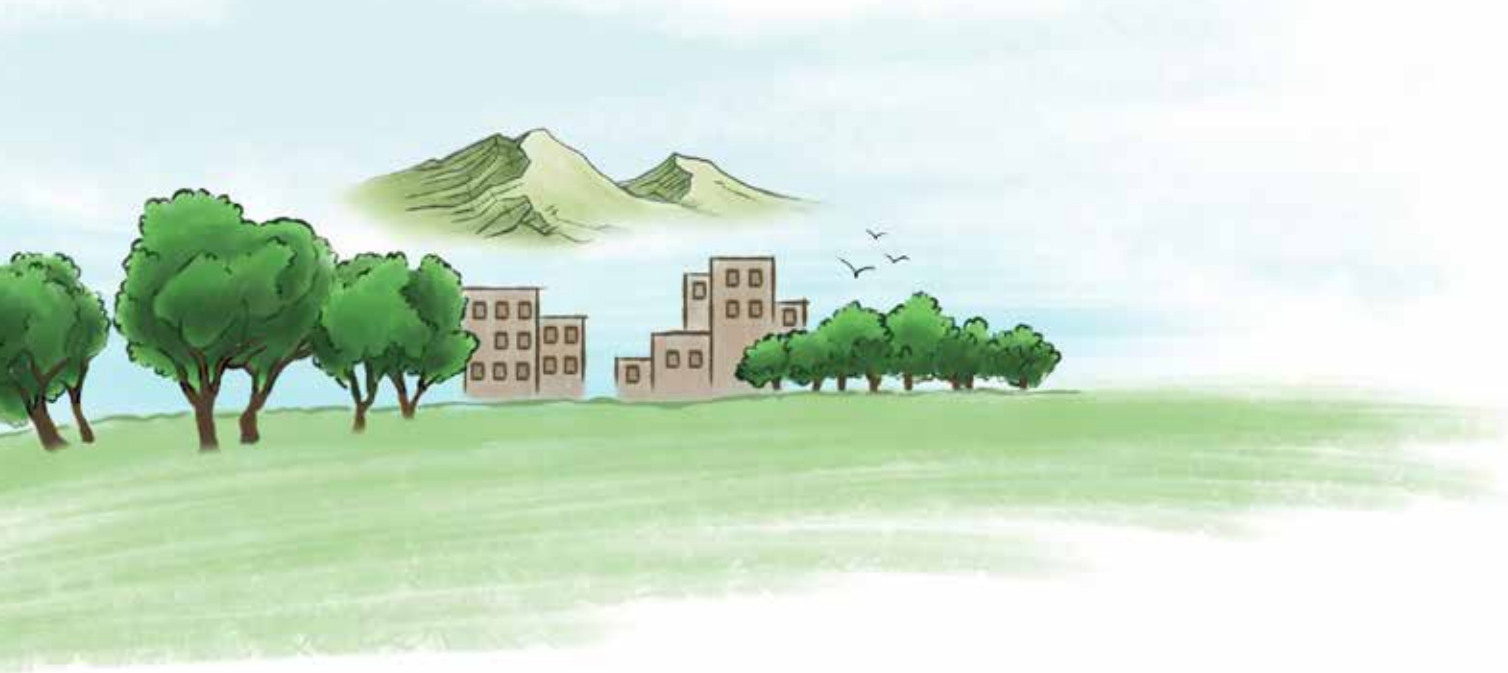
We will strengthen innovation-driven development to promote transformation and upgrading. We will formulate technology development plan, support internal coordination of subsidiaries, and strengthen external strategic cooperation with key universities, research institutes and industry associations to improve the level, quality and effect of cooperation among industries, universities and research institutes; we will increase investment in research and development, lay emphasis on cultivating innovative talents, enhance development of major scientific and technological projects and promote the commercialization of technological achievements so as to provide technological support for enterprise transformation and upgrading.

We will carry out the safety accountability system and safeguard the safety red line. We will strengthen workplace safety management of projects at home and abroad, strictly carry out safe production responsibility system, improve the double prevention mechanism and emergency management, and raise employees’ awareness and ability of work safety; We provide safe and healthy work and life environment for staff to ensure their occupational health and promote a safe MCC.

We will pay attention to environmental protection and promote the development of “Green MCC”. We will strengthen the implementation of energy conservation and emission reduction goals, develop clean energy and environmental protection business, and foster green construction to improve the comprehensive resource utilization efficiency; we will enhance supervision and management of operation related to environmental protection to make sure that facilities operates steadily, discharge pollutants according to the standards, and achieve harmony between enterprise and social development.

We will carry out strict governance over the enterprise in accordance with the law and improve the capacity of management and control. While strengthening prevention efforts from the source and the control of risks, we enhance supervision and accountability and improve the management system with law; we strengthen review of major business items to ensure the coverage of review; we increase rectification and accountability efforts to improve the seriousness and authority of the audit supervision.

In future development, we firmly believe that with the simple and sincere spirit of “Never delaying, never slacking” of MCC, we will meet new challenges and opportunities with full of energy. Adhering to the CSR philosophy, we will strive for the maximization of economic, social and environmental value, share achievements with stakeholders and open a glorious chapter of “building a better MCC”.



Key CSR indicators

> Economic indicators

Key indicators	In 2017
Business revenue	RMB 244.00 billion
Total profits	RMB 8.975 billion
Total value of newly signed contracts	RMB 604.901 billion
Total value of newly signed metallurgical engineering contracts	RMB 78.857 billion
Investments in real estate development	RMB 21.267 billion
Equipment manufacturing business income	RMB 6.255 billion
Resource development business income	RMB 5.665 billion

> Environmental indicators¹

Emissions and relevant statistics

Total emissions of SO ₂	31,230 tons
SO ₂ emissions in resource development	26,851 tons
NO _x emissions	1,636 tons
Hydrogen chloride emissions	1,253 kg
Dust emissions	16 tons
Fluoride emissions	123 kg

Emissions of greenhouse gas

Emissions of greenhouse gas ² (range 1 and range 2)	5,888,231 tons
Emission intensity of greenhouse gas ² (range 1 and range 2)	0.26 ton/RMB 10,000
Overseas greenhouse gas emissions in resource development ³ (range 1 and range 2)	8,311,824 tons

- Note:
- 1 In the environment part, the energy consumption and pollutant discharge are categorized according to business sectors including the “engineering service”, “equipment manufacturing”, “resource development” and “other industries”. The business sectors are slightly different from the sectors categorized in the 2007 Annual Report of MCC, which include the “engineering contracting”, “MC estate development”, “equipment manufacturing” and “resource development”. Among them, the energy consumption and waste discharge in “real estate development” sector is included in the “engineering service” sector in this report; the energy consumption and waste discharge in environmental protection business (waste incineration and sewage treatment) of the “engineering contracting” sector as well as in nonferrous metals business (polysilicon business) of the “resource development” is included in the “other industries” sector here. The classification is to comply with the sectors classified in the monthly report of energy conservation and emission reduction.
 - 2 The data is from the energy conservation and emission reduction report, which covers the greenhouse gas produced in domestic production and operating activities including greenhouse gas emitted through the consumption of fuels (range 1) and electricity (range 2).
 - 3 The data covers greenhouse gas emitted through the consumption of fuels (range 1) and electricity (range 2) in overseas mining and production activities. The calculation of range 1 greenhouse gas emissions is based on relevant heating power conversion factors in *Sustainability Reporting Guidelines, Version 3.0*, and greenhouse gas emission factors in *2006 IPCC Guidelines for National Greenhouse Gas Inventories Chapter 2 – Stationary Combustion*; The range 2 greenhouse gas emissions are calculated with tools according to the *Greenhouse Gas Protocol*.

Hazardous waste discharge

Business sector	Hazardous waste	output (unit)
Equipment manufacturing	Waste oil	39,769 L
	Waste paint bucket	19 tons
	emulsion	121 tons
Other industries	Fly ash in waste incineration	11,561 tons
Resource development	Tailings	10,317,507 tons
	Tailings in the deep sea landfill	3,584,379 tons
	Waste oil	331,132 L

Non-hazardous waste discharge

Business sectors	Non-hazardous waste	Output (unit)	Amount of recycled waste (unit)	Recycling rate
Engineering service	Waste concrete	457,716 cubic meters	142,384 cubic meters	31%
	Waste steel	172,513 tons	38,477 tons	22%
	Waste bamboo and wood	318,577 cubic meters	207,964 cubic meters	65%
Equipment manufacturing	Leftover material	7,060 tons	3,000 tons	42%
Other industries	Bottom ash from waste incineration	89,884 tons	85,332 tons	95%
	Sludge from wastewater treatment	313,365 tons	/	/
Resource development	Earth-rock stripping	18,504,768 tons	/	/

Resource consumption

energy	consumption (unit)
Total energy consumption	1.53 million tons of standard coal
Energy intensity	0.067 ton of standard coal/RMB 10,000
Including	
Electricity	5.50485 billion KWH
Heating power	406,509 Mkj
Gasoline	105,961 tons
Diesel	257,570 tons
Natural gas	33.2 million cubic meters

Business sectors	energy	Consumption
Resource development	electricity	430.2 million KWH
	Gasoline	18,576 tons
	diesel	2,373,848 tons
	Heavy oil	92,691 tons

Note: the data disclosed in this table covers energy consumption in overseas resource development business.

Resource Consumption

Business sector	Energy	Consumption
Engineering service	concrete	33,250,967 cubic meters
	Building blocks	17,483,897 cubic meters
	steel	11,093,343 tons
	timber formwork	8,084,650 cubic meters
Equipment manufacturing	steel	135,316 tons
Other industries	flocculant	1,196 tons
	silicon powder	17,158 tons
	antalkali	38,336 tons

Note: the data disclosed in this table covers resource consumption in domestic production and operating activities.

Consumption of water resource

Emissions of COD	139 tons
Emissions of ammonia nitrogen	123 tons
Total water consumption	45,988,762 cubic meters
Recycled water	10,627,710 cubic mters
Water consumption intensity	2 cubic meters/RMB 10000

> Social indicators

Work safety

Key indicators	In 2017
Number of work-related fatalities	9
Number of lost days due to work injury.	54,000
The physical examination rate of employees	100 (%)
Number of employees receiving health and safety training	93,620
Security check items	1,828
Number of work safety inspections	181
Number of standardized construction sites in work safety	8
Number of articles about work safety published in monthly magazines	36
Number of seminars on work safety	1
Number of employees with occupational diseases	0
Incidence of occupational diseases	0 (%)
Number of improved emergency rescue plan	2,700
Investments in emergency rescue	RMB 58,6986 million
Number of emergency rescue drills	3,544
Number of participants in emergency rescue	76,005

Public welfare and charity

Key indicators	in 2017
Number of activities for public welfare	333
Investments in public welfare and charity	RMB 4.205 million
Number of employees serving as volunteers	8,087
Volunteer hours	74,530
Public welfare donations	RMB 1.797 million
Funds for education grants	RMB 738,100
Investments in overseas communities	RMB 4.178 million
Donation in overseas communities	RMB 300,000
Poverty alleviation funds	RMB 7.8417 million
Donated suppliers for poverty alleviation converted into cash	RMB 60,000
Number of registered and recorded poor people being listed out of poverty	568

> Employee indicators

Key indicators	in 2017
Total number of employees	115,079
Number of on-the-job employees	97,771
Number of retired employees	9,834
Other employees	7,474
Labor contract signing rate	100 (%)
Proportion of on-the-job employees under 35	41.68 (%)
Proportion of on-the-job employees at the age of 36 to 45	26.69 (%)
Proportion of on-the-job employees at the age of 46 and above	31.63 (%)
Proportion of employed employees with the bachelor's or higher degree	53.03 (%)
Proportion of on-the-job employees with junior college education	18.2 (%)
Proportion of on-the-job employees with unior college education and lower	28.77 (%)
The implementation rate if transparent enterprise affairs	95 (%)
Number of proposals received in the workers' congress	522
Number of proposals received in the workers' congress	411
Number of rationalization proposals	909
Number of trade unions	331
Number of employees receiving help from the employee assistance program	84
Number of Home of Workers	231
Number of employees in need receiving help	4,490 (person-time)
Funds allocated to help employees in need	RMB 3.6921 million
Visits and comforts delivered to families of employees in need	3,965
Subsidy for employees in need	RMB 2.7444 million
Number of children of employees in need receiving help in education	255 (person-time)
Funds to help the education of children of employees in need	RMB 364,600
Number of employees with disease receiving help	1,692 (person-time)
Assistance funds	RMB 3.3952 million

Supply chain management

Key indicators	In 2017
Number of centralized bidding projects	48
Fund saved by public bidding	RMB 402 million
Fund saving rate	1.55 (%)
Total procurement budget	RMB 26.03 billion
Total bid price	RMB 25.63 billion

Technological innovation

Key indicators	in 2017
Number of Luban Prize for Construction Projects	8 (including participation)
Number of Tien-yow Jeme Civil Engineering Prize	3
Number of National Quality Engineering Award	18 (including participation)
Number of High Quality Award in the Metallurgical Industry	40
Number of applications for national technological standard innovation bases	2
Number of international standards released	43
Number of National Prize for Progress in Science and Technology	4
Number of national level construction methods	73
Number of national engineering research centers	5
Number of national engineering laboratories	1
Number of national key laboratories	1
Number of Chinese Patent Gold Award	1
Number of Chinese Patent Award of Excellence	19
Number of Metallurgical Science and Technology Award	18

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A1.6	Description of how hazardous and non-hazardous wastes are handled, reduction initiatives and results achieved.	P58
A2	Policies on the efficient use of resources, including energy, water and other raw materials.	P59
A2.1	Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total (kWh in '000s) and intensity (e.g. per unit of production volume, per facility).	P78
A2.2	Water consumption in total and intensity (e.g. per unit of production volume, per facility).	P79
A2.3	Description of energy use efficiency initiatives and results achieved.	P59
A2.4	Description of whether there is any issue in sourcing water that is fit for purpose, water efficiency initiatives and results achieved.	P59
A2.5	Total packaging material used for finished products (in tonnes) and, if applicable, with reference to per unit produced.	Not applicable ¹
A3	Policies on minimising the issuer's significant impact on the environment and natural resources.	P61
A3.1	Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them.	P61
B Social		
B1	Relating to compensation and dismissal, recruitment and promotion, working hours, rest periods, equal opportunity, diversity, anti-discrimination, and other benefits and welfare: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer	P46
B1.1	Total workforce by gender, employment type, age group and geographical region.	P44
B1.2	Employee turnover rate by gender, age group and geographical region.	/
B2	Relating to providing a safe working environment and protecting employees from occupational hazards: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer	P47
B2.1	Number and rate of work-related fatalities.	P79

¹ Since our main business does not use packaging materials, KPI A2.5 "Total packaging material used for finished products with reference to per unit produced" in EDG not applicable for MCC.

Subject areas	Content	Page reference
B2.2	Lost days due to work injury.	P79
B2.3	Description of occupational health and safety measures adopted, how they are implemented and monitored.	P47
B3	Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities.	P44 P45
B3.1	The percentage of employees trained by gender and employee category (e.g. senior management, middle management).	P44
B3.2	The average training hours completed per employee by gender and employee category (e.g. senior management, middle management).	P44
B4	Relating to preventing child and forced labour: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer	P46
B4.1	Description of measures to review employment practices to avoid child and forced labour.	P46
B4.2	Description of steps taken to eliminate such practices when discovered.	/
B5	Policies on managing environmental and social risks of the supply chain.	/
B5.1	Number of suppliers by geographical region.	/
B5.2	Description of practices relating to engaging suppliers, number of suppliers where the practices are being implemented, how they are implemented and monitored.	P49
B6	Relating to health and safety, advertising, labelling and privacy matters relating to products and services provided and methods of redress. (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer	P49
B6.1	Percentage of total products sold or shipped subject to recalls for safety and health reasons.	Not applicable
B6.2	Number of products and service related complaints received and how they are dealt with.	/
B6.3	Description of practices relating to observing and protecting intellectual property rights.	P32
B6.4	Description of quality assurance process and recall procedures.	P39
B6.5	Description of consumer data protection and privacy policies, how they are implemented and monitored.	P38
B7	Relating to bribery, extortion, fraud and money laundering: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer	P37
B7.1	Number of concluded legal cases regarding corrupt practices brought against the issuer or its employees during the reporting period and the outcomes of the cases.	/
B7.2	Description of preventive measures and whistle-blowing procedures, how they are implemented and monitored.	P37
B8	Policies on community engagement to understand the needs of the communities where the issuer operates and to ensure its activities take into consideration the communities' interests.	/
B8.1	Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport).	P65
B8.2	Resources contributed (e.g. money or time) to the focus area.	P64

Readers Feedback Form

Dear reader:

Thank you for reading the 2017 CSR Report of Metallurgical Corporation of China Ltd. We highly value and expect your valuable opinions on MCC's CSR fulfillment and this CSR report. Your opinions and suggestions are valuable for us to keep improving our CSR management and practice. Please complete and cut out the following form and fax it or mail it to us. We sincerely welcome and appreciate your valuable opinions.

1. Do you think this report reflects major impacts of MCC on economy, society and environment?

Yes ☐ To some extent ☐ No ☐

2. Do you think the identification of stakeholders and their relationship with MCC in this report is accurate and complete?

Yes ☐ To some extent ☐ No ☐

3. Do you think the information disclosure in this report is comprehensive?

Yes ☐ To some extent ☐ No ☐

4. Do you think the information disclosure in this report is readable?

Yes ☐ To some extent ☐ No ☐

Open questions:

1. Do you find any information you are concerned about not disclosed in the report?

2. How do you think the report can be improved?

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