



中国冶金科工股份有限公司  
METALLURGICAL CORPORATION OF CHINA LIMITED



# 2022

# MCC

SOCIAL RESPONSIBILITY AND  
ESG (ENVIRONMENTAL, SOCIAL  
AND GOVERNANCE) REPORT

## Board Statement

The Board of Directors of the Company is committed to implementing the important deployments of the 20<sup>th</sup> National Congress of the Communist Party of China (CPC), attaching great importance to improving Company's sustainable development level and ESG management capabilities. We take full responsibility for ESG work, aiming to strengthen ESG governance, practice ESG concepts, and improve ESG performance. Based on the latest regulatory requirements and capital market trends, MCC has established a Sustainable Development Committee of the Board of Directors in 2022 and formulated the *Working Rules of the Sustainable Development Committee*, which attaches great importance on ESG and sustainable development at the strategic level. Board members regularly reviewed and approved the Company's sustainable development (including ESG) goals, strategies, plans, and decisions, integrating ESG management into the Company's daily operations.

# CONTENTS

Message from Chairman	05
About Us	07
Corporate Governance	14
Responsible Management	17
<b>Feature 1</b>	21
The Cornerstone of a Great Nation	
<b>Feature 2</b>	27
The Steel of a Great Nation	
<b>Feature 3</b>	31
The Construction of a Great Nation	
Appendix	
Outlook for 2023	102
Key Performance Indicators	103
Report Index	111
Feedback Form	117

## High-quality Engineering to Enhance Brand Influence



Metallurgical Engineering and Operation Services	37
Mine Engineering and Operation Services	40
Core Equipment and Steel Structures	41
Building and Urban Renewal	43
Green Health and Intelligent Real Estate	46
New Energy and Mineral Resources Development	47
Eco-environmental Protection and Tourism Projects	50
Transportation and Municipal and Other Projects	51

## Leading Innovation to Drive Technological Advancement



Improving the Innovation System	55
Strengthening Scientific Development	57
Upgrading Industry Intelligence	61

## Excellent Management to Build Core Competitiveness



Enhancing Internal Management	67
Solidifying Safety Management	69
Strict Quality Management	71
Promoting Customer Management	72
Optimizing Supply Chain Management	74

## Ecological Environmental Protection to Enhance Sustainable Development



Strict Environmental Management	77
Green and Low-carbon Construction	78
Developing Clean Energy	80
Improving the Ecological Environment	82

## Employee Growth to Consolidate Team Cohesion



Protecting Labor Rights and Interests	87
Empowering Employee Development	88
Caring for Employees	89

## Contributing to Society to Expand the Power of Kindness



Rural Revitalization	95
Disaster Relief and Pandemic Prevention	97
Social Welfare and Engagement	100

# Report Preparation Instructions

## Reporting scope

Reporting Scope: This report covers Metallurgical Corporation of China Ltd. and its subsidiaries.

Reporting Period: January 1<sup>st</sup> - December 31<sup>st</sup>, 2022, with parts of the report appropriately backdated to important years of the Company's development.

Reporting Cycle: This report prepared on an annual basis. This is the 14<sup>th</sup> report issued by Metallurgical Corporation of China Ltd.

## Basis of preparation

The report is mainly prepared in accordance with the Environmental, Social and Governance Reporting Guide issued by the Stock Exchange of Hong Kong Limited (HKEX), with reference to the following disclosure guidelines:

Guidelines of Shanghai Stock Exchange for Environmental Information Disclosure of Listed Companies issued by Shanghai Stock Exchange (SSE);

GRI Sustainability Reporting Standards (GRI Standards) issued by the Global Sustainability Standards Board (GSSB);

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

GB/T 36001-2015: Guidance on Social Responsibility Reporting (GB / T36001 - 2015) 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;

Guidelines on Corporate Social Responsibility Reporting for Chinese Enterprises (CASS-ESG5.0) issued by Research Center for Corporate Social Responsibility, Economics Division, China Academy of Social Sciences.

## References

For better expression and readability, Metallurgical Corporation of China Ltd. is referred to as "MCC", "the Company" or "We" in this report, and its controlling shareholder – China Metallurgical Group Corporation – is referred to as "MCC Group".

## Data sources

This report truly reflects the actual practices of economic, environmental, and social responsibilities. All data in this report are based on MCC's official documents and statistical reports, and the summary and statistics of social responsibility practices from its subsidiaries. The financial data are from MCC's 2022 financial statement, and other data sources are mainly from 2022 and partially from previous years. In this report, the monetary measurement unit is RMB unless specially noted.

## 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 in printed edition (with recycled paper) and PDF, and the latter can be downloaded from the website of MCC (<http://www.mcc.com.cn>).

## Contact information

If you have any questions about this report, please contact us by email or phone. Our contact information is as follows:

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MCC is committed to the contributing to the sustainable development of the country, focusing on our social responsibility to create the best-of-class facilities for the future prosperity of the nation. We believe that the fulfillment of social responsibility needs to bring consensus to all stakeholders. In order to strengthen communication with stakeholders, we have prepared the MCC 2022 Social Responsibility and ESG (Environmental, Social and Governance) Report. The report showcases MCC's responsible performance and achievements to demonstrate our commitment of contributing to the high-quality development. Based on reporting, we also hope to deepen the understanding with all stakeholders, seek opportunities for a win-win development and create shared value.

## Message from the Chairman



**Chen Jianguang**

Vice President and Member of Party Leadership Group, China Minmetals  
Chairman of MCC Group and MCC, Secretary of Party Committee of MCC Group

This is the 14<sup>th</sup> MCC 2022 Social Responsibility and ESG (Environmental, Social and Governance) Report. We sincerely appreciate your continuous care and support to the Company!

The year 2022 is a milestone year in the history of the CPC and the country, and also a year in which the Company has made great progress. Facing the complex and severe internal and external situation, MCC always adhered to the guidance of General Secretary Xi Jinping's thought of Socialism with Chinese characteristics in the new era, comprehensively implemented the spirit of the 20<sup>th</sup> National Congress of the CPC, resolutely implemented the important instruction requirement of "the pandemic should be prevented, the economy should be stabilized and the development should be safe", resolutely overcame the impact of the pandemic, withstood the downward pressure of the economy and We have successfully completed our annual targets and tasks, strengthened the foundation of high-quality development, committed to creating a joyful environment for

all employees, and contributed to serving economic and social development and demonstrating the responsibility of state-owned enterprises.

**This year, we insisted on leading by objectives and took up the responsibility and mission of state-owned enterprises.** Under the exceptionally severe situation of multiple pressures, we always insisted on "no reduction in targets and no change in objectives", and moved forward under pressure and against the trend, fully accomplishing the operating budget target for the 6<sup>th</sup> consecutive year and stabilizing the development of the enterprise. We achieved an annual operating revenue of RMB 592.67 billion, an increase of 18.4% year-on-year; total profit of RMB 15.39 billion, an increase of 9.9% year-on-year; newly signed contracts of RMB 1343.57 billion, an increase of 11.5% compared with the same period of the previous year; major operating indicators grew at a high level against the trend, with many indicators hitting a new record high; total asset turnover ratio, current asset turnover ratio

and other asset operation indicators were continuously optimized, and the quality of operation and economic efficiency were enhanced in the face of adversity. The Company was awarded the Golden Bauhinia Award for the 11<sup>th</sup> consecutive year and received an A-grade rating for information disclosure from the SSE for the 6<sup>th</sup> consecutive year. We delivered a wonderful answer sheet on the steady growth of MCC under complicated and difficult conditions with excellent results.

**This year, we made a deliberate effort to align ourselves with the broader national development agenda and proactively integrated into key strategic initiatives.** We are proud to have successfully provided event protection for the Beijing Olympic Winter Games and Paralympic Games. Our "Snow Dragon" project at the National Snowmobile and Bobsleigh Center was recognized by General Secretary Xi Jinping as a high-quality asset for the benefit of the people. Furthermore, we have made groundbreaking progress in metallurgy to contribute to the "Dual Carbon" strategy. This includes building the world's first hydrogen-based direct reduction shaft furnace, developing the world's first full heat recovery process for a converter, completing the largest long-process special steel production base in China, the Linyi Special Steel Base, and creating the world's first Nangang blast furnace with a 47.23-meter miracle in the whole foundation. We have continued to consolidate our position as a leader in national metallurgical construction, systematically expanding our reach to various key areas such as Beijing-Tianjin-Hebei, Guangdong-Hong Kong-Macau-Great Bay Area, Yangtze River Delta, middle reaches of Yangtze River, and Chengdu-Chongqing hotspots. We are proud to have completed the world's largest spherical building, Nanxun "Sun Hotel", paved the world's widest bridge deck, Tuojiang Bridge, built the largest sports center in northwest China, Lanzhou Olympic Sports Center, and won several tens of billions of quality projects. In response to the Belt and Road initiative, we have actively sought and successfully won a series of major and landmark projects, such as the second phase of Hoa Phat Rong Orange Steel in Vietnam, ArcelorMittal Coke Oven in Kazakhstan, and Golden Gateway Complex in Cambodia. The construction of Oran Stadium in Algeria once again highlighted the "China Construction" name card.

**This year, we insisted on strengthening the foundation and anchored on the world class to make us stronger and better.** We continued to strengthen the foundation in the management improvement action of benchmarking with the world class, and carried out "five special actions"; insisted on digital empowerment, and built a digital control platform of MCC; promoted the upgrading of industrial structure, and focused on optimizing and adjusting the proportion of metallurgical, housing and infrastructure businesses; improved the quality of marketing, and focused on quality markets, quality customers and quality projects, the "three best" project; strengthened project performance, and emphasized on improving the "1321" engineering project management system; highlighted the prevention and resolution of investment risks, built a post-investment management system, and strengthened the closed-loop project management; fruitful results achieved in compliance management with 1+N compliance system, and promoted the continuous improvement of the compliance management organization system, operation system and guarantee system of its subsidiaries; vigorously implemented effective measures to pay close attention to safety production, and made great efforts to improve the level of project safety production. A total of 10 projects were awarded the Luban Award throughout the year, the highest number achieved in history; 23 projects won the National Quality Engineering Award, among which 3 projects were awarded the National Gold Award, the highest number of construction projects in history.

**This year, we insisted on reform and innovation to stimulate the vitality and dynamics of high-quality development.** We attached great importance to the modernization of the Company's governance system and capacity, focused on the closing target of the "Three-Year Action" for the reform of state-owned enterprises, and fully completed 88 reform objectives and tasks. We also achieved positive results in streamlining our organizational structure. We also made efforts to improve the optimal allocation of resources, and promoted the abolition of branches that did not actually operate and the integration of subsidiaries that did not meet development expectations, and achieved phased results in regional specialization and integration. The third batch of major research and development (R&D) projects under the "181 Plan" was launched and implemented, with emphasis on core technologies. Throughout the year, we obtained recognition as a national enterprise technology center, took the lead in undertaking three national key R&D projects and five projects, and accumulated more than 47000 valid patents, with a number of R&D achievements successfully applied to engineering projects.

**This year, we insisted on putting people first and took on the role of promoting public's well-being.** Faced with the major test of pandemic, we always insisted on "people first and life first" and adopted extraordinary measures to deal with extraordinary difficulties, turning many impossibilities into possibilities. We have been highly praised by the State-owned Assets Supervision and Administration Commission (SASAC) of the State Council and local governments for our thunderous efforts to build high-quality, inspection-free "life pods" in Shanghai and Shenzhen. We are fully committed to the flood control and rescue battlefield and are obliged to overcome the difficulties with the people in the disaster areas. We, as the state-owned enterprise, played an important role in the revitalization of the countryside, focusing on industrial assistance, engineering assistance and consumer assistance, and developed a revitalization road with MCC's characteristics. We also put into practice the development concept of "Lucid waters and lush mountains are invaluable assets", fully promote environmental technology, environmental engineering, industrial upgrading and green construction, and support to fight the war of blue sky, blue water and clean soil.

With lofty ambitions in mind, we shall never falter in our pursuit, persistently striving until a glorious outcome is realized, overcoming every obstacle that comes our way. We will stand united around the CPC Central Committee, led by General Secretary Xi Jinping, and accelerate the realization of the goal of "one goal, two best and five strengths". Our unwavering commitment and outstanding performance will not only reflect our remarkable progress but also honor the spirit of this era, the history of our nation, and its people. Let's endeavor to make a new chapter in modernizing China and contribute significantly to achieving its goals.

陈建光

## About us

### Corporate Profile

MCC is an ultra-large enterprise group in China, one of the earliest forces in the steel industry construction in China and the pioneer and main force of metallurgical construction in China. In December 2008, MCC Group established MCC. In September 2009, MCC was successfully listed in Shanghai and Hong Kong stock exchanges (A share stock code: 601618, H share stock code: 01618).

MCC is the world's largest and strongest metallurgical construction contractor and metallurgical enterprise operation service provider. It is one of the key resource-based enterprises designated by the state, the largest steel structure production enterprise in China, and one of the 16 state-owned enterprises designated by the SASAC of the State Council as mainly engaged in real estate development. MCC is also the main force in China's basic construction and created the famous "Shenzhen speed" in the early stage of reform and opening up.

With the strategic position of being the world's first-class national team for metallurgical construction, the main force and pioneer of infrastructure construction, the forerunner and leader of the emerging industries, and insisting on the road of high-tech and high-quality innovation and development in the long term, MCC takes the responsibility of leading Chinese metallurgical industry to be more intelligent, green, low-carbon and efficient with its advanced core technology, integrated advantages in the irreplaceable whole metallurgy industry chain, and the capacity of continuous innovation. Relying on the outstanding scientific research, exploration, design and construction capabilities, MCC speeds up transformation and upgrading, builds up the "Four Beams" and "Eight Columns" business system, and forges itself into the leading force of national infrastructure construction. By taking innovation as the new engine and fuel for corporate development, MCC undertakes the important task to innovate and lead Chinese development of emerging industries, thus constantly upgrading itself with new "name card" for promoting sustainable development under the new normal.

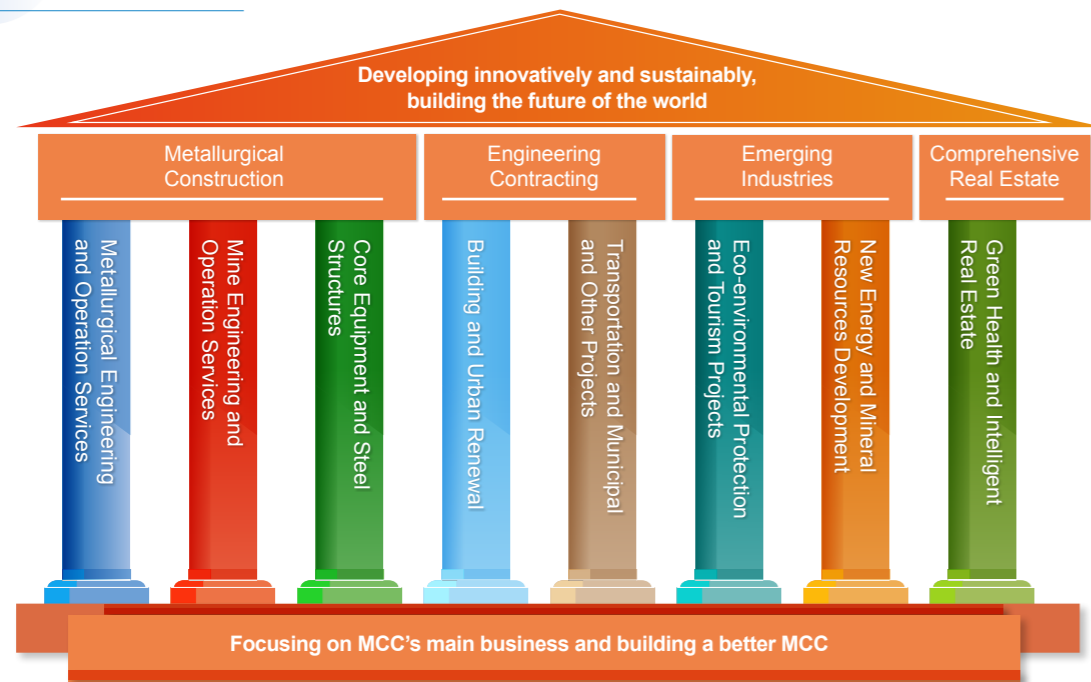
#### The goal of MCC

### One goal Two best Five strengths

Driven by the ambition to create a globally competitive world-class enterprise, MCC is dedicated to providing cutting-edge solutions for metallurgical construction and operation, while enhancing its core competitiveness. In pursuit of becoming a well-renowned and trustworthy general contracting service provider for basic construction, it aims to transform itself into a world-class investment and construction group, boasting strong strengths in value creation, market competitiveness, innovation-driven power, resource allocation capacity, and cultural soft power.



## Business Layout



## Qualification & Certification

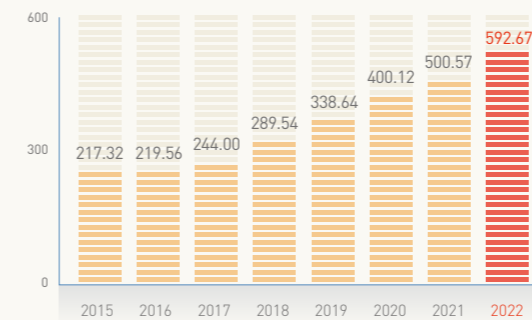
Accumulatively, MCC has

- |   |  |   |  |  |
|---|--|---|--|--|
| <b>5</b>  | <b>42</b>  | <b>5</b>  | <b>3</b>   | <b>4</b>   |
| Engineering Design Integrated Qualification Class-A | Enterprises with Special Qualification for General Contracting of Construction | Enterprises with Special Qualification for General Contracting of Construction <b>in four areas</b> | Enterprises with Special Qualification for General Contracting of Construction <b>in three areas</b> | Enterprises with Special Qualification for General Contracting of Construction <b>in two areas</b> |

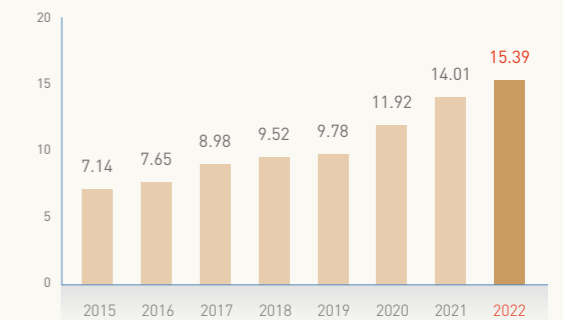
## Development Performance

MCC has realized the upgrading of the industrial chain, with the volume of income and the profitability growing continuously.

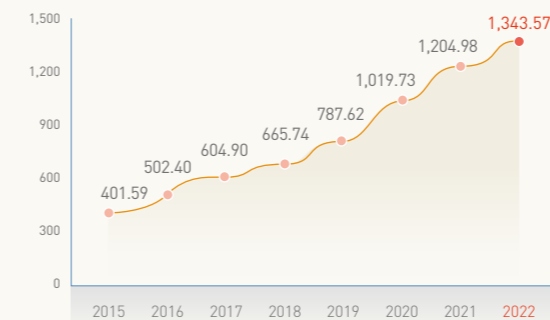
Total profit (RMB Billion)



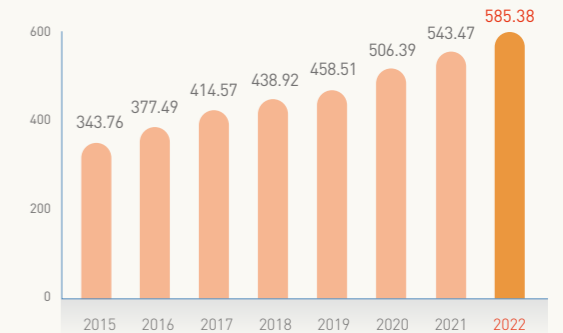
Total revenue (RMB Billion)



Total value of newly signed contract (RMB Billion)



Total assets (RMB Billion)



### Business Sectors Profit

Engineering Contracting (RMB Billion)

**550.441**

Equipment Manufacturing (RMB Billion)

**12.319**

Real Estate Development (RMB Billion)

**22.727**

Resources Development (RMB Billion)

**8.866**

## Honors of MCC

- ★ In 2022, continue to maintain the high investment-grade rating of **Baa1, BBB+, and BBB+** in **Moody's, S&P, and Fitch** international credit ratings, respectively. The **Moody's** rating outlook remains "positive"

★ **Won 10 Luban Prize for Construction Projects** in 2022
- ★ Won the 2022 **Golden Round Table - Special Contribution to Corporate Governance Award**

★ **Won 23 National Quality Engineering Awards** in 2022
- ★ Won the 2022 **Golden Bauhinia for Best Listed Company**

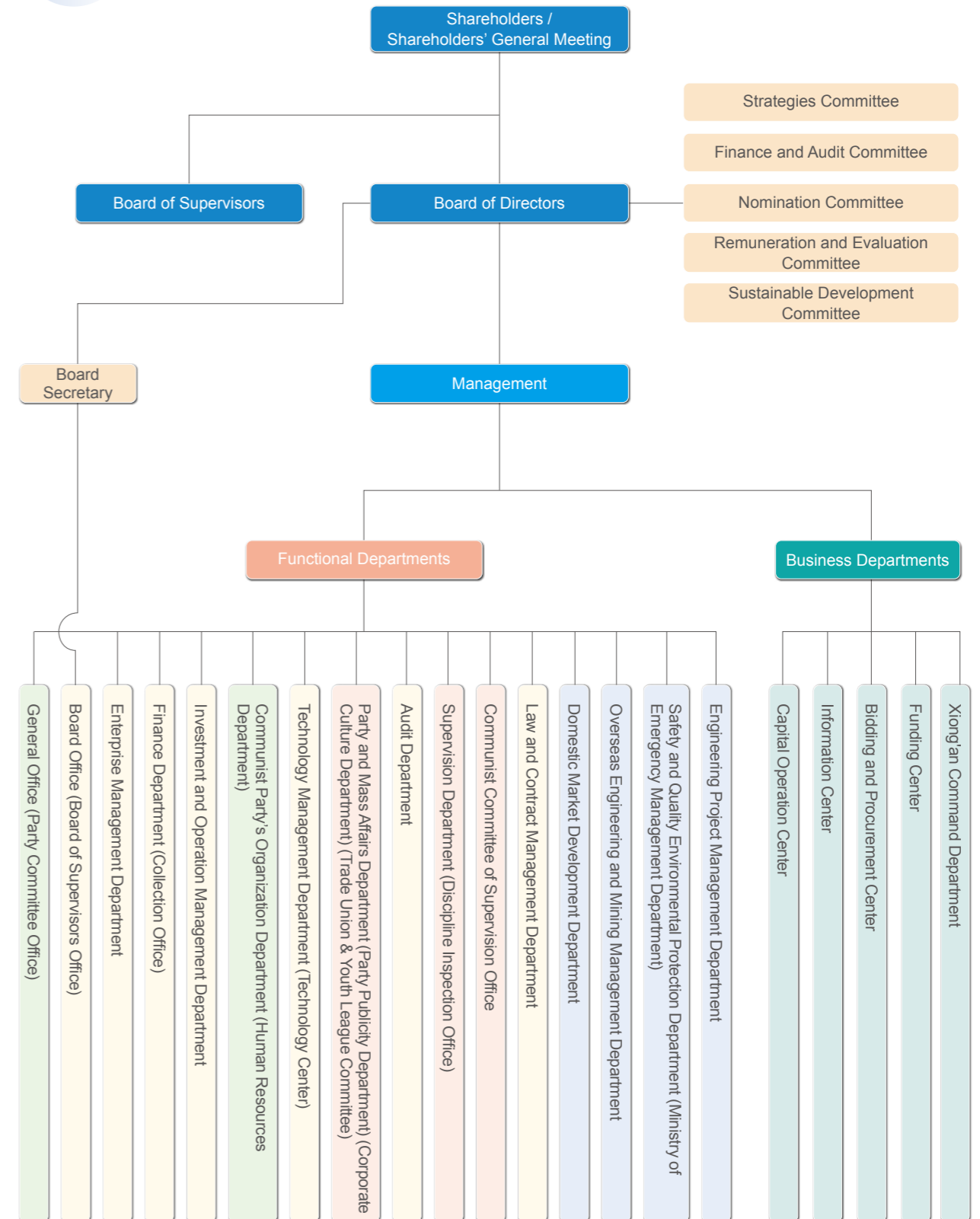
★ **Won 3 Tien-yow Jeme Civil Engineering Prizes** in 2022
- ★ **Won the A-level rating of information disclosure** by the **Shanghai Stock Exchange** for the 6 consecutive year

★ **Won 20 Metallurgical Science and Technology Award** in 2022
- ★ **Selected as an "ESG Excellent Practice Case of Listed Companies"** by the **China Association for Public Companies**

★ **Won the Gold Award of the International Sudomo Quality Medal** issued by **International Convention on Quality Controls Circles (ICQCC)**
- ★ **Won the Best Practice Award for Annual Report Performance Explanation in 2021** by the **Securities Association of China**



## Organizational Structure





## Subsidiaries

No.	Name of subsidiaries (short form)	No.	Name of subsidiaries (short form)
1	Central Research Institute of Building and Construction Co., Ltd. (CRIBC)	30	MCC Southern China Construction Investment Co., Ltd. (MCC Southern China)
2	Beijing Metallurgical Equipment Research Design Institute Co., Ltd. (MCCE)	31	MCC (Hainan) Investment Development Co., Ltd. (MCC Hainan)
3	China ENFI Engineering Co., Ltd. (China ENFI)	32	MCC Urban Investment Holdings Company Ltd.
4	Capital Engineering & Research Incorporation Ltd. (CERI)	33	MCC (Yunnan) Engineering Investment Construction Co., Ltd. (MCCYN)
5	CISDI Group Co., Ltd. (CISDI)	34	MCC Fujian Investment Construction Co., Ltd.
6	WISDRI Engineering & Research Incorporation Limited (WISDRI)	35	MCC (Shanghai) Steel Structure Technology Corp, LTd. (MCC-SSC)
7	Huatian Engineering & Technology Corporation (MCC HT)	36	MCC Eco-Environmental Protection Group Co.,Ltd.
8	ACRE Coking and Refractory Engineering Consulting Corporation (MCC ACRE)	37	MCC Great Wall Investment Co., Ltd.
9	Zhongye Changtian International Engineering Co., Ltd. (CIE)	38	MCC Real Estate Group Co.,Ltd. (MCC Real Estate)
10	Northern Engineering & Technology Corporation (MCC NETC)	39	MCC Tongsin Resources Ltd. (MCCT)
11	Shen Kan Engineering & Technology Corporation (MCC SKET)	40	MCC Australia Holding Pty Ltd. (MCCH)
12	Wuhan Surveying-Geotechnical Research Institute Co., Ltd. of MCC (WSGRI)	41	MCC-JJJ Mining Development Co., Ltd. (MCC-JJJ)
13	China First Metallurgical Group Co.,Ltd. (CFMCC)	42	Ramu NiCo Management (MCC) Limited (Ramu Nico)
14	China Second Metallurgy Group Co., Ltd. (MCC2)	43	MCC Finance Corporation Ltd. (MCCFC)
15	China Third Metallurgical Group Corporation Ltd. (TMCC)	44	MCC Financial Leasing Co.,Ltd.
16	MCC5 Group Corp.,Ltd. (MCC5)	45	MCC International Incorporation Ltd. (MCCI)
17	MCC Tiangong Group Corp.,Ltd. (CTMCC)	46	MCC Overseas Ltd.
18	MCC17 Group Co.,Ltd. (MCC17)	47	MCC Vietnam Engineering and Technology Company Limited
19	China Metallurgical Construction Engineering Group Co., Ltd. (CMCC)	48	MCC International Economic and Trade Co., Ltd.
20	China 19th Metallurgical Corporation (MCC19)	49	MCC Holdings (Hong Kong) Corp., Ltd. (MCC HK & Mac)
21	MCC20 Group Corp.,Ltd. (MCC20)	50	MCC-SFRE Heavy Industry Equipment Co., Ltd.
22	MCC22 Group Corp.,Ltd. (MCC22)	51	MCC MINING (Western Australia) Pty. Ltd. (MCCM)
23	Shanghai Baoye Group Corp.,Ltd. (SBC)	52	China No. 13 Metallurgical Construction Co., Ltd.
24	China Huaye Group Co.,Ltd. (NCMCC)	53	Tianjin United Huixin Investment Partnership (Limited Partnership)
25	MCC Baosteel Technology Services Co., Ltd. (MCC Baosteel)	54	Tianjin United Huitong Investment Partnership (Limited Partnership)
26	MCC Communication Construction Group Co., Ltd. (MCC-CC)	55	Tianjin Hongxin Investment Partnership(Limited Part)
27	MCC Road & Bridge Construction Co., Ltd. (MRBC)	56	MCC (Guizhou) Construction Investment Development Co., Ltd.
28	Metallurgical Corporation of Central China Ltd. (Henan Branch)		
29	MCC Utility Tunnel Science and Technology Development Co., Ltd. (UTMCC)		

\* The disclosure scope of the subsidiaries is consistent with the MCC 2022 Annual Report

## Corporate Governance

### Enhancing governance capability

In 2022, in accordance with the Three-Year Action Plan for State-owned Enterprise Reform, MCC reorganized its governance system, including its articles of association and rules for board meetings, in light of recent revisions to securities regulations. The Company established a special meeting for the Chairman and formulated the *Working Rules for the Chairman's Special Meeting of MCC* to ensure that the Company's governance system meets the requirements of both state-owned asset supervision and securities regulation. In order to fully leverage the role of the Board's special committees in aiding decision-making, MCC established a Sustainable Development Committee and formulated the *Working Rules for the Sustainable Development Committee* to increase attention and research on safety, environmental protection, health, ESG, and sustainable development at the strategic level.

In 2022, the Company solidified the results of its reforms and fully achieved reform indicators such as "all construction required must be completed" and "external directors must account for the majority". At the same time, MCC assisted its subsidiaries in standardizing their board operations and promoted their governance by conducting the "Special Promotion of Subsidiaries Board Operations" and issuing the *Guidelines for Standardizing Subsidiaries Board Operations*.

12

Board meetings were held

83

Proposals were reviewed



### Communication with investors

MCC has established a diversified channel for investor communication. We have enhanced communication and exchanges with investors through various special investor activities such as shareholder meetings, investor briefings, positive/reverse roadshows, analyst conferences, receptions for visitors, and surveys, as well as participating in strategy meetings and forums organized by capital market stakeholders.

40

Reception of domestic and overseas investors

470

Emails from investors handled



30

Investor communication meetings held

400

Hotlines answered for small and medium investors

## Comprehensive risk management

MCC adheres to the risk management strategy of "seeking progress while maintaining stability", standardizes the various stages of risk assessment, comprehensively identifies risks associated with various business operations, and focuses on the management of major risks. The Company formulates plans to respond to major risks in advance, implements management responsibilities, regularly tracks the effectiveness of major risk control, quantitatively analyzes the trends in major risk changes, analyzes and evaluates the overall risk situation of the Company, and prevents risks from spreading from "points" to "areas", ensuring that risks are knowable, controllable, and bearable.

In 2022, the Company focused on strengthening closed-loop management of risk pre-warning, prediction, mid-term monitoring and surveillance, and post-event reporting and disposal, strengthening the risk control process, establishing and improving risk assessment mechanisms, risk monitoring mechanisms, risk reporting mechanisms, risk inspection mechanisms, and risk review mechanisms. During the reporting period, there were no systemic or disruptive risk events.

## Operating in compliance with the law

MCC adheres to the law through the enterprise' management and takes the improvement of lawful and compliant operation management as the guidance. We carried out organized and well-planned management activities and actively implemented various tasks to deploy the requirements of the "Compliance Management Enhancement Year".

### Establish compliance management system

Established a compliance management committee, issued a *Compliance Initiative*, and leaders of various subsidiaries completed the signing; issued the *Compliance Management Measures (Trial)* and the *Implementation Plan for the "Compliance Management Enhancement Year"*, establishing a compliance management system; prepared and published 10 special compliance guidelines for key compliance areas; promoted the inclusion of overseas branches and key overseas construction projects into the compliance review process; revised and drafted contract templates to adapt to the new legal regulations and needs of the construction market, and improved the quality of subcontracting contracts signed by subsidiaries.

### Strengthen supervision and self-inspection and rectification

Carried out a special self-inspection on compliance management at all levels, in all areas, and in all aspects, to check and promote improvement, and to continue to promote the rectification of self-inspection problems. For prominent problems and risk hazards found, a long-term mechanism for compliance management was established and improved based on in-depth analysis.

### Carry out law promotion and publicity activities

Organized various lectures, training, competitions, and publicity activities for management and employees on legal knowledge, enhancing the legal awareness. We held 15 law promotion activities, provided 500 times of legal support to projects, and over 10000 people participated in the law promotion activities.

### Cultivate a corporate compliance culture

Established legal compliance personnel, focused on the promotion of corporate compliance concepts and created compliance publicity boards. In 2022, the number of compliance liaison personnel reached 1356. 123 people obtained the qualification of corporate compliance professional, 226 people passed the first batch of legal advisor assessment of China Minmetals, and over 100 people passed the declaration of corporate lawyer.

## Deepening anti-corruption and integrity promotion

With the goal of building a system that does not dare to, cannot, and does not want to corrupt, MCC has steadfastly promoted the fight against corruption and resolutely investigated and dealt with corruption issues within the enterprise.

### Create a clean and upright atmosphere



Issued the Notice on Further *Strengthening the Culture of Integrity*, forwarded the "Nine Prohibitions" on the treatment and business expenses of management, and organized discipline inspection management from across the system to attend the online training course on discipline inspection in state-owned enterprises. Through the briefing of anti-corruption cases, reminders and anti-corruption activities, we guided our employees to work with integrity; organized an education month, created education panels and supervised the implementation of the "Four Ones" initiative to educate people around us.

### Carry out comprehensive anti-corruption and integrity promotion actions



Organized a meeting on the construction of the Party style and clean government and anti-corruption work, and signed *Liability Statement of Anti-corruption* by members of the Company's leadership team and Party Committee secretaries of subsidiaries. We continuously promoted the "supervision linkage" mechanism, organized finance, audit, human resources, bidding and procurement, investment management and other departments to report integrity risk information quarterly, which has formed an information sharing and problem-solving platform.

### Handle letters and reports in a proper way



Arranged specific personnel to handle petitions and whistleblowing, publicized the contact information such as phone number, email, and mailing address on the Company's website; required relevant personnel to strictly comply with work discipline, keep the work secrets, must not leak the information related to the whistleblowers' personal information, and to conceal relevant information during the process.



154610 times  
Integrity reminders

5639 times  
On-site inspections

5912 sessions  
Anti-corruption training

125913 man-times  
Integrity training participated

# Responsibility Management

MCC continues to improve its social responsibility management system, and carries out social responsibility information disclosure and publicity through various channels. We highly value the needs of stakeholders and continuously improves the effectiveness of social responsibility practices.

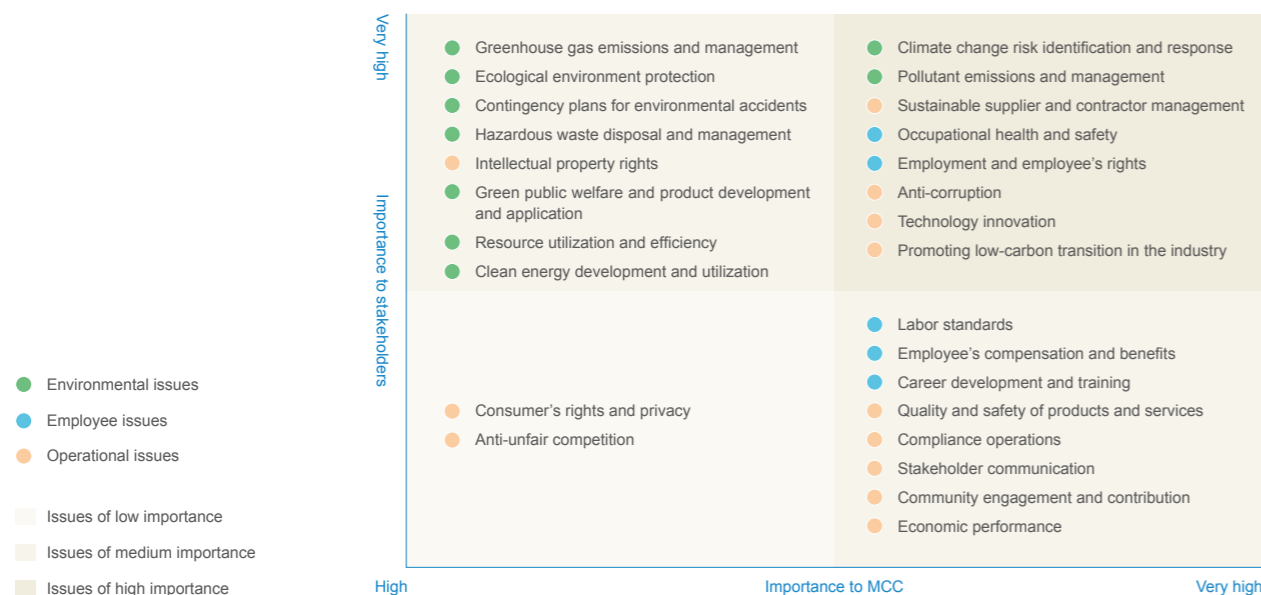
## Responsibility management mechanism

MCC is committed to improving its social responsibility organizational structure and management system, standardizing the responsibilities and processes of social responsibility work, continuously improving corporate social responsibility performance, and promoting social responsibility practices. In order to better promote the management and supervision of the company's environment, society, and governance by the Board of Directors, a sustainable development committee is established within the Board of Directors.

Board of Directors	Sustainability Development Committee	Board Office	Departments and Subsidiaries
Fully responsible for social responsibility and ESG management, review the reports on sustainable development strategies, progress and performance and make final decisions	Provide sustainability related consultation and advice to the Board of Directors and submit relevant proposals	Responsible for daily work and coordination with departments	Actively implement the policies and guidelines of the Board of Directors, and track and report the progress regularly

## Material issues

We conducted a comprehensive consultation with internal and external stakeholders, benchmarked with peer companies on their disclosure of material issues, and further improved and defined the content and process of the report. Based on the two dimensions of importance to stakeholders and importance to MCC, we finalized the boundaries of the material issues and the level of disclosure to ensure more accurate and comprehensive disclosure of corporate social responsibility management, practices and performance.



# Stakeholder communication

MCC actively communicates with stakeholders and collects their requirements and expectations through various channels in order to continuously improve its social responsibility performance and achieve common development with stakeholders.

<h3>Shareholders and investors</h3> <p><b>Expectations and concerns</b></p> <ul style="list-style-type: none"> <li>Return on investment</li> <li>Corporate risk management</li> <li>Protection of rights and interests</li> <li>Open and transparent information</li> </ul> <p><b>Communication and responses</b></p> <ul style="list-style-type: none"> <li>Increasing profitability</li> <li>Improving risk internal control system</li> <li>Shareholders' meetings</li> <li>Roadshows and other activities to disclose information in a timely manner</li> </ul>	<h3>Clients and customers</h3> <p><b>Expectations and concerns</b></p> <ul style="list-style-type: none"> <li>High-quality projects</li> <li>Outstanding project performance</li> <li>Superior customer service</li> <li>Rights and privacy protection</li> </ul> <p><b>Communication and responses</b></p> <ul style="list-style-type: none"> <li>Strengthening project quality</li> <li>Stable production and on-time performance</li> <li>Improving customer service mechanism</li> </ul>
<h3>Employees</h3> <p><b>Expectations and concerns</b></p> <ul style="list-style-type: none"> <li>Protection of legal rights and interests</li> <li>Good career development platform</li> <li>Healthy and safe working environment</li> </ul> <p><b>Communication and responses</b></p> <ul style="list-style-type: none"> <li>Regular workers' congress</li> <li>Establishing smooth internal communication channels</li> <li>Improving staff training system</li> <li>Providing occupational protection and physical check</li> </ul>	<h3>Suppliers</h3> <p><b>Expectations and concerns</b></p> <ul style="list-style-type: none"> <li>Win-win cooperation</li> <li>Open and fair</li> <li>Keeping contracts and promises</li> <li>Promoting sustainable development of the industry chain</li> </ul> <p><b>Communication and responses</b></p> <ul style="list-style-type: none"> <li>Multi-channel cooperation and research</li> <li>Daily communication and regular meetings</li> <li>Sustainable supplier management</li> <li>Improving open and fair procurement system and rules</li> </ul>
<h3>Government and regulatory institutions</h3> <p><b>Expectations and concerns</b></p> <ul style="list-style-type: none"> <li>Implementing government policies and regulatory rules</li> <li>Promoting employment</li> <li>Maintaining and increasing the value of state-owned assets</li> <li>Conducting business in a law-abiding manner</li> <li>Promote the "Dual Carbon" goal</li> </ul> <p><b>Communication and responses</b></p> <ul style="list-style-type: none"> <li>Responding to the government advocacy actively</li> <li>Receiving inspection and conducting rectification</li> <li>Complying with law, strengthening compliance management and strengthening anti-corruption</li> <li>Energy saving and carbon reduction</li> </ul>	<h3>Partners</h3> <p><b>Expectations and concerns</b></p> <ul style="list-style-type: none"> <li>Regular communication</li> <li>Long-term stable relationship</li> </ul> <p><b>Communication and responses</b></p> <ul style="list-style-type: none"> <li>High-level exchange of visits</li> <li>Strategic cooperation</li> </ul>
<h3>Peer companies</h3> <p><b>Expectations and concerns</b></p> <ul style="list-style-type: none"> <li>Fair competition</li> <li>Industry development</li> </ul> <p><b>Communication and responses</b></p> <ul style="list-style-type: none"> <li>Maintaining the industry business environment</li> <li>Participating in industry development forums</li> <li>Participation in industry standards setting</li> </ul>	<h3>Media</h3> <p><b>Expectations and concerns</b></p> <ul style="list-style-type: none"> <li>Open and transparent information disclosures</li> </ul> <p><b>Communication and responses</b></p> <ul style="list-style-type: none"> <li>Press releases and announcements</li> <li>Media events</li> </ul>
<h3>Communities and the public</h3> <p><b>Expectations and concerns</b></p> <ul style="list-style-type: none"> <li>Protecting the community environment</li> <li>Reducing Pollutant Emissions</li> </ul> <p><b>Communication and responses</b></p> <ul style="list-style-type: none"> <li>Responding to climate change</li> <li>Supporting community welfare</li> <li>Driving local economic development</li> </ul>	<p><b>Communication and responses</b></p> <ul style="list-style-type: none"> <li>Supporting rural revitalization</li> <li>Carrying out public welfare activities</li> <li>Participating in community project construction</li> <li>Strengthening environmental protection and setting environmental targets</li> <li>Strengthening localized management of overseas communities</li> </ul>

## Benchmark with the United Nations Sustainable Development Goals

Goals	Our actions
 <p>1 NO POVERTY</p> <p>End poverty in all its forms everywhere.</p>	<p>After poverty alleviation in an all-round way, we continue to help rural revitalization and prevent return to poverty through consumption assistance.</p>
 <p>2 ZERO HUNGER</p> <p>End hunger, achieve food security and improved nutrition and promote sustainable agriculture.</p>	<p>We organize donations and voluntary service activities, donating food and other daily necessities.</p>
 <p>3 GOOD HEALTH AND WELL-BEING</p> <p>Ensure healthy lives and promote well-being for all at all ages.</p>	<p>We pay attention to occupational health and safety management, strengthen occupational disease prevention and control, and create a safe and healthy working environment for employees.</p>
 <p>4 QUALITY EDUCATION</p> <p>Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.</p>	<p>We carry out donations and support the schools in poor areas.</p>
 <p>5 GENDER EQUALITY</p> <p>Achieve gender equality and empower all women and girls.</p>	<p>We protect the rights and interests of female employees, ensure to gender equality, equal pay for equal work, and focus on caring for female employees.</p>
 <p>6 CLEAN WATER AND SANITATION</p> <p>Ensure availability and sustainable management of water and sanitation for all.</p>	<p>We carry out upgrading and reconstruction of tap water and sewage pipe networks in poverty-stricken areas to provide high-level medical services for community residents.</p>
 <p>7 AFFORDABLE AND CLEAN ENERGY</p> <p>Ensure access to affordable, reliable, sustainable and modern energy for all.</p>	<p>We strengthen the development of clean energy technologies.</p>
 <p>8 DECENT WORK AND ECONOMIC GROWTH</p> <p>Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.</p>	<p>We safeguard the rights and interests of employees and build a comprehensive remuneration system. We also provide employees with career development channels and trainings. We provide employees with benefits and care for employees in difficulties.</p>
 <p>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</p> <p>Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.</p>	<p>We focus on housing construction, transportation and municipal infrastructure construction, mid-to-high-end real estate and other infrastructure fields. We promote scientific R&amp;D and the construction of innovation platform.</p>

Goals	Our actions
 <p>10 REDUCED INEQUALITIES</p> <p>Reduce inequality within and among countries.</p>	<p>We organize volunteering activities in poverty-stricken communities at home and abroad, and actively make donations to alleviate inequality.</p>
 <p>11 SUSTAINABLE CITIES AND COMMUNITIES</p> <p>Make cities and human settlements inclusive, safe, resilient and sustainable.</p>	<p>We leverage our advantage to develop affordable housing projects and green building projects and carry out environmental governance projects such as sewage treatment, waste incineration, ecological restoration and other environmental protection projects.</p>
 <p>12 RESPONSIBLE CONSUMPTION AND PRODUCTION</p> <p>Ensure sustainable consumption and production patterns.</p>	<p>We promote the R&amp;D of green technologies, such as new energy metallurgical technology, energy efficient utilization and other technologies. We implement green procurement and promote green and lowcarbon concepts in the supply chain.</p>
 <p>13 CLIMATE ACTION</p> <p>Take urgent action to combat climate change and its impacts.</p>	<p>We set energy-saving target and improve energy efficiency, promote energy-saving and emission-reduction technologies, and adopt new environmental protection equipment.</p>
 <p>14 LIFE BELOW WATER</p> <p>Conserve and sustainably use the oceans, seas and marine resources for sustainable development.</p>	<p>We carry out ecological restoration, sewage treatment and river basin treatment projects.</p>
 <p>15 LIFE ON LAND</p> <p>Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.</p>	<p>We strengthen soil pollution prevention and control and provide soil remediation consultation.</p>
 <p>16 PEACE, JUSTICE AND STRONG INSTITUTIONS</p> <p>Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.</p>	<p>We prohibit child labor and forced labor and have zero tolerance for corruption and fraud.</p>
 <p>17 PARTNERSHIPS FOR THE GOALS</p> <p>Strengthen the means of implementation and revitalize the global partnership for sustainable development.</p>	<p>We actively cooperate with the government, industry partners and scientific research institutions to achieve a win-win partnership and promote low-carbon transformation and green development of the industry.</p>

# THE CORNERSTONE OF A GREAT NATION

FEATURE 1

As the founder of the "steel and iron" that built the new China, MCC relies on outstanding research, survey, design, and construction capabilities. It focuses on hot-spot areas, major projects, and strategic clients, and has built a series of major benchmark projects for national economy and people's livelihood. MCC has become the leading force in the country's basic construction. While insisting on returning value to shareholders with first-class business performance, MCC actively fulfills its social responsibilities, making continuous efforts in ensuring people's access to childcare, education, employment, medical services, elderly care, housing, and social assistance.

## Serving the Winter Olympics to demonstrate political responsibility

To prepare for the grand event of Beijing Olympic Winter Games in 2022, MCC has successfully completed the construction of Olympic venues, operation and maintenance projects, and supporting facilities, and has fully participated in event security work, making positive contributions as a Chinese central state-owned enterprise for hosting an fantastic, extraordinary, and excellent Winter Olympics.

Magnificent and unparalleled sports arenas Stadium Construction for Olympic Winter Games:



The National Sliding Center Project for Beijing Olympic Winter Games



The Steel Structure Project of the Chinese National Alpine Skiing Centre for the Beijing Olympic Winter Games



Steel Structure Project for Wukesong Ice Sports Center for the Beijing Olympic Winter Games

Winter Games: Comprehensive Services Operation and Maintenance for Beijing Olympic



The Comprehensive Management and Monitoring Center Project for the Service Facilities in the Yanqing Division of the Beijing Olympic Winter Games

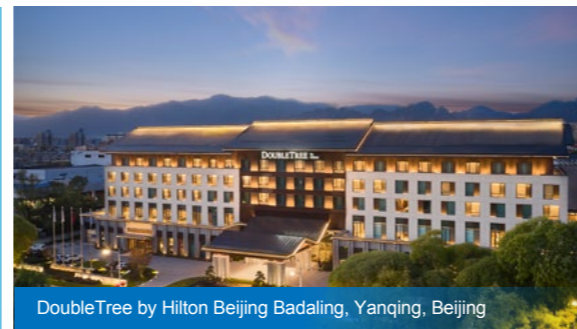


The Temporary Facilities Project for the Yanqing Division of the Beijing Olympic Winter Games

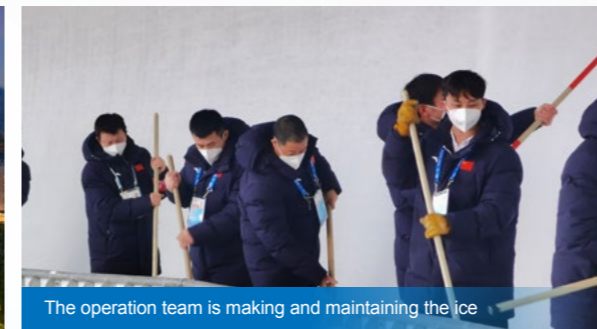


Shougang Park Beijing Olympic Winter Games Organizing Committee office renovation project

Systematic and efficient security capabilities Supporting Facilities for Olympic Winter Games:



DoubleTree by Hilton Beijing Badaling, Yanqing, Beijing



The operation team is making and maintaining the ice



The important supporting transportation infrastructure testing project for the Beijing Olympic Winter Games



The group photo of the operation team with Chinese athletes

7 Responsible for inspecting venues  
468 Hours of security time accumulated  
53 New requirements completed  
over 100 Malfunctions handled  
over 1000 times Inspected in venues

## Uniting to fight against the pandemic to illustrate mission and responsibility

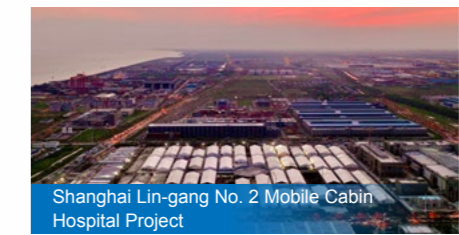
MCC thoroughly implemented the important instructions and directives of General Secretary Xi Jinping on pandemic prevention, resolutely implemented the requirements of the CPC Central Committee, the State Council, and the SASAC on pandemic prevention and control work, and effectively raised its political position. It quickly activated the "wartime" state, implemented various prevention and control measures in a practical and detailed manner, urgently assisted in the construction of pandemic prevention and emergency facilities in various places, actively donated anti-pandemic materials to support the frontline anti-pandemic work, and fully strengthened the pandemic prevention and control line of defense. With practical actions, we shouldered the responsibilities of a state-owned enterprise.

Shanghai

35 Pandemic prevention engineering projects undertook

1079600 m<sup>2</sup> Construction area

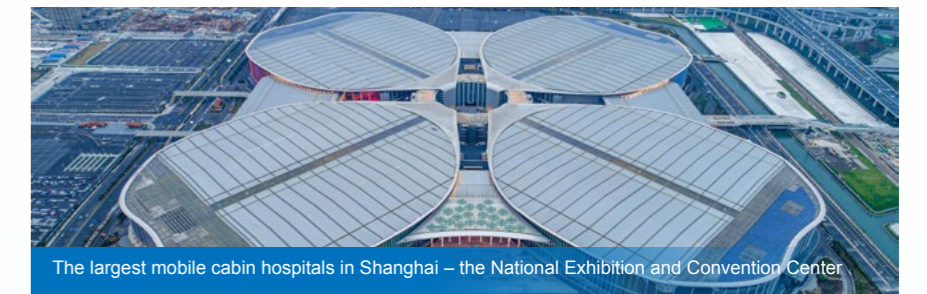
131400 Beds provided



Shanghai Lin-gang No. 2 Mobile Cabin Hospital Project



Shanghai Luojing Fuchang Road Emergency Reforming Project



The largest mobile cabin hospitals in Shanghai – the National Exhibition and Convention Center

Nationwide

132 Pandemic prevention engineering projects undertook

3362000 m<sup>2</sup> Construction area

237000 Beds provided



Fankou Isolation Block Mobile Cabin Hospital in Echeng District, Ezhou, Hubei Province



Aiding Hong Kong Project to build mobile cabin hospital and isolation facilities



Mobile cabin hospital project in Rongcheng County, Xiang'an New Area



Ma'anshan Mobile Cabin Hospital Project

## Ensuring people's livelihoods and celebrating the 20<sup>th</sup> National Congress of the CPC

MCC has been deeply studying and implementing the spirit of the 20<sup>th</sup> National Congress of the CPC, insisting on ensuring and improving people's livelihoods while developing and continuously meeting the people's aspirations for a better life. MCC has continuously strengthened the construction of affordable housing and supporting infrastructure, ensuring the people's well-being and happiness; actively responding to the call for building a healthy China, promoting the landing of various types of hospital projects; accelerating the construction of cultural and tourism ecological projects, supporting the transition to a model of green development, and promoting the development of public culture and the construction of a beautiful China.

### Livelihood security / Ensuring the well-being and happiness of the people



Hainan Yangpu Integrated Urban and Rural Affordable Housing Project



Shanghai Baoshan Energy Recycling Center Project



Xiongdong Plots A Resettlement Housing Project

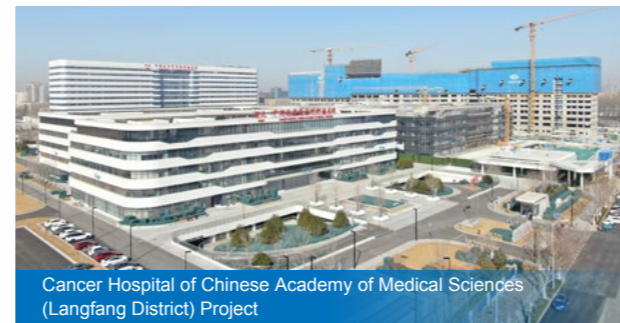


Henan Xinyang High-tech Zone Urban Upgrade (Phase I) Project

### Medical services & Education / Contributing to the construction of a healthy China



Shenzhen Second Children's Hospital Project



Cancer Hospital of Chinese Academy of Medical Sciences (Langfang District) Project



Haematology Hospital (Tuanbo Hospital District) Project of the Chinese Academy of Medical Sciences in Tianjin

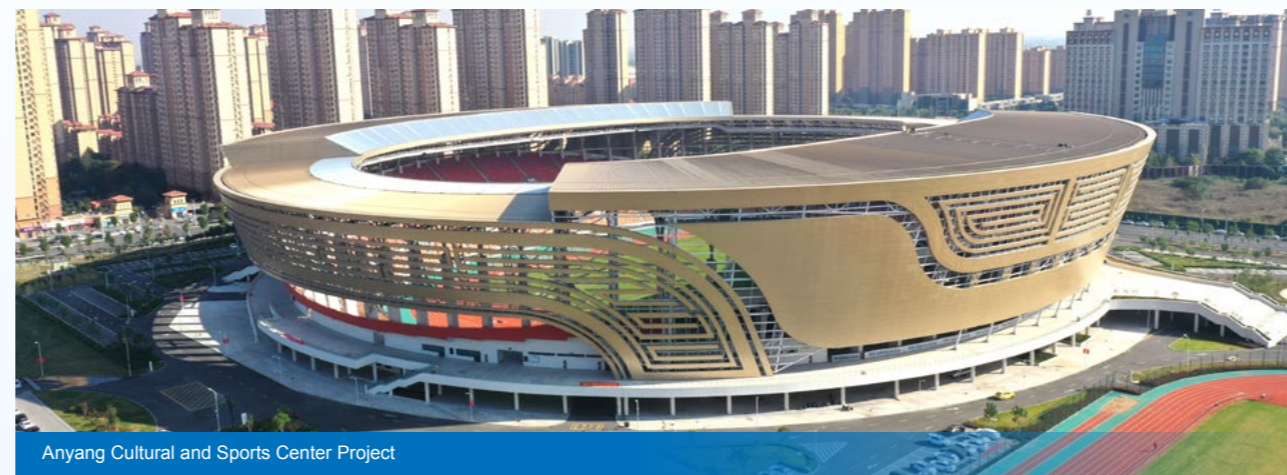
### Cultural and tourism ecology / Promoting the development of public culture



Luoyang Science and Technology Museum Project



Shenzhen Cultural Center New Building Project



Anyang Cultural and Sports Center Project

## Deepening overseas cultivation and jointly building the Belt and Road

With the promotion and implementation of the Belt and Road Initiative, MCC has continuously accelerated its "going global" pace, with business covering many fields such as metallurgy, mining, construction, transportation, municipal engineering, electric power, chemical industry, environmental protection, and real estate, in more than 90 countries and regions across six continents of Asia, Africa, Europe, and the Americas, accumulating rich experience and making positive contributions to promoting China's foreign cooperation, driving the industrial development of neighboring countries along the Belt and Road, and achieving common prosperity.



Kuwait Health Assurance Hospital Project



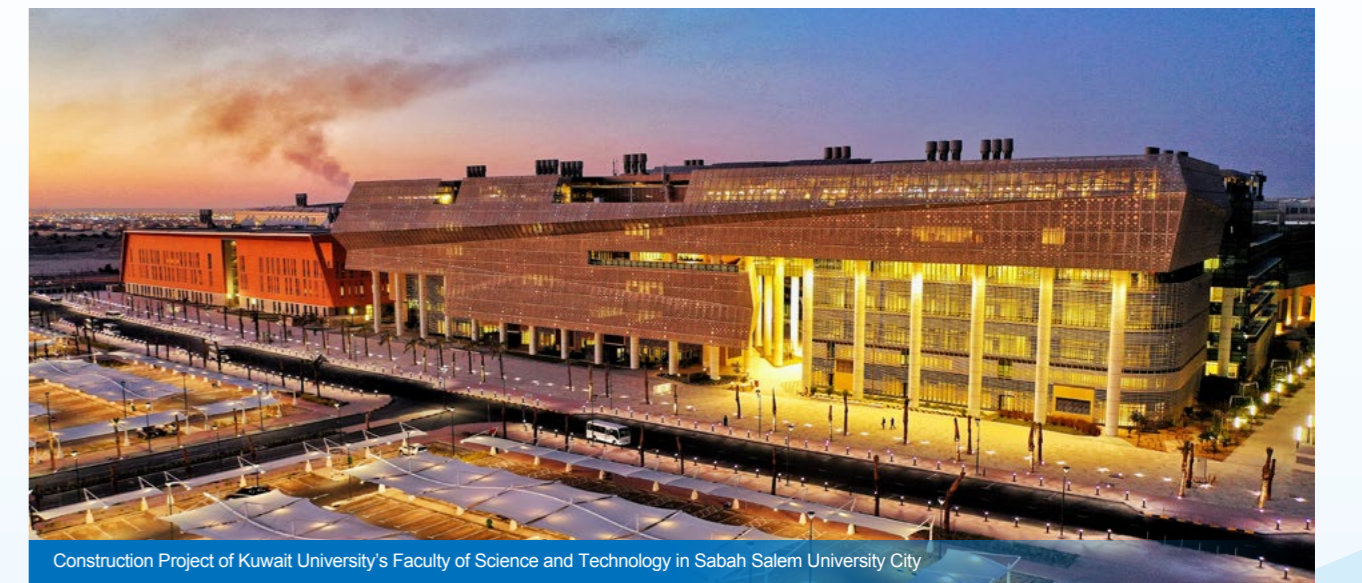
Singapore Mandai Park Project



Vietnam Waste-to-Energy (WTE) Power Plant Project



Project of the Olympic Stadium in Algeria



Construction Project of Kuwait University's Faculty of Science and Technology in Sabah Salem University City

# 「THE STEEL OF A GREAT NATION」

FEATURE 2

MCC has formed a new development pattern of "one body and two wings" with eight major parts of the steel industry and 19 business units as the "body" and green, low-carbon, intelligent, and core technology equipment as the "wings". Several key technologies in processes such as coking, sintering, raw material yards, and ironmaking, independently developed by MCC, have broken the monopoly of foreign companies, and several large-scale equipment in processes such as steelmaking, continuous casting, hot rolling, and cold rolling have achieved significant breakthroughs. Multiple advanced technologies in green, energy-saving, and environmental protection, intelligent management, etc., have achieved "world's first" and "domestic first".

## Achieving acceleration and progress through intelligence

MCC has developed the first domestic digital infrastructure platform based on independent chip architecture, the first industrial Internet platform with full-process practical application, and the world's first steel integrated intelligent management and control center, and other intelligent manufacturing benchmark projects, realizing the transformation of steel production to digital and intelligent-driven.



Ma'anshan Iron & Steel Ironmaking Intelligent Control Center Project



Sansteel Minguang Iron Area Central Control Project



Vietnam Formosa Ha Tinh Steel Base Intelligent Operation and Maintenance Project



Xinyu Iron & Steel Silicon Steel Intelligent Factory Project

## Winning quality and efficiency through greening

MCC is committed to promoting the green development of the steel industry, focusing on environmental protection factors such as water, air, noise, and slag, and actively building core technologies and products throughout the lifecycle such as energy-saving, solid waste, hazardous waste disposal, efficient energy, ultra-low emissions, and high level difficult wastewater treatment, to contribute to the energy conservation and environmental protection of China's steel industry as a Chinese central state-owned enterprise.



Zhanjiang Steel steel slag treatment engineering of BOO project



Yunnan Yukun Iron and Steel Group's Capacity Replacement and Upgrading project



Pangang Vanadium 5, 6 coke oven energy-saving and environmental protection renovating project



Hesteel Group Handan Iron and Steel Co., Ltd.'s old area retreat and integration project



Zhongtian Green Quality Steel Project

## Low carbonization to help reduce pollution and carbon

MCC actively implements the national "Dual Carbon" strategy and optimizes the manufacturing process and energy-saving technologies according to the action roadmap of the *Steel Industry Carbon Peak and Carbon Reduction Action Plan*. The Company relies on four low-carbon technology research institutes to establish a comprehensive and process-oriented low-carbon technology system, vigorously promoting the green and low-carbon development of the metallurgical industry.



Jiujiang Iron and Steel 125MW ultra-high-temperature subcritical power generation project



Guangxi Shenglong Metallurgical Industry Upgrading Technology Transformation Supporting Power Generation Project



Hebei Tianzhu Steel City Steel Plant Relocation and Transformation 2x318m² Sintering Machine Project



Fujian Sansteel 2x80 MW single ultra-supercritical power generation project



Waste Heat Power Generation Project in Taihang Iron and Steel Coke and Electricity Co-Production Project



Shanxi Lu'an Coking 1.4 million tons/year coke oven project

## Achieving expansion and growth through efficiency

MCC has achieved smooth and efficient operation of the steel industry through technological innovation in four major areas: overall design optimization and system efficiency collaboration, upgrading unit process, comprehensive resource utilization, and efficient production lines. These new technologies have been effectively promoted from within the company.



Linyi High-quality Special Steel Project



Baosteel Zhanjiang Steel Third Blast Furnace System Project



Shanxi Jinnan Steel Group Co., Ltd.'s Capacity Replacement and Upgrading Project



Yunnan Kunming Steel's Environmental Protection Relocation for Transformation and Upgrading Project



Baosteel Desheng 1780mm Hot Rolling Comprehensive Project



HBR Industrial Upgrading and Xuansteel Capacity Transfer Project

# THE CONSTRUCTION OF A GREAT NATION

## FEATURE 3

Relying on its professional technical and business qualifications accumulated in the field of steel metallurgy, MCC has successfully transformed itself and achieved outstanding results in basic construction and emerging industries. It has established a system layout in the Beijing-Tianjin-Hebei Bohai Rim urban agglomeration, Guangdong-Hong Kong-Macao Greater Bay Area, Yangtze River Delta urban agglomeration, central urban agglomeration, Chengdu-Chongqing urban agglomeration, and also expanded into key cities in the northwest and southwest regions. The Company has developed a series of benchmark projects, such as high-end urban complexes, super high-rise buildings, transportation & municipal engineering, theme parks, comprehensive corridors, energy conservation and environmental protection, and has made positive contributions to serving and supporting major national strategies, including the Xiong'an New Area and the Beijing Municipal Administrative Center.

## Building urban forests

MCC vigorously develops high-tech, value-added and high-impact building engineering businesses such as ultra-high-rise buildings, landmark buildings and large-scale urban complexes to support modern urban construction.



THE FACE Suites in Kuala Lumpur's Platinum Hotel Project



Shenzhen KAIFA Plaza (Phase I) Project



Changchun Longxiang International Business Center Project



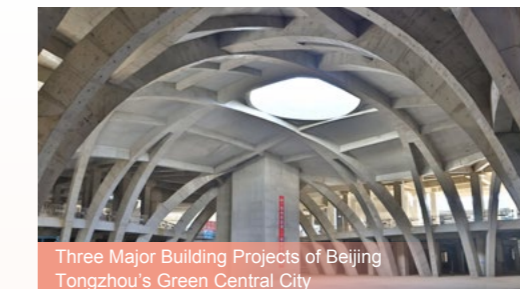
Hengqin Headquarters Building Phase II Project

## Building underground spaces

MCC focuses on the construction of underground comprehensive pipe gallery, underground parking lots for old city renovations, deep tunnels for urban drainage, and underground public resource management platforms to assist in the construction of urban underground space.



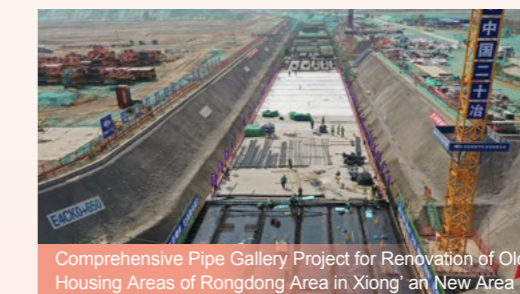
Shenzhen Keyuan Avenue Underground Space Comprehensive Development and Line 13 Joint Construction Comprehensive Corridor Project



Three Major Building Projects of Beijing Tongzhou's Green Central City



Shenzhen Apollo Future City's Comprehensive Pipe Gallery Project



Comprehensive Pipe Gallery Project for Renovation of Old Housing Areas of Rongdong Area in Xiong'an New Area



Project of Bedok South Station Construction and Tunnel Engineering of Thomson-East Coast Line of MRT's T311



Chengdu Buried Garbage Compressor Project



## Building a vertical and horizontal network

MCC has developed strong construction service capabilities in urban transportation and infrastructure construction such as highways, bridges, roads, airports, ports, and rail transit, and has created a comprehensive vertical and horizontal network.



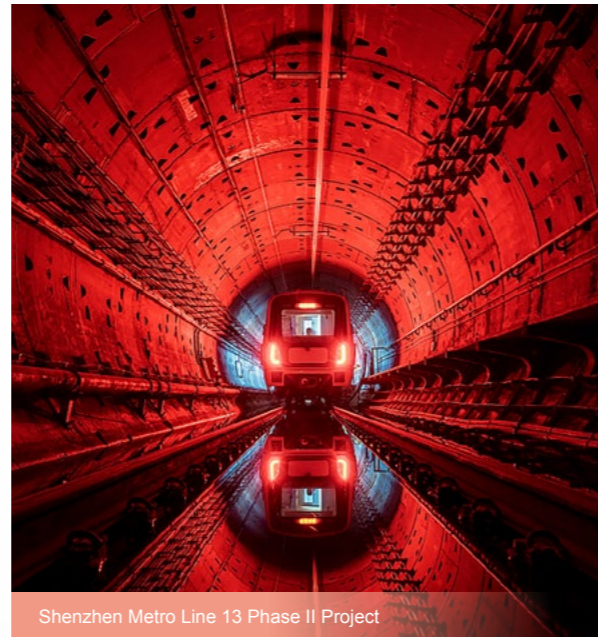
Luzhou Second Ring Road (Naxi Section) Project



Yellow River Bridge (Lanzhou Chaijiaxia Section) Project



Yichang Jiangcheng Avenue and Auxiliary Road Municipal Engineering Project



Shenzhen Metro Line 13 Phase II Project



Inner Mongolia Tonglu Expressway Project



Tuojiang Bridge Project

## Building a better life

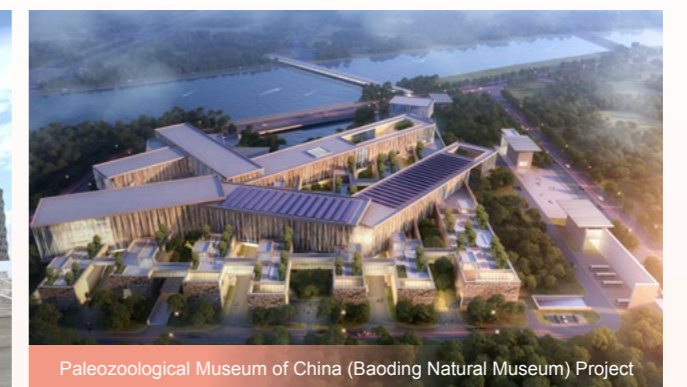
MCC constructs various types of projects such as sports culture, municipal services, living environments' improvement, and environmental pollution treatment, continuously meeting the people's growing expectation for a better life.



Chengdu Tianfu Park Project



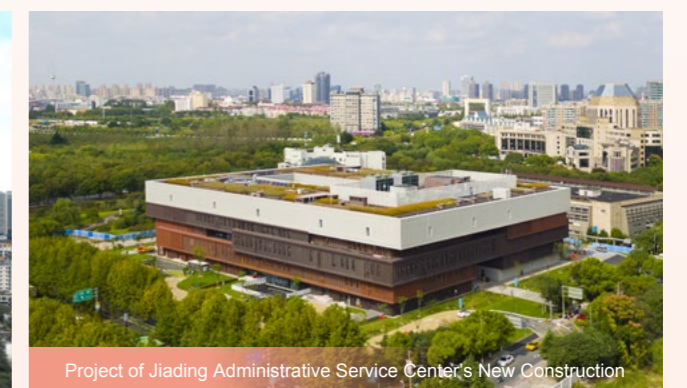
Gansu Gymnasium Project



Paleozoological Museum of China (Baoding Natural Museum) Project



Chengdu GRAND Shopping Center (A Block) Project



Project of Jiading Administrative Service Center's New Construction

# 1

**HIGH-QUALITY  
ENGINEERING TO  
ENHANCE BRAND  
INFLUENCE**

Value of newly signed contract

RMB **1343.57** Billion

An increase compared with the  
same period of 2021

**11.5** %

2022



# and Operation Services Metallurgical Engineering

As the world's largest and strongest metallurgical engineering contractor and metallurgical enterprise operation service provider, MCC has always been at the forefront of the international level and the leading position in the entire metallurgical industry. With the internationally leading core technology, continuous innovation and R&D of independent and controllable capabilities, and the irreplaceable advantages of integrating the entire metallurgical industry chain, MCC has taken on the responsibility of leading China's metallurgical industry to achieve intelligent, green, low-carbon, and efficient development as a "steel power".

In 2022, MCC accelerated the R&D of core key equipment technology and new processes, continuously innovated business models, accelerated the productization of core technology products, successfully built high-quality projects such as the Linyi High-quality Special Steel Project, the Dasteel Relocation and Upgrade Project, and the Nangang Blast Furnace Overhaul Project, and continued to strengthen the absolute leading position of the national team in metallurgical construction.



01



03



06



04



07

- 01.Linyi High-quality Special Steel Project
- 02.Dasteel Relocation and Upgrade Project
- 03.Nangang Blast Furnace Overhaul Project
- 04.Zhongtian Green Quality Steel Project
- 05.Shisteel Environmental Protection Relocation Product Upgrade and Transformation Project
- 06.Baosteel Orientation Silicon Steel Product Structure Optimization Project
- 07.Hebei Iron and Steel Leting Steel Project



02



05



Angang Yanqian Mountain Iron Ore Project



Anhui Caolou Iron Ore Project



Sanshan Island Northern Sea Gold Project



Indonesia Obi Ferronickel Project



Ecuador Mirador Copper Mine Project



Myanmar Dagon Mountain Nickel Mine Project



Gongchangling Underground Iron Ore Project



Yunsan Graphite Mine Project in Luobei County, Hegang City, Heilongjiang Province

## Mining Engineering and Operation Services

As one of the world's most powerful metallurgical mining design and construction engineering contractors, as well as a mining enterprise operation service provider, MCC continuously improves its capabilities in the entire value chain of mining resource development, design, construction, mining, beneficiation, sales, and more, and takes on the responsibility of promoting the mechanization, automation, intelligence, and green development of China's metallurgical mining industry.

In 2022, MCC constructed several mining projects such as the Lithium Mine Project in Dangba Mining Area of Marqang City, Sichuan Province, and the Yunsan Graphite Mine Project in Luobei County, Hegang City, Heilongjiang Province. We vigorously promoted smart mining, comprehensive utilization of all resources, green development of mines, and continued to improve the safety guarantee capability of mining production. We also provided first-class services to over 100 domestic and international metal mining companies.



Shanghai Baoye Zhengzhou Steel  
Structure Factory



MCC5 West Steel Structure  
Plant Project



National Convention and  
Exhibition Center Project



Guangzhou Canton Fair  
Exhibition Hall Project



Sun Hotel Project



Gansu Provincial Sports  
Center Project



Chengdu Tianfu Park Project

## Core Equipment and Steel Structures

As the domestic steel structure production enterprise with the largest capacity, MCC integrates the core technology of metallurgical construction R&D into its core equipment products, continuously occupying the high ground of equipment manufacturing in the steel industry. In response to the national requirements for developing the steel structure business, MCC vigorously expands its civil construction and infrastructure steel structure business, focusing on developing markets for super-high-rise buildings, municipal engineering, bridges, nuclear power, and marine structures, researching and developing industrialized and complete technologies, and improving business economic benefits.

In 2022, MCC achieved steady and rapid development by integrating its internal and external steel structure business resources and optimizing the layout of steel structure production capacity, adhering to the path of specialization, branding, and regionalization. We created significant projects such as the Chengdu Tianfu Park Project, the Xiamen New Convention and Exhibition Center Project, and the Gansu Provincial Sports Center Project, contributing to the comprehensive development of high-level urban green buildings.



Untracked Iron Ladle Car with  
"Asia's First" Load Capacity



Xiamen New Convention and  
Exhibition Center Project



Lanzhou Olympic Sports Center

## Building and Urban Renewal

As a leading domestic contractor with professional advantages in building construction, as well as a comprehensive expert in urban construction solutions in China, MCC relies on its excellent scientific research, surveying, design, and construction capabilities to develop large-scale, high-tech, and highly influential building construction projects such as super high-rise landmark buildings, large-scale urban complexes, and underground comprehensive pipe galleries. The Company has nurtured flagship products such as "MCC High-end Building Construction" and "MCC Tunnel Gallery", achieving a high-end transformation towards the construction business.

In 2022, MCC continuously enhanced the bidding capabilities through strengthening high-end leadership, optimizing top-level design, improving its own advantages, and innovating business models. The Company focused on undertaking "high-tech, comprehensive and large-scale" projects with significant influence. The signing of large-scale projects such as the Deyang Tianfu Jingcheng Smart Business District and the Yichang High-speed Railway New City, representing building and urban renewal engineering, has greatly enhanced China MCC's market influence.



Chongqing Data Valley  
Phase III Project



ABO Project for Continuous Development of Urban Villages in the Main Urban Area of Baoding City



Zhengzhou Xinfu Development Kailin Square Project



Wuhan Qingshan District 35<sup>th</sup> Street  
Construction Project



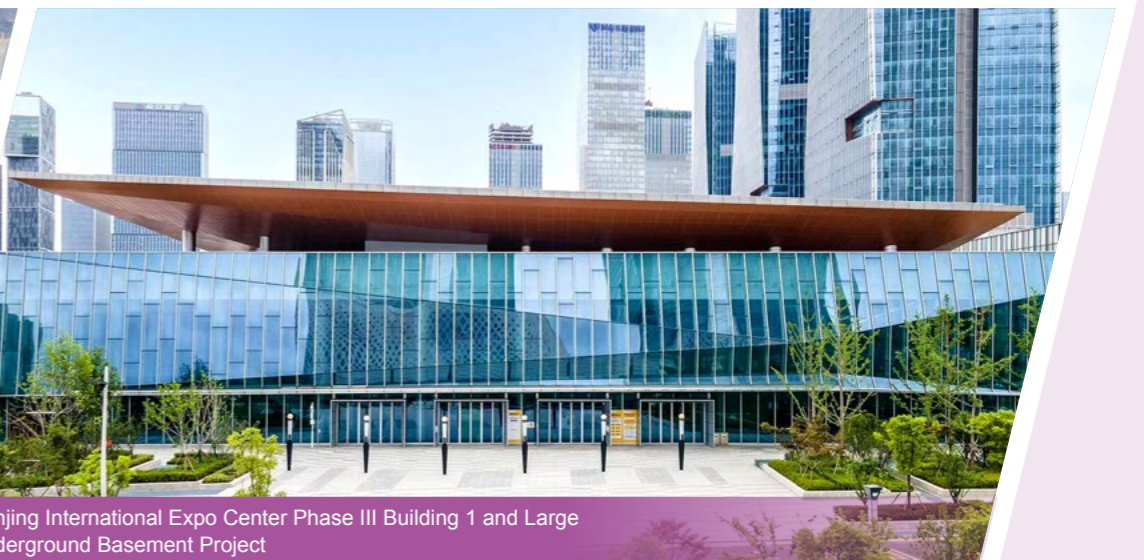
National Cancer Center Project



Jingdezhen Art Vocational College Project



Shenzhen Gangrong Bacuiyuan Project



Nanjing International Expo Center Phase III Building 1 and Large Underground Basement Project



**Mid-to-high-end residential projects**

- 01 Beijing MCC Dexian Huafu
- 02 Beijing MCC Dexian Yufu
- 03 MCC Future City in Zhuozhou
- 04 Qingdao MCC Dexian Mansion
- 05 Baotou MCC Dexian Mansion
- 06 Hangzhou MCC Jinxiu Huafu
- 07 Shijiazhuang MCC Dexian Huafu

**Commercial projects**

- 08 Shijiazhuang MCC Shengshi International Plaza

**Industrial park**

- 09 Minmetals Science and Technology Industrial Park in Zhuozhou
- 10 Sanhe MCC Shengshi International Plaza



## Green Health and Intelligent Real Estate

As one of the first 16 centrally-owned real estate enterprises under the SASAC of the State Council, MCC actively seizes the opportunities brought by new urbanization and new rural construction, focuses on first and second-tier cities, and targets hot spots such as the Beijing-Tianjin-Hebei region, the Pearl River Delta, and the Yangtze River Delta. With "green buildings, technological products, smart homes, and smart communities" as its product positioning, MCC adheres to the green production route of leading green buildings and paying attention to the ecological environment, and has established the "MCC Real Estate" brand.

In 2022, MCC Real Estate ranked 36<sup>th</sup> in the "Top 100 Chinese Real Estate Enterprises" and has won the Top 10 Profitability and Stability award for seven consecutive years. We also received the titles of "China Real Estate Annual Corporate Social Responsibility Enterprise", "China Real Estate Product Strength Excellent Enterprise", and "Outstanding Chinese Characteristic Real Estate Operation Enterprise - Urban Development Operator". MCC provides solutions for building a new generation of high-end smart and healthy housing that is "temperature suitable, humidity suitable, and oxygen rich".



## New Energy and Mineral Resources Development

As one of the key resource-based enterprises designated by the government, MCC integrates different development and construction models to enhance its overall technical capabilities in mineral resource exploration, mining, beneficiation, and smelting. MCC is committed to developing mining investments, mine production and operation management, waste battery recycling and treatment, the full industry chain of "resources-materials-batteries" recycling, and the polycrystalline silicon business.

In 2022, three key in-production mineral resource projects successfully coped with the Pakistan super flood and the Papua New Guinea 7.6 magnitude earthquake, completing self-rescue and recovery in the shortest time possible. MCC also adhered to optimizing production organization, improving production efficiency, ensuring stable and high production, and focusing on quick mining and sales to ensure full production and sales. This further stabilized the production and operation foundation of MCC's resource development business. The MCC New Materials Project achieved the integration of high-quality overseas mineral resources and domestic high-end industries in the industrial chain, while China Silicon Corporation Ltd. (SINOSICO) became one of the top ten semiconductor material companies in China's electronic materials industry.



Luoyang Dudar Lead-Zinc Mine



Papua New Guinea Ramu Nickel Mine



China Silicon Corporation Ltd.



Pakistan Duda Lead-Zinc Mine



Saindak Copper and Gold Mine in Pakistan



# Eco-environmental Protection and Tourism Projects

MCC seizes the opportunity of national strategic emerging industries development and extends its technical advantages in "water, electricity, and gas" from the metallurgical and other industrial fields to the civil and municipal fields. MCC was the first to establish fourteen large-scale technology research institutes, which are actively involved in large-scale theme park, sponge city, smart city, beautiful countryside, environmental engineering, and new energy fields. MCC is fully committed to seizing emerging market opportunities.

In 2022, MCC has developed a scale advantage in water management, solid waste treatment, mine restoration, and ecological governance, and has pioneered a unique MCC path in cultural tourism projects. MCC has successfully signed a number of representative projects, such as the Yangtze River Huangshi Section Ecological Environment-oriented Development Project (EOD), the Yibin Sanjiang New Area Green Low-Carbon Advantage Industry Park Project, the Infrastructure Upgrading and Overall Transformation Project of the historical and cultural block in the old city of Luoyang.

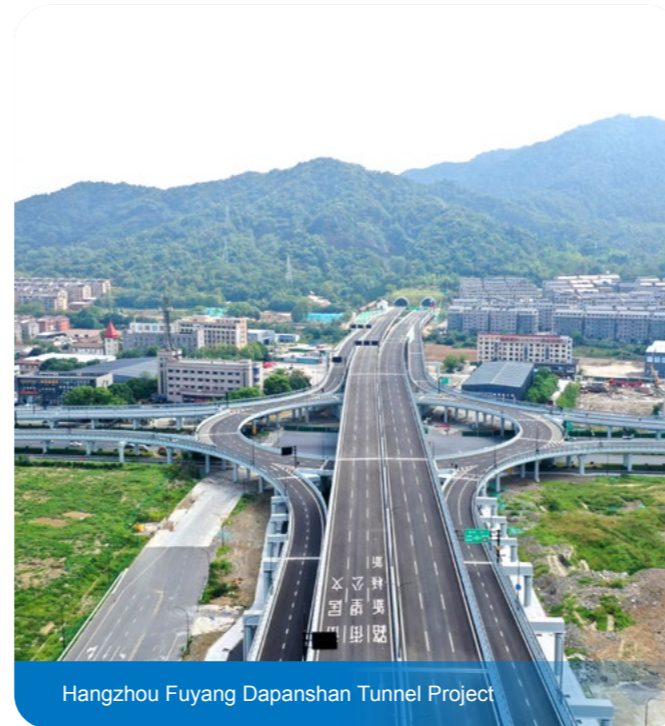
- 01 Qianzi Mountain Circular Economy Industrial Park Domestic Waste Incineration Power Generation Project in Wuhan City
- 02 Sanhe Mining Area Geological and Environmental Remediation Project
- 03 Northern Section of the Palace Museum's Project
- 04 Xiong'an Landfill Garbage Treatment Center Project
- 05 Wuhan Wushang Dream Time Ice and Snow Park Project
- 06 Sentosa Universal Studios Minions Park Project
- 07 Xiangyang OCT Fantasy Valley Project



## Transportation and Municipal and Other Projects

With rich design experience, strong project management capabilities, and the support of powerful technical equipment and construction capabilities, MCC has vigorously expanded in the field of urban transportation infrastructure construction, including highways, bridges, roads, airports, ports, and rail transit, and has created market-competitive and influential transportation infrastructure construction projects, forming the brand of MCC-CC and MRBC.

In 2022, the Company continued to make efforts in the municipal and transportation fields and successfully constructed representative transportation projects such as the Wuhan-Dawu Expressway, the Guangxi Liuzhou Rongcong Expressway, and the Guangzhou Baiyun District Metro Line 13, playing a key role in promoting regional economic and social development.



Hangzhou Fuyang Dapanshan Tunnel Project



Wuhan-Dawu Expressway Project



Kuwait 223 Road Project



Chongqing-Changsha Expressway Project



Phnom Penh New International Airport Project in Cambodia



Tanjong Rhu South Station and Tunnel  
Project in the Thomson-East Coast Line  
of Singapore's Subway System



Guangxi Liuzhou-Rongxian Expressway Project

# 2

## LEADING INNOVATION TO DRIVE TECHNOLOGICAL ADVANCEMENT

Technology is the foundation of a strong nation, and innovation is the soul of national progress. MCC always regards innovation as the first driving force for enterprise development, and regards technological innovation as the fundamental basis for its sustainable development. The Company actively focuses on the main line of self-reliance and self-strengthening through science and technology, vigorously enhances its independent innovation capabilities, accelerates the creation of an "origination center" for original technologies, continuously reforms the system and mechanisms for technological innovation, and effectively promotes the successful demonstration and application of a number of major scientific and technological achievements, enhancing the core competitiveness of the enterprise.

Cumulative Effective Patents in 2022

47120

Total R&D Investment

RMB 19.3 Billion

2022



## Improving the innovation system

MCC continuously strengthens its technological foundation and optimizes the innovation environment by improving its innovation system, building a number of national-level research platforms, creating a group of national strategic technological forces, overcoming a number of critical core technological "stranglehold" and forming a number of world-class major scientific and technological achievements. In promoting high-level technological self-reliance and self-strengthening, we play the role of a "national team" for state-owned enterprises.

### Optimizing innovation mechanisms

MCC accelerates the implementation of the science and technology system reform plan, taking the evaluation of technological innovation as the key to coordinating technological innovation and guiding resource allocation. We establish an evaluation mechanism that covers projects, results, platforms, and talents, to fully mobilize the enthusiasm and initiative of various scientific research units, and maximize the optimization and integration of technological resources.

Our subsidiaries take MCC's assessment goals as a guide, and formulate a differentiated assessment indicator system based on quantitative and qualitative indicators and departments as assessment objects, further guiding their focus on the development and conversion of new technologies, processes, and products.

### Building innovative platforms

MCC is continuously advancing the construction of innovative platforms, improving the national scientific and technological platform system, effectively integrating various resources from government, industry, academia, research, and application, promoting the transfer and transformation of scientific and technological achievements, and providing strong technological support for cultivating strategic emerging industries within the Company.



## Cultivating leading talents

Talents are a company's core competitive advantage, and innovation is fundamentally propelled by talented individuals. To foster the growth and development of a group of leading experts who are capable of driving industry technology forward and possess the bravery to explore innovative solutions, MCC has implemented a project chief expert system. This system aims to prepare for the cultivation of more academic and masterful talents in the future. By engaging in the resolution of key technical issues within engineering projects, and by encouraging and supporting young scientific and technological talents to assume significant responsibilities and take on leading roles, MCC creates an environment that fosters the emergence of exceptional young scientific and technological talents.

In total, MCC has



# Strengthening scientific development

Enhancing independent innovation capability and quickly breaking through key core technologies has become the key to building a new development pattern. MCC fully plays its role as the main body of innovation, promotes the integration of industry, academia, research, and application, focuses on "stranglehold" problems, and has achieved many breakthrough scientific and technological achievements, creating a world-class technology-leading enterprise.

## Leading technology standards



MCC consistently improves its leading technology standards advantages, promotes the establishment of national technology standard innovation bases, participates in the formulation of international, national, and industry standards, and continuously elevates the standardization level to facilitate the industry's high-quality development.

<p><b>International standards</b></p> <p>Established <b>63</b> international standards in total</p> <p>Published <b>1</b> international standard under the editor-in-chief in 2022</p>	<p><b>Enterprise technical standards</b></p> <p>Published <b>41</b> enterprise technical standards in total</p> <p>Applied <b>35</b> enterprise technical standards in 2022</p> <p><b>27</b> were approved for establishment</p>
<p><b>National standards</b></p> <p>Established <b>602</b> national standards in total</p> <p>Published <b>11</b> national standards under the editor-in-chief in 2022</p> <p>Participated in the preparation of <b>27</b> national standards</p>	<p><b>Industry standards</b></p> <p>Published <b>595</b> industry standards in total</p> <p>Published <b>11</b> industry standards in 2022</p> <p>Participated in the preparation of <b>6</b> industry standards</p>

## Core technology breakthrough



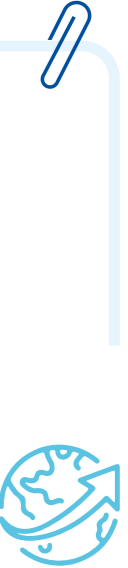
The "181 Plan" is centered on green development, application foundation, process flow, and intelligent manufacturing, and it identifies 181 essential core technologies in metallurgical construction that require breakthroughs during the 14<sup>th</sup> Five-year Plan. In 2022, the third batch of 30 significant R&D projects under the "181 Plan" was launched and executed, leading to successful application results of R&D projects like converter flue gas waste heat recovery, supercritical gas power generation, and the whole-process industrial internet platform in engineering projects, generating substantial economic and social benefits.

2021	Launch the first batch of 37 research projects and started the second batch of 25 research projects
2022	Completion of theoretical research, launch of the third batch of 30 research projects
2023	Continuously promote the R&D of the established projects

MCC focuses on enhancing the evaluation of scientific and technological achievements to fully support the cultivation of national science and technology awards. We also emphasize summarizing and refining major scientific and technological achievements, promoting technology transfer and conversion, and pursuing high-level industry awards to improve the supportive role of scientific and technological achievements for the company's business development.

### 2022 Achievements in science and technology honors

<b>20</b> Metallurgical Science and Technology Awards of China Iron and Steel Industry Association (including <b>8</b> first awards)	<b>9</b> Metallurgical Science and Technology Awards of China Society for Metals (including <b>4</b> first awards)
<b>10</b> China Engineering Construction Science and Technology Awards of China Construction Enterprise Management Association	<b>19</b> Scientific Progress Awards of the China association for Installation (including <b>2</b> first awards)
<b>3</b> Tien-yow Jeme Civil Engineering Prizes	



### World's first set of key technologies for intelligent control and management of power grids in the iron and steel industry

In August 2022, MCC's "Research and Application of the World's First Set of Key Technologies for Smart Grid Control in the Steel Industry" was recognized as one of the top ten "Practical Cases of Engineering Innovation for Green and Low Carbon Development" by the World Federation of Engineering Organizations (WFEO) and showcased at the 2022 China International Fair for Trade in Services. This technology significantly enhances intelligent power grid management, providing precise control of power grid fluctuations and intelligent regulation of new energy sources such as photovoltaics. It reduces the impact on the national power grid, decreases the power demand on the national power grid and transmission line losses, and facilitates the country's overall carbon emissions reduction, thus achieving economic, efficient, and clean power consumption.



### The world's first set of ultra-supercritical gas-fired power generation unit breaks multiple world records

In March 2022, the world's first set of ultra-supercritical gas-fired power generation unit independently developed by MCC was put into operation at Shenglong Metallurgy Co., Ltd. in Guangxi. The facility has broken multiple "world records" in terms of operating pressure, temperature, and power generation efficiency, and has complete independent intellectual property rights while achieving domestic equipment localization. This signifies that China's metallurgical industry's low-calorie gas-fired power generation technology has reached a world-leading level, leading the low-carbon transformation of the steel metallurgy industry.



## Intellectual property rights empowerment

MCC endeavors to enhance the quality of patents and the ratio of invention patents, by reinforcing and standardizing intellectual property work and revising the *Patent Management Measures*. Simultaneously, we actively encourage the standardization of intellectual property rights, raise awareness of intellectual property rights among all staff, promote the commercialization and industrialization of core patents, and facilitate the implementation of research findings on the project site and in the market. By doing so, we become the driving force behind industrial development by providing market technology, benefit technology, and practical technology.



### 45 patents granted for manufacturing technology of oversized energy-use steel plates

MCC pioneered the international largest specification 450×2600mm straight-arc continuous casting into sets of process equipment technology, and was the first in the world to complete the technical innovation and application of high efficiency and low consumption manufacturing technology of straight-arc slab continuous casting instead of mould casting process to produce oversized high-quality energy-use steel. The project was granted 45 patents at home and abroad and was awarded the China Patent Excellence Award.



### "Fire and Corrosion Resistant Composite Material for Steel Structures" Wins China Patent Excellence Award

The patent "The Fire and Corrosion Resistant Composite Material for Steel Structures", invented by MCC, utilizes a composite method consisting of a fiber-reinforced layer, corrosion-resistant layer, and fire-resistant layer. This material possesses high mechanical properties, fire resistance, and corrosion resistance, making it a versatile solution for improving the fire resistance limit of structures while also being able to adsorb the toxic gas generated after the corrosion-resistant layer is ablated. This environmentally friendly composite material finds extensive use in steel structure buildings and effectively solves technical problems associated with steel corrosion prevention and fire resistance in corrosive environments.



### "Installation Method of Adsorption System for Activated Carbon Flue Gas Purification Device" Wins China Patent Excellence Award

"The installation method of the adsorption system for the activated carbon flue gas purification device" addresses the technical problems of complex equipment systems, high-altitude assembly welding of thousands of tons of equipment, and other difficulties. It pioneered the core technologies of modular installation of the adsorption tower for the activated carbon flue gas purification device and airtightness testing. The comprehensive construction period can be shortened by 22%, and high-altitude operations can be reduced by 45%. This technology has been applied to the construction of China's first activated carbon flue gas purification device with completely independent intellectual property rights - the sintering flue gas purification device of the Baosteel Zhanjiang Iron and Steel Base project, and has been widely promoted and applied in the construction of nearly 30 sets of activated carbon flue gas purification device projects, including sintering and pelletizing units, in steel companies such as Baosteel, Wusteel, and Yongsteel".



## Upgrading industry intelligence

MCC seizes the opportunity of the transformation of traditional industries, strengthens key core technology research, promotes the transformation and upgrading of traditional industries, and promotes innovative development.

### Deepening intelligent iron and steel industry

MCC combines more than 70 years of accumulated steel metallurgical technology with cutting-edge information technology, and conducts in-depth research on big data intelligence and innovation. The Company has taken the lead in building a "Five-in-One" intelligent ecosystem and has successively developed the world's first digital twin ore yard, the first integrated intelligent steel control center, and other intelligent manufacturing benchmark projects, accelerating the development of intelligent iron and steel metallurgy industries.

#### Building the world's first fully intelligent networked and collaborative steel plant

##### Core technology

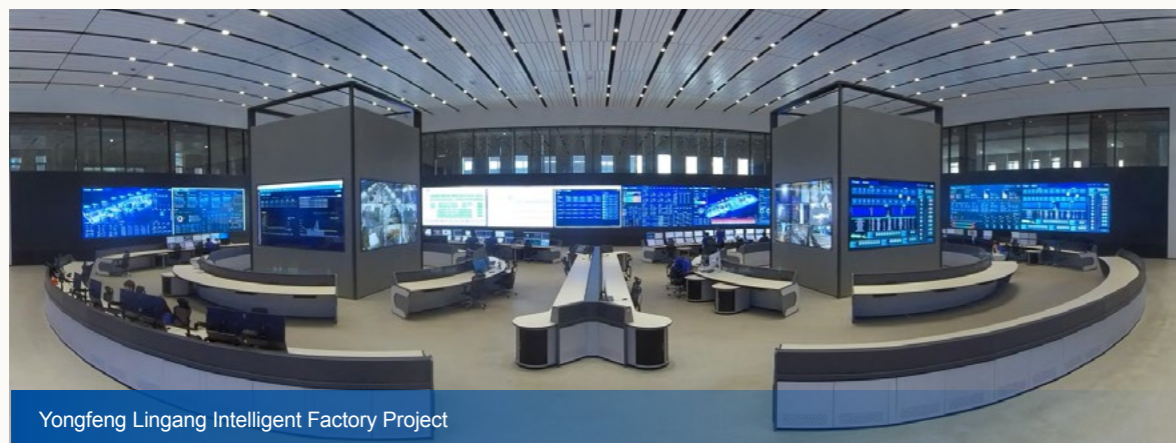
MCC has built the CISDigital industrial Internet platform for process industry based on the deep integration of new generation information technology and the steel industry. By researching and exploring five flow-coupling mechanisms, it covers the entire process and operation control of steel production, realizing the networked collaborative centralized and intelligent management of the steel industry.

##### Project honors

"Key Technology of Industrial Internet Platform for Process Industry" won the first prize of Metallurgical Science and Technology in 2022.

##### Application achievements

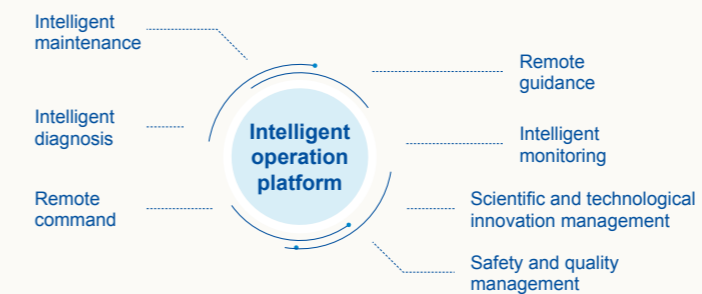
The relevant achievements have been applied in large domestic and foreign steel enterprises such as Nanjing Iron and Steel, Anyang Iron and Steel, Vietnam Formosa, and Malaysia Kuantan. The latest Yongfeng Lingang Intelligent Factory Project utilizing this project's achievements is an industry-first fully intelligent networked and collaborative steel plant based on a unified industrial Internet platform.



Yongfeng Lingang Intelligent Factory Project

#### Built the first full-process metallurgical intelligent operation platform

MCC has built the country's first fully integrated metallurgical intelligent operation platform, which has been launched and is now operational. The Company has achieved functions such as intelligent maintenance, intelligent diagnosis, remote command, remote guidance, intelligent monitoring, technology innovation management, and safety and quality management. We have also established an intelligent diagnosis system for key equipment such as slag treatment drums, raw material belts, cranes, and stacking machines. This marks a crucial step towards the digital transformation of the industry and promotes the deep integration of digital technology and metallurgical operation services, thereby improving the level of unmanned, minimally manned, and intelligent metallurgical operation services.



### Building smart mining

MCC has made smart mining system architecture and core technology research and development a key focus of its technological innovation strategy. By closely integrating mining design with on-site practical needs, we have conducted in-depth research in various fields ranging from overall scheme design to virtual reality applications for mines, from Internet of Things (IoT)-based data collection to big data management applications, from research and development of design data and project management to core product development for smart mining data services and display. We continually deepen and extend the connotation of smart mining, providing a full-process solution for smart mining.

#### Creating a Smart Mining Planning and Design System

MCC constructs smart mines with process optimization and production control at the core, covering the entire production process of the mine, with a comprehensive approach to connect the points and construct an overall coverage.

- Points** The intelligent transformation and upgrading of key facilities and equipment, the intelligent collection of important production process information, and the intelligent modeling of core business unit processes and management.
- Lines** The systematic sorting and optimization of production business processes.
- Overall coverage** Establishing a big data management platform, integrating the entire mining process control and process data fusion into a mining 3D spatial model and virtualized integrated control platform, providing optimized management and decision support for mining design, production, management, safety, and other aspects.

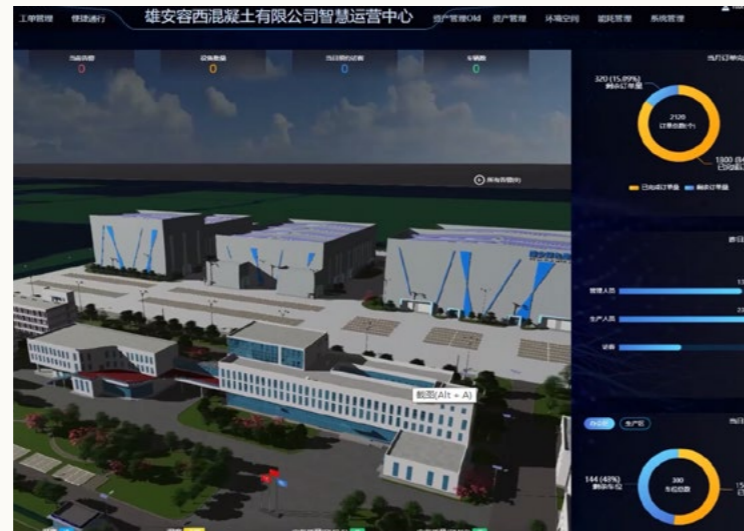
## Promote smart manufacturing

MCC is dedicated to creating an industry-leading smart manufacturing solution, fostering deep integration of the Internet, big data, artificial intelligence, and manufacturing, and further building a new green integrated technology system for smart manufacturing that covers the entire production process, management, and product life cycle.



### The first intelligent waste-free concrete mixing station in China - Xiong'an Rongxi No. 1 Station

The Xiong'an Rongxi No.1 Concrete Mixing Station, constructed and managed by MCC, has innovated with a series of independent core equipment, including permanent magnet variable frequency drum motors and direct combustion cracking of asphalt smoke. This achievement enables the crossing of complex industrial production lines and the integrated optimization of process equipment in a confined and narrow space. This transformation has upgraded low-end industries to all-weather automatic production, intelligent proportioning, and millisecond-level high-precision control, leading to the high-end development of basic industries.



### 5G empowers the leading steel structure smart factory in China

Zhengzhou Baoye Steel Structure Factory has two intelligent production lines and has created six intelligent manufacturing centers and a one-stop intelligent manufacturing information management system. With the empowerment of 5G technology, it has achieved intelligent operation of steel structures, digitalization of manufacturing, and intelligent interconnection of equipment. It is the leading steel structure smart factory in China. Based on the first intelligent welding center and intelligent production line in China, the factory has achieved unmanned operation of the most complex process of steel structure manufacturing by combining technologies such as big data, IoT, and Building Information Modeling (BIM), with efficiency exceeding three times that of manual labor.



## Supporting intelligent construction

MCC fully utilizes technologies such as cloud computing, big data, IoT, BIM, Geographic Information System (GIS), etc. in the field of basic construction, achieving full-process application from design consultation to construction operation and maintenance. We promote the level of information technology in the basic construction industry, create a digital-driven smart construction system, and improve the quality and efficiency of engineering construction. MCC achieved good results in the 6<sup>th</sup> Construction Engineering BIM Competition held by the China Construction Industry Association, with significantly improved quantity and quality of awards compared to last year, ranking among the top of the central enterprises in the construction category.



### In the 6<sup>th</sup> Construction Engineering BIM Competition, we won

12

Category I Achievement Awards

14

Category II Achievement Awards

10

Category III Achievement Awards



### Wisdom empowered Wuhan Hanyang Newbeacon K4 Large Commercial Complex Construction

The Wuhan Hanyang Newbeacon K4 large commercial complex construction project applied BIM technology to multiple stages such as deep foundation pit construction, 3D field layout, mechanical and electrical deepening design, construction technology simulation, and BIM's robot loop ramp placement, reducing costs by approximately RMB 18 million and reducing the construction period by 68 days. The project won the Class I Achievement Award of the 6<sup>th</sup> Construction Engineering BIM Competition of China Construction Industry Association.



### Urban information model platform facilitates intelligent construction

MCC Digital Surveying and Geographical Information System Engineering Technology Center conducted in-depth research on urban spatial data acquisition and rapid 3D modeling technology, indoor-outdoor integrated continuous precision navigation and positioning technology, and urban operation IoT intelligent perception technology, and developed the Urban Information Model Platform. The research results have been successfully applied to the 3D urban planning decision-making system in Huangshi City, the geographical spatial framework in Jingzhou City, the smart government affairs in Kuichong, Shenzhen, the 3D city in Wuhai City, and the Digital Aksu Project, providing 3D digital backbones for more than 20 cities and supporting urban operation management.





# 3

## EXCELLENT MANAGEMENT TO BUILD CORE COMPETITIVENESS

The importance of management for enterprises cannot be overstated, as it is essential for their sustainable development. MCC should be commended for its active response to General Secretary Xi Jinping's call for the cultivation of world-class enterprises with global competitiveness. The company's conscientious implementation of the CPC Central Committee's decision-making and deployment to enhance governance systems and capacity is a positive step towards achieving this goal. MCC's adoption of lean management practices lays a strong foundation for enterprise development. Moreover, MCC's focus on safety management is laudable, as it reinforces the importance of building a solid line of defense for safety production. The company's strict control of quality management is also noteworthy, as it helps to ensure supreme engineering quality. MCC's efforts to strengthen customer management to achieve value co-creation and optimize supply chain management to create a good industrial ecosystem are indicative of the company's commitment to excellence. Comprehensively improving the core management capabilities of the enterprise is crucial for MCC to continue its advancement towards the goal of building a world-class enterprise.



## Enhancing internal management

### Three-year state-owned enterprise reform increases dynamism


Since the implementation of the Three-Year Action Plan for State-owned Enterprise Reform, MCC has conscientiously implemented its work deployment and requirements, focusing on improving governance efficiency, stimulating endogenous power, and releasing innovation vitality, and has fully promoted the completion and effectiveness of all reform tasks around 88 reform tasks. The Three-Year Action Plan for State-owned Enterprise Reform has been successfully completed with high quality.



**In terms of improving governance efficiency**, a total of 354 subsidiaries at all levels that are included in the reform scope of the Company have been established, and a total of 54 subsidiaries have established a Board of Directors and the Board of Directors has been operated in a standardized manner with external directors performing their duties in accordance with the law.

54


Subsidiaries realized standardized operation in Board of Directors



**In terms of stimulating internal vitality**, all 354 subsidiaries included in the reform scope of the Company have implemented manager tenure system and contractual management, and the number of contracted corporate clients and management members has reached 100% coverage.

354

Subsidiaries implemented manager tenure system



**In terms of releasing innovative vitality**, CISDI and MCC17 won the "Double Hundred Enterprises" award, while CERI, China ENFI, WISDRI, MCC (ACRE), and WSGRI won the "Science and Technology Reform Demonstration Enterprise" award. The completion rate of the reform work ledger for each "Double Hundred Enterprises" and "Science and Technology Reform Demonstration Enterprises" has reached 100% in 2022, among which CERI won the highest "AA" benchmark enterprise in the special evaluation of "Science and Technology Reform Demonstration Enterprise" by SASAC.

100%

Completion rate of the reform work ledger

2

Subsidiaries awarded as "Double Hundred Enterprises"

5

Subsidiaries were awarded as "Science Reform Model Enterprises"

AA

Benchmark Enterprise

CERI was awarded the highest rating in the special evaluation of "Science and Technology Reform Demonstration Enterprise" by SASAC.

### Five special actions to add momentum

To elevate its management to world-class standards and foster high-quality development, MCC has introduced the "Five Special Actions" to reinforce foundational management from five angles: enhancing marketing quality, rectifying auditing practices, mitigating risks in PPP projects, streamlining organizational structure, and improving case management. These measures will guarantee the stability and sustainable growth of the enterprise.

#### > In the special action to improve the quality of marketing

The Company clarified the "seven strictly prohibited" marketing bottom line and the "eight not to solicit" project selection criteria, and proposed a marketing strategy focusing on quality markets, quality customers and quality projects.

#### > In the special action of audit and rectification

The Company took the problems found in the audit and rectification as an entry point, cited one example and led the way, plugged management loopholes, improved management systems and urged rectification and implementation.

#### > On the special action to prevent and resolve the risks of PPP projects

The Company issued the *Work Plan for Special Action to Prevent and Resolve the Risks of PPP Projects*, strengthened the setting up of systems and platforms, promoted project screening and organizing operations, and enhanced post-investment management and closed-loop management.

#### > On the special action of streamlining the organization

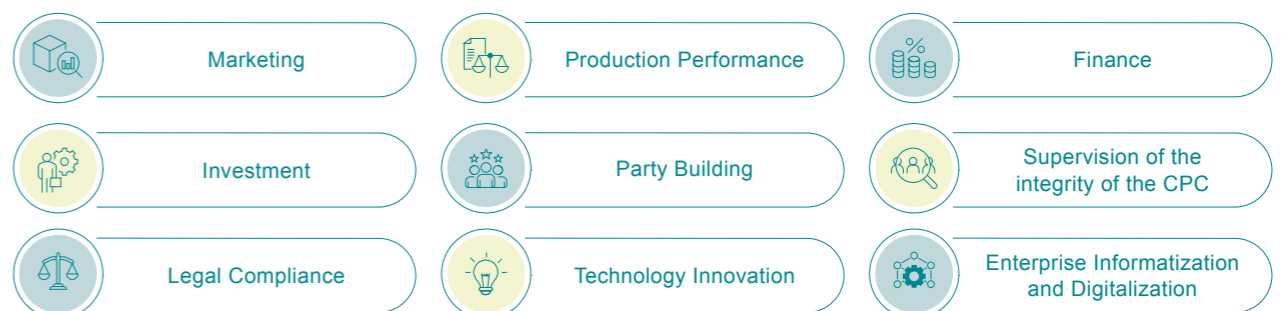
The Company formulated the *Streamlining Special Action Work Plan*, set the work target. Within two years, the streamlining action reduced a total of 452 institutions.

#### > In terms of the special action of "managing the number of cases"

The Company has issued the *2022 Annual Target Book of Case Reduction and Control*, set up a special action working group, formulated an implementation plan and established an assessment system.

### Basic management improvement to strengthen effectiveness

In order to consolidate basic management, improve the quality of enterprise development and build a world-class management system, MCC formulated the *Three-Year Action Plan for Basic Management Improvement*, focusing on the construction of nine major systems, including marketing, production and performance, finance and capital, investment, CPC construction, supervision of the CPC's integrity, legal compliance, science and technology innovation, and enterprise informationization and digitalization, to comprehensively improve basic management capabilities and provide strong support for achieving the goal of to provide strong support to achieve the goal of "one goal, two best and five strengths".



# Solidifying safety management

## Sound safety management system

MCC firmly establishes the concept of "people first and life first", resolutely implements the relevant national laws and regulations on production safety, and continuously improves the internal safety management system of the Company, and revises the *Implementation Rules on Accountability, Rewards and Penalties for Safety and Environmental Protection Accidents* in 2022 to further expand the scope of accountability and increase the strength of accountability for accidents. At the same time, the reward standard will be increased. The Company also issued the *Implementation Rules for Leading Shifts at Construction Sites* and the *Implementation Rules for Double Prevention Management of Safety Risk Grading and Control and Hidden Dangers Investigation and Management*, and compiled the *Safety Production Responsibility List of MCC Group and MCC* to continuously standardize safety production management. 2022 saw the Company award a total of more than RMB 17 million to subsidiaries that did not have any accidents.

The Company established the Safety Production Committee to provide comprehensive guidance to the Company's work on safety production, signed the *Safety and Environmental Protection Target Responsibility Certificate* with 41 subsidiaries, established the target of zero responsible accidents in production safety and work-related fatalities, and fully implemented the main responsibility of enterprise safety production. Continuously strengthen the construction of the safety supervision team, strongly implement the safety director system, issue allowances for safety production positions and subsidies for registered safety engineers, strictly lead inspections and supervise leaders to perform their duties and responsibilities.

## Strengthening safety monitoring and investigation

MCC has strengthened the strategy of promoting safety through science and technology, established an information platform for safety production, created a demonstration project for the application of "smart site", and made active exploration and attempts in promoting the construction of safety monitoring system, using informationization and digitalization as a means to help improve the level of refined safety management.

On the basis of "four don'ts two directs" and system linkage inspection, the Company renovated the inspection mode, gave full play to the advantages of regional resources of subsidiaries, and authorized the "14+2" "package" with the advantage of professional expertise of subsidiaries to carry out comprehensive and in-depth "package" inspection work, strengthen safety control and management in key industries such as highways, hazardous chemical and explosive products, the capital region and during the 20<sup>th</sup> National Congress of the CPC, with remarkable management results.

21

National "Construction Work Safety Standardization Construction Sites for Construction Projects"

226

Provincial safe, civilized and standardized construction sites

217

Municipal safe, civilized and standardized construction sites

## Raising awareness of safety production

MCC has created a favorable atmosphere of focusing on safety and valuing safety throughout the entire company by holding video conferences on safety production, organizing safety production evaluation activities, and conducting "Safety Production Month" events. In 2022, the Company published a total of 809 safety essays and organized 9380 emergency drills of various kinds to continuously raise the safety awareness of frontline staff.



MCC held a video conference on production safety in 2022



Special issue of production safety month of MCC

1403500

People participated in safety training (including front-line workers)

11984

Emergency rescue plans improved

9380

Times of emergency rescue drills

47618500

Hours of safety training conducted for employees

RMB 103.57 million

Invested in emergency rescue

275000

Man-times participated in emergency rescue

## Strict quality management

### Improve quality management system

MCC actively promotes comprehensive quality management, strictly complies with relevant laws and regulations, conscientiously implements the Company's *Quality Management Measures, Implementation Rules for Quality Management of Construction Enterprises* and other management systems, conscientiously implements the GB/T 19001 quality management system standard, clarifies the responsibilities of quality management agencies at all levels, quality inspection, quality excellence and other requirements, and improves the level of all-round quality control of all staff and processes.

### Strengthen quality supervision and inspection

MCC takes engineering quality as the starting point and organizes special inspections on the quality of municipal and transportation engineering as well as civil building engineering. Special inspections are carried out for key projects, such as those located in remote areas or major projects. MCC also organizes its subsidiaries to conduct self-inspections on quality for overseas projects. In 2022, a total of 1493 ongoing projects from 30 subsidiaries were covered, aiming to further improve the overall level of project quality. In addition, MCC continues to conduct special inspections on the construction of the quality management system of its subsidiaries' headquarters, implementing quality responsibilities and promoting the improvement of the quality system of its subsidiaries.

**30** Inspected subsidiaries

**1493** Inspections of projects in progress

### Quality honors achieved new heights

During the reporting period, MCC's quality honors were again outstanding. 6 domestic projects won the Luban Prize for Construction Projects (including those participating in construction), 23 projects won the National Quality Engineering Project Awards (including those participating in construction), of which 3 won the National Quality Engineering Project Gold Award, and the QC project of MCC22 won the Gold Award of the ICQCC, demonstrating the Company's quality philosophy of pursuing excellence and craftsmanship of excellence.



MCC won the Gold Award of the International Sudomo Quality Medal issued by ICQCC

MCC has always adhered to the "quality of excellence", vigorously promoted the spirit of craftsmanship, encouraged project sites to actively carry out QC group activities, and made every effort to promote new technologies and practices in construction management, which enhanced the level of quality management and scientific and technological innovation, while also stimulating the majority of workers to participate in project management and construction technology to promote the improvement of project quality. The QC Group of Baotou Campus South Road, MCC22, which belongs to the Company, won the Gold Award of the International Sudomo Quality Medal issued by ICQCC for *Development of a buried construction wastewater recycling and sedimentation device*, demonstrating the quality concept of excellence and the craftsmanship spirit of excellence of MCC on the international stage.



The Gold Award of the International Sudomo Quality Medal issued by ICQCC

## Promoting customer management

### Customer development strategy

Customers are the basis for the survival and development of an enterprise, and winning customers is the source of power for sustainable development. MCC continuously optimizes the investment and financing to drive the EPC (Engineering, Procurement and Construction) mode, utilizes new business models to facilitate the exploration of new fields, and builds platforms to integrate advantages and support the undertaking of large projects. In 2022, the Company issued the *Management Measures for Domestic Major Customers*, established a customer service management committee and released a list of major customers to systematically establish a customer management system, establish a customer-centric value orientation and effectively improve customer satisfaction and loyalty.

In 2022, the Company took the initiative to directly communicate with major clients, and established cooperation with government departments in provinces and cities such as Shanghai, Hebei, Shandong, Fujian, and Guangzhou, reaching multiple cooperation agreements. The Company successively won bids for several socially influential projects, including the ecological and environmental oriented development (EOD) project of the Yangtze River Huangshi section, the Zhigu Science and Technology Innovation Park project in Jinghe New City, and the construction projects of the Northern Palace Museum and the National Cancer Center.

In 2022

**> 5 billion RMB**

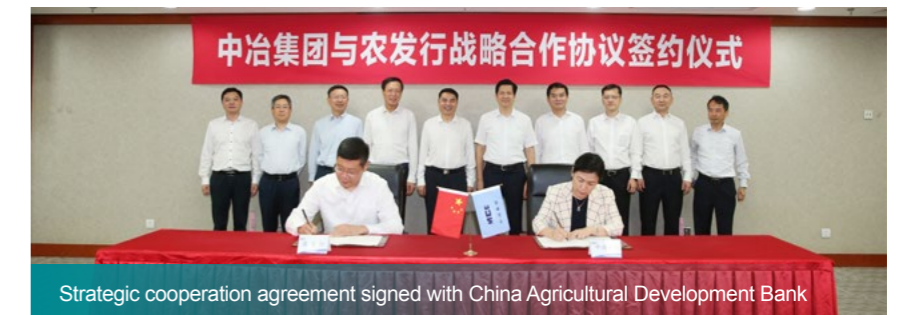
19 projects

**> 3 billion RMB**

29 projects

**> 1 billion RMB**

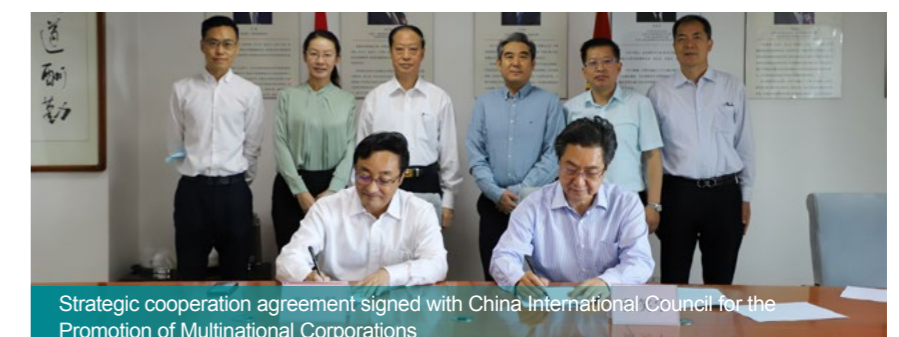
207 projects



Strategic cooperation agreement signed with China Agricultural Development Bank



Strategic cooperation framework agreement signed with China Anneng Group



Strategic cooperation agreement signed with China International Council for the Promotion of Multinational Corporations

## Protecting the rights and interests of customers

MCC adheres to the service spirit of "customer first, quality-based", with the ultimate goal of customer satisfaction, and is committed to creating comprehensive solutions that meet customer needs. In 2022, MCC received many appreciation letters from customers such as the SASAC, Shanghai Municipal Housing and Construction Commission, Hebei Xiong'an New Area Management Committee, Tangshan City Housing and Urban-Rural Development Bureau, and Beijing Olympic Winter Games and Paralympic Games Yanqing Region Operation and Protection Command. The appreciation of many customers shows the Company's fruitful achievements in serving customers wholeheartedly and promoting national strategies together.



Letter of appreciation from the Organizing Committee of the Beijing Olympic Winter Games and Paralympic Games

Letter of appreciation from the Planning and Construction Department of the Beijing Winter Olympic Committee

Letter of appreciation from the Xiong'an New Area Management Committee, Hebei



7 steel companies thanked MCC for shaping a new image for the industry



21 clients thanked MCC for building quality projects to showcase the project image

In response to the complaints from project-related parties, MCC communicated with the relevant parties and the subsidiaries involved in the complaints in a timely manner to understand the actual situation of the matters and supervise the subsidiaries to resolve them properly. 2022, closed-loop management work of registering all the complaint matters and public opinion clues, sourcing and verifying, following up and supervising, and reporting in writing has been carried out to respond to the demands of the relevant parties in a timely manner and safeguard the legitimate rights and interests of customers.

**100%**  
Compliant handling closure rate

## Optimizing supply chain management

### Procurement management

MCC strictly complied with relevant laws and regulations, formulated nine procurement systems in line with the actual situation of the enterprise, and guided and promoted its subsidiaries to improve their procurement management systems and operation procedures, so as to lay the foundation for improving procurement operation capacity and consolidating the quality level of products and services. We also organized various procurement supervision and inspection activities and urged subsidiaries to implement rectification work. In 2022, the Company completed a total of 40 procurement projects at the headquarters level, saving RMB 22.75 million in tender procurement and achieving a saving rate of 21.12% in tender procurement.

9

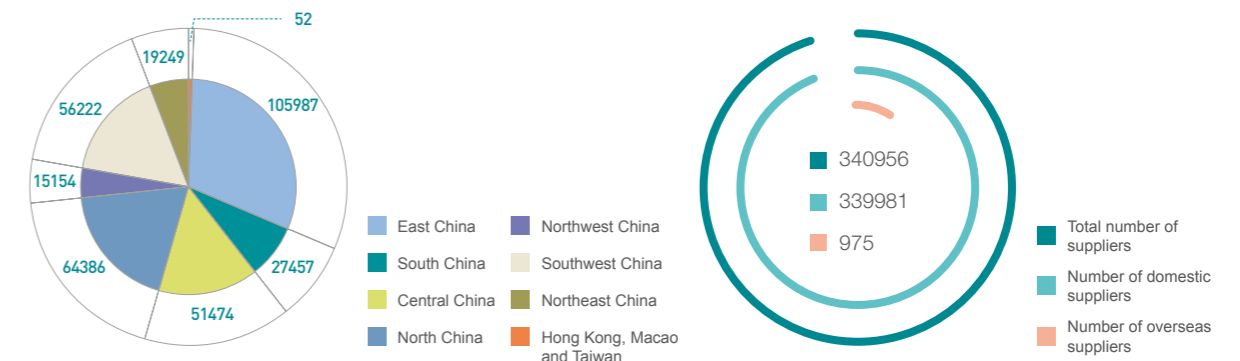
Procurement policies

- Procurement Management Regulations of MCC
- Centralized Procurement Management Measures of MCC Group and MCC
- Measures for the Management of Procurement Methods of MCC Group and MCC
- Measures for the Management of Suppliers of MCC Group and MCC
- Management Measures for Annual Evaluation of Procurement Management Performance of Heads of Subsidiaries of MCC Group and MCC
- Measures for Supervision and Management of Procurement of MCC Group and MCC
- Measures for the Management of Evaluation Experts and Evaluation Expert Pool of MCC Group and MCC
- Measures on Procurement Quality Management of MCC Group and MCC
- Headquarter Implementation Rules for Procurement Business of MCC Group and MCC

### Supplier management

MCC has formulated the *Measures for the Management of Suppliers of MCC Group and MCC*, which clearly stipulates the management of suppliers in the whole life cycle from the institutional level. Suppliers who are detrimental to national or social public interests, or suppliers with serious product quality problems or major safety and environmental protection problems will be denied access; suppliers who seriously default on employee wages or supplier payments will be listed on the "blacklist". In 2022, 530 suppliers were listed on the "blacklist".

Through the procurement platform and monitoring platform, the Company realizes the information management and digital monitoring of supplier sourcing, access, use, evaluation and withdrawal, and realizes the whole life cycle of supplier management from the management carrier and technical means.





# ECOLOGICAL ENVIRONMENTAL PROTECTION TO ENHANCE SUSTAINABLE DEVELOPMENT

MCC is committed to deeply studying and implementing the ecological civilization thoughts of General Secretary Xi Jinping. We earnestly practice the development concept of "Lucid waters and lush mountains are invaluable assets", and regard promoting ecological civilization construction as our political responsibility and historical mission. Our approach is centered around the goal of high-tech and high-quality innovative development, and we integrate green, circular, and low-carbon development into various fields such as metallurgical construction, basic construction, and emerging industries. By strictly managing the environment, we strive to build a modern society where human beings and nature coexist harmoniously.



## Strict environmental management

### Ensure environmental accountability

MCC strictly abides by *Soil Pollution Prevention and Control Law of the People's Republic of China*, *Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste*, *Water Pollution Prevention and Control Law of the People's Republic of China*, *Atmospheric Pollution Prevention and Control Law of the People's Republic of China*, and has obtained ISO 14001 environmental management system certification. To clarify and consolidate the management responsibilities of environmental protection at all levels, MCC has formulated following one management measures, four detailed rules and a plan, and made detailed requirements and regulations on environmental protection management, implementation of responsibility system, environmental protection report, accident accountability, environmental protection inspection and comprehensive emergency plans for environmental incidents. To ensure the smooth completion of various environmental protection tasks, the Company has signed annual safety and environmental protection target responsibility agreements with 40 subsidiaries, strengthening the implementation of the main responsibilities for ecological and environmental protection and significantly increasing the assessment efforts on ecological and environmental protection of the subsidiaries.

### Strengthen environmental monitoring

MCC guides its subsidiaries to carry out comprehensive ecological and environmental risk screening and control, and identify risk sources. They revise the environmental protection information directory for production enterprises, establish a list of risk hazards, strengthen control of risk sources, and develop tailored pollution prevention and control implementation plans. We continuously improve the construction of the environmental protection module of the big data platform to enhance regulatory efficiency. MCC strengthens monitoring of environmental public opinion and supervises corrective actions to be taken.

### Enhance environmental awareness

Every quarter, MCC organizes special ecological and environmental training, covering all levels of subsidiaries and project departments. Through training, they extend environmental management to the last mile of project management and enhance ecological and environmental awareness at all levels. We also organize the Energy Conservation Week and Low-carbon Day activities in 2022, implementing Xi Jinping's ecological civilization concept and firmly establishing the idea of green development. In 2022, MCC organized a total of four ecological and environmental training sessions at the group level, with more than 7000 participants.



MCC organizes ecological and environmental training

## Green and low-carbon construction

MCC is committed to carrying out the major strategic deployment of the 20<sup>th</sup> National Congress of the CPC, which emphasizes "promoting green development and harmonious coexistence between human beings and nature". As part of this effort, we are actively promoting green and low-carbon development in the engineering construction industry. To achieve this goal, we are focused on improving the level of green design of projects, paying close attention to low-carbon emissions in the construction process, and promoting the use of green building materials. By doing so, we aim to effectively enhance the promotion of green and low-carbon consciousness, and strengthen our determination to develop in an environmentally sustainable manner.

### Green design

MCC is dedicated to implementing national policies and regulations on green and low-carbon development in our engineering design. We strive to obey and serve the national eco-environmental protection pattern and strategy, integrating green and low-carbon planning and design concepts, as well as intelligent analysis and control in all aspects of our work. Through our efforts, we aim to fully realize our low-carbon mission of construction projects.



#### Whole life cycle low planning for carbon reduction and energy efficiency

The zero carbon hut in Jinyun Mountain, Beibei, Chongqing, strictly follows the principles of "zero carbon, perceivable and displayable, zero energy consumption, zero waste water and zero waste" in the design process. The eight systems of "building energy consumption, building waste water, building waste and renewable energy, energy saving, water recycling and material recycling" have been developed to create the first truly "zero carbon building" in Chongqing.



## Green building materials

Focusing on the technology and application of green building materials, MCC firmly holds the "green gate" of building materials, making steel structures, photovoltaic systems, thermal insulation wall panels and buildings interdependent and integrated, effectively reducing building energy consumption and promoting deep carbon and energy reduction in buildings.



Won the first Certificate for China Green Building Material Product Certification in the mixed concrete industry

### Steel structures to realize efficient carbon reduction

MCC's Second Phase of the Cargo Terminal Project at the Sanya Phoenix International Airport adopts a light steel structure, replacing the traditional steel usage by 1800 tons. The combination of wall-frame steel columns, insulation cotton, and gypsum board used in the composite wall replaces the solid clay bricks used on the construction site, reducing the use of 50 tons of concrete and a total reduction of about 303 tons of carbon emissions.

## Green construction

MCC actively practices green construction, continuously strengthening the management of various elements such as people, machinery, materials, and equipment. Through methods such as modular construction, the use of energy-saving equipment, and the combination of construction and operation, we effectively achieve energy conservation and emission reduction, and increase carbon efficiency. In 2022, 40 MCC projects received the Green Construction Level Evaluation from China Association of Construction Enterprise Management.

### Prefabricated buildings to speed up low-carbon construction

The prefabricated steel-concrete structure system used in the Zhongyang New City residential project by MCC can save 80% water, 70% energy, 20% materials, and 20% land, and reduce CO<sub>2</sub> emissions by more than 35%. The construction process does not require templates or scaffolding, and the reduced wood consumption is equivalent to regenerating 9000 hectares of forests. This project has been recognized as a national AA-level prefabricated building demonstration project.



## Develop clean energy

Energy is the "main battlefield" for achieving the goal of carbon peaking and carbon neutrality. MCC is actively practicing the national "Dual Carbon" strategy, rapidly investing in renewable energy substitution, vigorously developing new materials and expanding new businesses. We are committed to making positive contributions to promoting China's clean and low-carbon energy transition.

### Research and develop new materials for clean energy

MCC is accelerating the development and industrialization of new energy materials by increasing investment in key technology research and development in this field. We are also working to improve our core supply capabilities for key materials, which will help us promote the national "Dual Carbon" goals through low-carbon and green innovation in new materials.

### Breaking the technical barriers of polysilicon to help the development of new energy industry

MCC's SINOSICO possesses the first domestically developed and independently-owned intellectual property rights for a polycrystalline silicon production line. This has resulted in a production capacity of tens of thousands of tons of photovoltaic polycrystalline silicon and silicon wafers. After years of intensive R&D, SINOSICO has successfully overcome the key technologies and testing analysis methods for producing solar-grade polycrystalline silicon, high-purity polycrystalline silicon for high-resistivity regions of integrated circuits, silicon-based electronic gases, metal precursor materials, advanced functional materials, and new energy battery materials. The resulting achievements, such as the chip epitaxy using trichlorosilane and the production technology of high-purity silicon tetrachloride, have been assessed as reaching international advanced levels. SINOSICO has also developed an original technology system centered on three sectors: polycrystalline silicon, silicon-based electronic specialty gases, and silicon-based functional materials. As a result, SINOSICO has created a production line for electronic-grade polycrystalline silicon with an annual capacity of 1000 tons and a production line for silicon-based electronic gases with an annual capacity of 3100 tons. This has broken the foreign technical monopoly on related products and has effectively promoted the development of China's new energy industry.



Polysilicon technology development



## Expand new business in clean energy

MCC is actively expanding its new energy business with clean energy, especially photovoltaic and wind energy, to replace high-carbon fossil energy and promote the low-carbon and green transformation of traditional energy.



### 200 MW photovoltaic power generation project of Lingshou County Yu'ou Xinmeng New Energy Technology Co. Ltd.

The 200 MW photovoltaic power generation project is located in the northwestern part of Lingshou County, Shijiazhuang City, Hebei Province. Upon completion, the project would be able to achieve an average annual power generation capacity of approximately 261425100 kWh, contributing to the economic development and environmental improvement of the Shijiazhuang area.



### EPC turnkey project for the Nayong Caioling North wind farm in Guizhou

The total installed capacity of the EPC turnkey wind farm project in Nayong, Guizhou is 81 MW. After completion, the project can provide clean energy of 162698 MWh, which is equivalent to an annual saving of approximately 51100 tons of standard coal, with significant energy saving and emission reduction benefits and good economic and social benefits.



## Improve the ecological environment

With its strong scientific research capabilities and extensive engineering experience, MCC has developed a series of leading core technologies in the fields of sewage treatment, soil remediation, and solid waste treatment. These technologies have been successfully applied to numerous major engineering projects, providing a solid technical foundation for the country's efforts to build a "beautiful home" and create "lucid waters and lush mountains".

### Water environment management

In terms of water environment management, MCC ranks among the industry leaders in municipal water supply and drainage, water reuse, industrial wastewater treatment, water environment management of lakes and urban rivers, urban direct drinking water, etc. The Company has formed a large number of core technologies and more than one hundred authorized patents. A number of scientific and technological achievements in wastewater treatment have reached international advanced level. And the Company is the "National Encouragement of Development of Major Environmental Protection Technology and Equipment" relying unit, and has a number of national and industry technology R&D platforms.

Our subsidiary, MCC Eco-Environmental Protection Group Co.,Ltd. has set up professional platforms such as technology research institute, engineering laboratories and product development bases, and intelligent operation and control center. They compiled and participated in more than ten national, industry and local standards, and independently developed a series of core products such as push-flow and aeration equipment and non-stop overhaul technology products and pharmaceutical bacteriological agents. At present, there are 28 water service companies, 35 water plants and 1 sludge treatment center in operation. The total operating volume of water is 2.214 million tons/day, of which 1.774 million tons/day is the design scale of wastewater treatment, 375000 tons/day is water supply, 65000 tons/day is medium water and 120 tons /day is sludge disposal.

28

Water companies

35

Water plants



### Chuzhou Qingliu waste water treatment plant project

Chuzhou Qingliu Waste Water Treatment Plant and Qingliu wetland treatment have a treatment volume of 150000 tons/day, and water collection area of 31.9 km<sup>2</sup>, serving population of about 456000, covering an area of 74.6 hectares. The tailwater of the wastewater plant flows to the artificial wetland for bio-enhancement and ecological activation treatment, and the effluent water quality reaches the surface water standard IV. It is used for ecological water replenishment and road sprinkling, landscaping, vehicle washing of the Longpan River and Qingliu River. This business enhances the efficiency of water resources utilization and also makes a positive contribution to the improvement of water quality and biodiversity of the Longbian River and Qingliu River.



## Carrying out soil remediation

In terms of soil remediation, MCC continues to improve and enrich its soil remediation technology system, develop independent brand soil remediation equipment and agents, form a beneficial micro-ecological cycle in the soil and establish biodiversity, remove soil pollution, strengthen soil remediation and redevelopment, increase soil carbon storage and absorption capacity, and maximize the carbon sequestration efficiency of the ecosystem. At the same time, the soil improvement technology and soil remediation technology accumulated over the years are applied to mine restoration projects, carrying out reclamation and re-greening work on mining land, safeguarding the "lucid waters and lush mountains" of the motherland.



### Development of soil remediation chemicals for the environmentally sound treatment of chromium-containing construction debris

The risk control and remediation project for the contaminated site of Hebei Chromium Salt Chemical Industry by MCC used a self-developed conditioning and activation-reduction-stabilization agent system to harmlessly treat chromium-containing construction waste. This effectively solved the difficult problems of high-concentration hexavalent chromium pollution, high cost, and environmental risks in soil remediation. After the completion of the remediation, the site was sealed and greened, resulting in an accumulated carbon sink of 1826 tons, which is equivalent to a reduction of carbon emissions of approximately 7000 tons.

**1826** tons  
Carbon sink increased

**7000** tons  
Carbon emissions reduced



### Soil improvement & revegetation technology to restore mine ecology

MCC has adopted its self-developed core technology of "in-situ soil improvement + vegetation restoration" and industry-proven net-hanging spraying technology to carry out pollution prevention and control, soil substrate improvement, and ecological vegetation restoration work on mining-damaged land such as the comprehensive treatment project (Phase I) of heavy metals in the abandoned rare earth mining area in Datian Township, Ganzhou County and the ecological restoration project of historical legacy mines in the 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> phases of the Dabaoshan Xingshan area. The cumulative ecological management area is approximately 730 hectares. According to the calculation of reducing carbon dioxide emissions by 15 tons per hectare, a total of 10950 tons of carbon emissions can be reduced.



Comparison of heavy metal comprehensive management before and after the abandoned rare earth mine in Datian Township, Gan County.

## Deep ploughing for solid waste disposal

In the field of solid waste treatment, MCC has a deep technical background and strong technical R&D strength, with a number of invention patents and utility model patents, and its subsidiary China ENFI is the only counterpart of ISO/TC300 in China, organizing and leading Chinese industries and research institutions to participate in the formulation of international standards in the field of solid waste.

With its five-in-one service capability of investment, consultation, design, equipment completion and construction and operation of waste incineration power generation projects, MCC's waste incineration projects are located in more than 30 provinces and cities, and its performance ranks among the top in the domestic design industry, helping to open up a new situation in the construction of ecological civilization in the new era.



### Ganzhou City Nankang domestic waste incineration and power generation project

The first phase of the incineration power generation project in Nankang, Ganzhou City, with an investment of about RMB 703 million, will be able to process 365000 tons of primary domestic waste and generate 170 million kWh of electricity per year, which can meet the electricity demand of about 70000 households. The slag generated after incineration will be treated comprehensively and the fly ash will be solidified and stabilized before landfill, which can effectively realize the harmless, reduced and resourceful treatment of domestic waste.

**365000** tons  
Primary household waste treated

**170** million kWh  
Electricity generated

**70000** households  
Electricity needs met





# 5

## EMPLOYEE GROWTH TO CONSOLIDATE TEAM COHESION

MCC adheres to the concept of "development from the employees, for the employees, shared with the employees", views improving employee happiness as its own responsibility, and is committed to creating a healthy and safe working environment, creating a fair and just atmosphere, and nourishing talents all-round. We aim at building a development platform that promotes the common growth of employees and the Company, and helps employees achieve their own value.



## Protecting labor rights and interests

MCC protects the legal rights and interests of employees in accordance with the law, provides comprehensive rights and interests protection services for employees, pursues equal and non-discriminatory labor and employment policies, opposes forced labor, eliminates child labor, and strictly abides by labor laws and regulations, including the *Labor Law of the People's Republic of China*, the *Labor Contract Law of the People's Republic of China*, the *Employment Promotion Law of the People's Republic of China*, the *Law of the People's Republic of China on the Protection of Women's Rights and Interests*, the *Law of the People's Republic of China on the Protection of Disabled Persons*, the *Regulations on Paid Annual Vacations for Employees*, etc.

MCC pays social insurance and housing provident fund for its employees in full and in a timely manner, adhering to the principle of "paying according to post and paying according to performance", and constantly improving a fair and standardized salary system. To further optimize the Company's salary plan, the Company explored a more flexible and efficient total salary management model and income distribution model, carried out a pilot project of the total salary filing system, promoted the development of the Company's salary distribution work in a scientific, reasonable and orderly direction, and protected the legitimate rights and interests of employees.

100%

Labor contracting rate

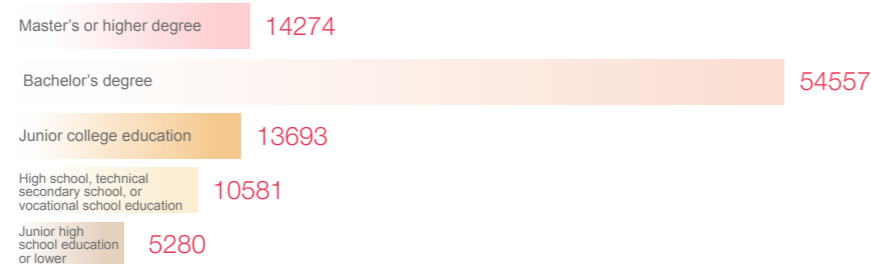
98385

The total number of on-the-job employees

### Proportion of on-the-job employees by age



### Proportion of the on-the-job employees by educational background



### Proportion of on-the-job employees by gender



## Empowering employee development

MCC attaches great importance to the development and training of employees, comprehensively promotes the construction of the "four modernizations" of management and employees, and builds a position system and institutional framework to help employees develop with high quality.

### Expand recruitment channels

MCC has taken on the leading and exemplary role of state-owned enterprises and actively explored channels for employee recruitment. In 2022, under the guidance of General Secretary Xi Jinping's important instructions on the employment of college graduates, the Company thoroughly implemented the policy directions of the CPC Central Committee and the State Council on stabilizing and ensuring employment, and actively participated in the recruitment plans of Ministry of Human Resources and Social Security and the Ministry of Education for over one million employment trainee positions, and independently carried out the recruitment of summer interns to help young people such as college graduates enhance their practical experience in the job and enhance their employment competitiveness. The Company actively explored online ways to carry out "online recruitment" on campus, built a outreaching and negotiation platform for college graduates to maintain normal contact with them, and provide maximum convenience for graduate employment, which is well received by colleges and graduates. During the reporting period, the Company recruited a total of 5540 university graduates.

5540

University graduates recruited

### Smooth career development

MCC revised and improved the management methods for professional title evaluation, issued detailed rules for the professional and technical professional titles of high-skilled talents participating in the engineering series, and expanded the development space for professional and technical personnel and skilled personnel. The Company also formulated MCC's management methods for craftsmen and chief technicians, and improved the training and use of skilled personnel, evaluation, and incentive mechanisms. We have comprehensively promoted the implementation of the four-dimensional basic management system, and build a "four-dimensional" human resources basic management system - the institutional framework of the position system, on the basis of the completion of the position system at the headquarters.

### Carry out vocational training

According to the education and training management working mechanism of "unified leadership, centralized management, hierarchical responsibility, and classified implementation", MCC highlights the key points of training and enriches the training methods. In 2022, the Company held or organized the educational training of the Sixth Plenary Session of the 19<sup>th</sup> CPC Central Committee for management and employees, and timely carried out special lectures and online training on the interpretation of the 20<sup>th</sup> National Congress of the CPC. MCC organized "Compliance Management Strengthening Year" training, industry insights training, promotion training, new employee pre-job training, and other training activities. We also organized employee vocational skills competitions to promote learning through competitions and extensively carried out activities related to improving management capabilities and enriching professional knowledge for management and employees. The Company continuously improved the overall management capacity of employees through various training and practical activities. During the reporting period, We trained a total of 87000 employees, and the number of training man-times reached more than 800000.

## Caring for employees

MCC cares about the physical and mental health of all employees, actively responds to the demands of employees at all levels, and actively solves various problems in work and life for employees. We practice the philosophy of "doing practical things and sending warmth", consider their basic interests and act as employees' solid backing.

### Guarantee the occupational health

MCC strictly implements the relevant provisions of the *Law on the Prevention and Control of Occupational Diseases*, and fulfills the main responsibility of enterprises in the prevention and control of occupational diseases in accordance with the law. In 2022, the Company built an occupational health and safety management system and obtained an occupational health and safety management system certification. We also carried out the *Occupational Disease Prevention and Control Law* publicity week activities to vigorously promote occupational health knowledge and held special lectures on employee health management. During the pandemics, we provided psychological consultation services and used online social channels to publicize the guidelines for pandemic prevention and control, and guided employees on psychological protection. In terms of hazards prevention, we promoted the progress of special supervision activities for occupational hazards in subsidiaries, and continuously eliminated hidden dangers of occupational hazards. During the reporting period, no new occupational cases or suspected cases were found, and no occupational health acute poisoning incident occurred.



### Build a strong pandemic protection barrier for employees

In order to protect the health of employees, MCC formulated five systems including the *MCC Group and MCC's Work Plan for the Prevention and Control of COVID-19*, referred to as "Three Cases and Two Volumes", and revised them in a timely manner according to the development and changes of the pandemic to ensure the effective operation of the system. We also carried out emergency drills for pandemic prevention and control to ensure us to overcome the diseases.



Distribute pandemic prevention materials to employees

MCC resolutely implemented various measures for pandemic prevention and control to ensure that there are no dead ends in the building. Every person must be tested and inspected, and every object must be inspected and destroyed, so as to create a safe and healthy working environment for employees. We adhere to the organic combination of normalized precise prevention and control and local emergency response, transforming from comprehensive emergency strict control to scientific and precise prevention and control, and practice the prevention and control process of "differentiation, standard, mechanism and efficiency" with positive results.

### Care for the well-being of employees

MCC always puts the happiness of employees in the first place, and sends care and greetings to employees who stick to the front line, employees who have worked in different places for a long time, and employees who have difficulties in family life during the festival. We carry out corporate culture year theme activities to provide support for employees whose home are thousand miles away. We also promoted the employee care actions such as providing employees a cup of hot tea in the cold winter and a cool refreshment in the hot summer, and distributing medicine boxes to provide employees with basic first-aid support.



#### Celebrating the cultural year

During the Spring Festival, in order to let the frontline employees of the project feel the warmth of the MCC family, MCC held six themed activities, including "Family Culture" "Cultural Year Gifts" "Experience Spring Festival Culture" "Guessing Lantern Riddles to Celebrate Reunions" "Welcoming the Winter Olympics Sports and Entertainment Competition" and "Super Exciting 'Flash Mob' Happy Delivery" in line with the corporate core value concept of "Moistening things silently" bringing together the vast number of cadres and employees. More than 30 subsidiaries held hundreds of special activities online and offline.



"Cultural Year Gifts" activity



#### Warm the frontline builders with health checks on the construction site

MCC is concerned about the health of frontline employees, and organizes physical examination centers to carry out health checks for frontline builders. The medical staff patiently answered the questions raised by the employees, popularized knowledge about occupational disease prevention and healthy living for them, and delivered high-quality medical services to the employees.



Medical staff conduct medical examinations for employees

MCC adheres to people-oriented, organizes a variety of collective activities, enriches the spare time life of employees, promotes the all-round development of employees, and continuously enhances the cohesion of all MCC people. In 2022, the Company held activities such as a chorus of new and old employees, collective birthday parties for employees, group weddings for young employees, themed art performances, keynote speech contests, table tennis competitions, fun games, and offline reading clubs to vigorously promote the "home" culture. Share colorful life with employees.



Group wedding for young employees



Staff birthday party



Table tennis competition



Fun sports games



Dragon Boat Festival "Create a Better Together - Painting a Long Scroll" activity



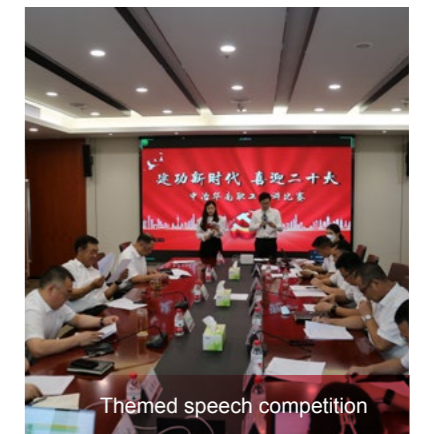
Themed cultural performances



New and old staff chorus



Offline book club activities

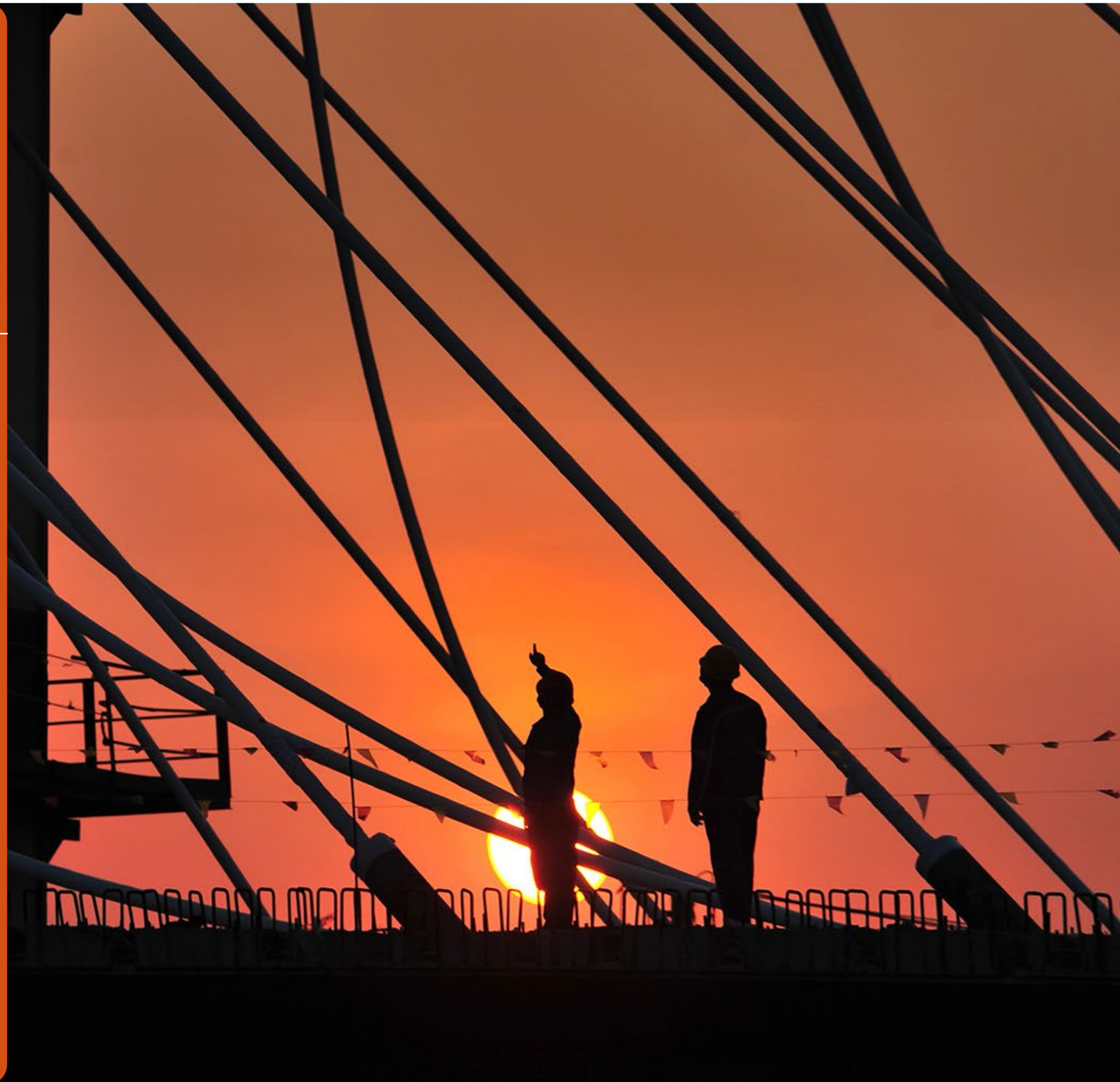


Themed speech competition



## CONTRIBUTING TO SOCIETY TO EXPAND THE POWER OF KINDNESS

MCC always keeps in mind the safety and well-being of the people, remains true to its original aspiration, and strives to contribute to rural revitalization. With a united front, we have rushed to assist in pandemic prevention and disaster relief in many places. Together with the people, we work to build a harmonious community and persistently provide services to society, demonstrating our determination to give back to society through practical actions.



## Rural revitalization

In order to resolutely implement the strategic deployment of the CPC Central Committee, MCC has strengthened fixed-point assistance in three aspects: consumption, industry and engineering, developed rural characteristic industries, promoted the upgrading of rural industries, tried every means to increase farmers' income. We are comprehensively promoting rural revitalization and continuously enhancing the endogenous development momentum of poverty-stricken areas and populations.

### Consumption drives farmers to increase revenue

In 2022, MCC extensively mobilized various levels of trade unions to actively participate in consumer assistance, providing a total of RMB 7.98 million in aid funds to designated poverty-stricken counties such as Dejiang and Qilian, and counterpart support schools. MCC also directly purchased agricultural products worth over RMB 16.25 million from seven designated poverty-stricken counties of China Minmetals, helping to sell over RMB 280000 worth of agricultural products. In addition, we directly purchased products totaling over RMB 3.76 million from other formerly state-level poverty-stricken counties, driving local economic development. The total investment of MCC's consumer assistance in 2022 was RMB 28.28 million.

Subsidiaries of MCC have adopted various forms of consumption assistance in response to the country's call for rural revitalization. MCC19 has repeatedly helped the sales of agricultural products in remote areas through the method of "purchasing consignment sales". CMCC has helped counties such as Yiliang County, Yunnan Province, Yanhe County, Guizhou Province, Tongzi County, Guizhou Province, Huayuan County, Hunan Province, and Chengkou County, Chongqing to carry out consumption assistance in other regions, purchase natural drinking water as office water, and purchase agricultural products such as peanuts and bamboo shoots in poverty-stricken areas to use in staff canteens to improve staff life.

RMB **28.28** million  
Total investment in consumption assistance



### Industry facilities the rural revitalization

MCC continues to explore new modes of industrial assistance in poverty-stricken areas, and creates systemic solutions for rural revitalization such as overall planning for rural revitalization, industrial introduction and implementation, and order-driven agriculture to consolidate the achievements in poverty alleviation.

In 2022, MCC used the rural revitalization system solution to carry out the overall rural revitalization plan for Heishui Town in Yanhe County, Tongren City, Guizhou Province, including 16 villages in Heishui Town, to create a "hometown of fruits and vegetables, ecological Heishui", and built beautifully ecological and livable countryside.

#### Leading the establishment of the Rural Revitalization Industry Alliance to boost local investment attraction

CISDI links the entire chain of upstream and downstream industries in rural areas, takes the lead in establishing the Rural Revitalization Industry Alliance, and integrates the resources of more than 500 intelligence, investment, and operation companies in agriculture, culture, tourism, health care, and digital villages to form Industry development synergy. In 2022, the company was invited to participate in the promotion of investment promotion and major project signing activities for rural revitalization in Tongnan District, Chongqing, and signed a cooperation agreement with dozens of agricultural, cultural, tourism and conglomerate companies from the Rural Revitalization Industry Alliance to help import high-quality resources for rural projects and continue to promote rural economic construction.

### Construction project facilitates the integrated development of urban and rural areas

MCC is committed to building the foundation of people's livelihood, meeting the needs of the community, and opening up inter-provincial rural revitalization. By constructing a "bridge of hearts" for mountainous areas, creating livable and business-friendly communities, and improving rural living environments, we are driving local employment and continuously promoting the prosperity, beauty, and vitality of rural areas.

China ENFI built the cableway for Gulu Village in Hanyuan, Sichuan, which made it only take 3 minutes for Gulu Village to cross the Dadu River Canyon, which greatly shortened the distance between Gulu Village and the outside world. With the ability of ultra-small radius and large-slope ramps, the former national-level poverty-stricken counties were included in the "friend circle" of South China's economic development highlands. The new rural Houzuo Zhuang community project in Heping Town, Qingjiangpu District, Huaian City, constructed by MCC HT was successfully selected into the "7<sup>th</sup> Batch List of Characteristic Pastoral Villages in Jiangsu Province" and won the provincial honor.



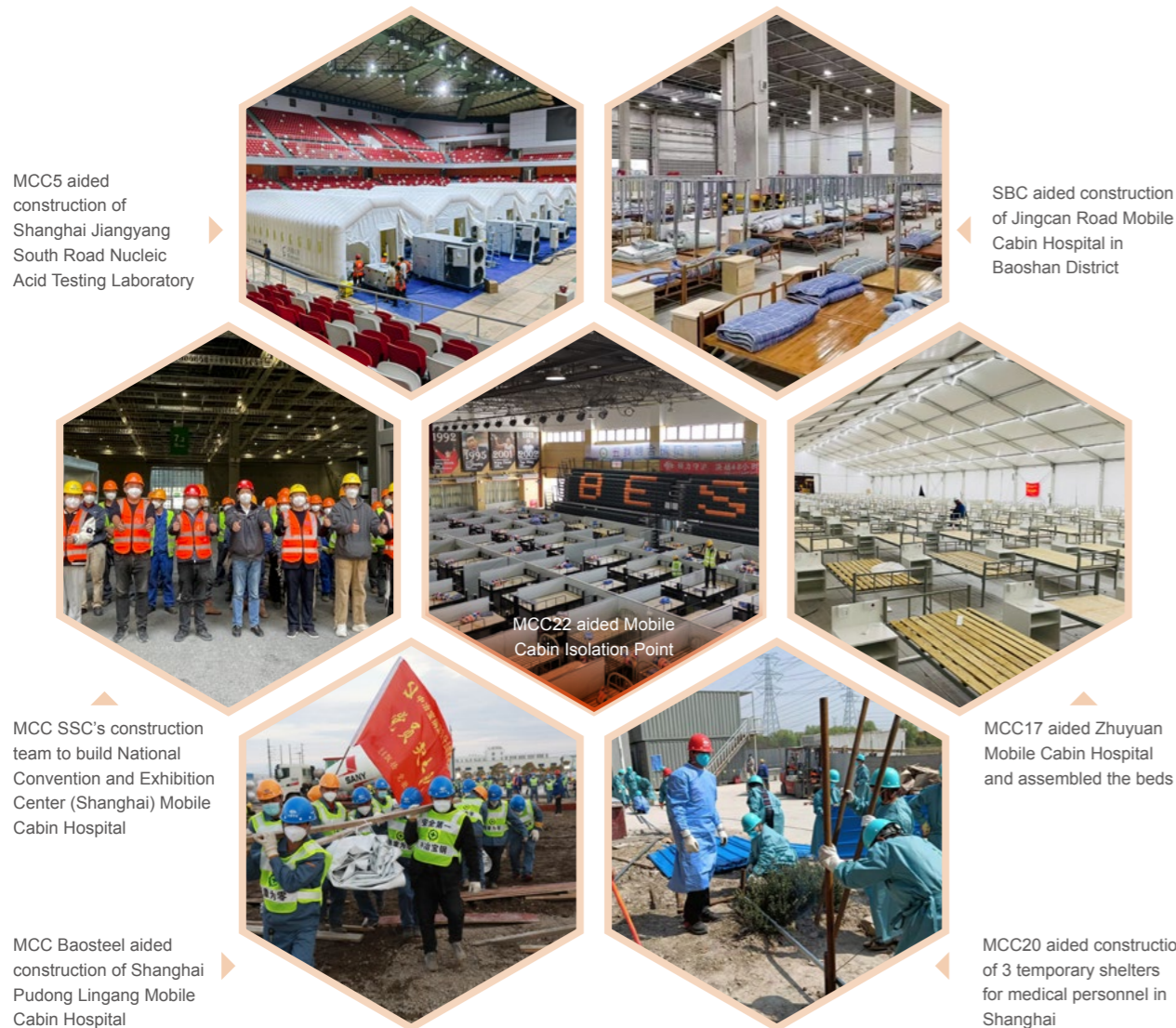


## Disaster relief and pandemic prevention

MCC has leveraged its professional strengths to carry out pandemic prevention and control, emergency rescue, and disaster relief work. We have responded calmly and resolutely to unexpected situations, sparing no effort to ensure the safety of people's lives and property. We have contributed to social stability and demonstrated our sense of responsibility and commitment.

### Pandemic control with all efforts

In 2022, during the critical period of Shanghai's pandemic prevention and control, MCC5, MCC17, MCC 20, MCC22, MCC Baosteel, MCC SSC, SBC and many other subsidiaries were working in pandemic prevention and control while organized employees to support Shanghai, and actively undertook multiple tasks such as pandemic facilities construction, voluntary services, and medical security. We embraced new responsibilities and wrote a new chapter in our progress.



### Unite as one for earthquake relief

In 2022, earthquakes occurred in Sichuan Province, China, and Morobe Province, Papua New Guinea. The rescue and resettlement of the trapped people in the epicenter affected the hearts of the people across the country. MCC immediately launched the emergency plan, fully cooperated with the government to complete the disaster relief tasks, quickly organized rescue forces to rush to the disaster site, cleared the rescue channels, rescued the trapped people, and did a good job in the resettlement of the affected people, helping the people to quickly recover their production and life after the disaster.



#### Full support for the earthquake in Luding County, Ganzi, Sichuan

In September 2022, a 6.8-magnitude earthquake occurred in Luding County, Ganzi Prefecture, Sichuan. MCC actively participated in the rescue work at the site of collapsed houses in Moxi Town, the epicenter, and organized investigations of on-site workers and construction projects. A total of 40 MCC builders, including on-site management personnel and workers, quickly assembled and rushed to the surrounding areas to carry out rescue. The rescue team was divided into two groups. 10 people prepared materials and cooperated with the government to build emergency refuge facilities, and 30 people carried 2 excavators to participate in the rescue work of collapsed buildings around the project, rescued 4 people in total. They worked with rescue forces from all over the country to carry out work such as clearing rescue channels, checking houses affected by disasters, and evacuating and resettling local people.



#### Overcoming difficulties in Papua New Guinea through earthquake relief

In September 2022, a magnitude 7.6 earthquake occurred in Papua New Guinea. MCC immediately activated the emergency response plan for the earthquake, rushed to the front line, organized the orderly evacuation of the people, actively investigated, rescued and repaired, and prevented the spread of the disaster. In order to help residents in the disaster-stricken communities return to normal life as soon as possible, the Company went deep into villages and tribes to understand the current situation of the disaster, implemented disaster relief plans, and urgently raised earthquake-resistant materials.

## Race against time for emergency rescue

MCC places a high priority on ensuring the personal well-being and safety of local community residents. In the case of emergencies such as floods, fires, and marine hazards, it responds quickly and effectively by dispatching rescue teams to handle the situation and provide aid in the project area. MCC also extends a helping hand to all parties in danger and assists affected individuals in overcoming difficulties. The ultimate goal is to rebuild a beautiful homeland and make significant contributions to the harmonious and stable development of society.



### Opening up life passages at disaster-stricken sites to help fight floods and rescue

In June 2022, a torrential rain occurred in Rongshui County, Liuzhou City, Guangxi, which completely paralyzed traffic. MCC was involved in disaster relief work in a timely manner, repairing key roads, transporting emergency supplies, transferring the affected people, and confirming resettlement sites. A total of 9 excavators, 10 loaders, and 20 rescue vehicles were invested in the entire rescue process, and about 12 kms of secondary roads and 15 kms of fourth-grade roads were dredged to ensure the smooth development of the rescue work, which was well received by the local government and the masses.



### Rescue and fight fires in Chongqing

In August 2022, a wildfire broke out in Yakou Village, Honghu Town, Changshou District, Chongqing City. After receiving the fire rescue dispatch order, MCC immediately responded to the call of the Changshou District Government and Chongqing Iron and Steel Co., Ltd., coordinated and comprehensively deployed, mobilized resources to the maximum extent, and devoted itself to the fire rescue operation. We organized 150 people to go to the front line of the fire to protect the safety of people's lives and property.



Aided in the mountain fire fighting of Chongqing

## Social welfare and engagement

Public welfare is a part of the social security system and an important supplementary force to improve people's livelihood. In 2022, MCC carried out extensive public welfare activities such as medical assistance, education assistance, difficulty alleviation, and environmental protection, and continue to contribute to the improvement of people's livelihood and well-being.

### Co-development of overseas communities

MCC strongly supports the development of education and medical care in local communities, contributes to the construction of the Belt and Road Initiative, and continuously enhances the sense of identity and happiness of the people in the communities where the projects are located.



### Fully support the construction of overseas communities

NCMCC has directly provided employment opportunities for over 1000 people and indirectly created employment for more than 3000 people in Las Bella, Baluchistan Province, Pakistan. The company has actively supported the construction of local schools by providing essential school supplies such as tables, chairs, stationery, notebooks, and organizing repairs to school buildings. NCMCC has also provided free drinking water for schools and regularly organized project infirmaries to offer free medical consultations to local villagers. The company has further supported the development of local infrastructure by helping local villages repair roads and installing solar street lamps for more than 10 villages to achieve night lighting. NCMCC's domestic procurement of various materials in Pakistan has reached nearly USD 100 million, with most of the materials being purchased locally. This has led to the development of local ground materials, building materials, and other industries, driving economic growth in the region. In 2022, the Consulate General in Karachi expressed their gratitude by sending a letter of thanks, highly praising NCMCC's dedication to the community where the project is located.

Under the guidance of the Belt and Road Initiative, MCCT has innovated foreign investment methods, promoted international production capacity cooperation, and facilitated mutual benefit and shared corporate development achievements. As the company operates the Sendak Copper and Gold Mine in Pakistan for over 20 years, it has actively fulfilled its social responsibilities, strengthened the foundation of China-Pakistan friendly cooperation, and practiced the concept of a community of shared future for mankind. The company has been proactive in education, medical care, people's livelihood, and disaster relief. Through fulfilling social responsibilities, MCCT has spent around USD 20 million, making outstanding contributions to promoting local economic construction, stabilizing border areas, and ensuring and improving people's livelihood.



### Conduct free clinics jointly with foreign aid medical teams

Ramu Nico and the China Aid Papua New Guinea medical team jointly carried out free clinics and health education to guide the public to scientifically prevent diseases. They also distributed more than 600 boxes of medicines and syringes and other medical equipment for free, in order to improve local medical and health conditions, and make outstanding contributions to safeguarding people's lives and health.

## Practice Lei Feng Spirit

MCC grasps the contemporary connotation of Lei Feng spirit, strengthens the guarantee and support of volunteer services, and continuously develops and expands the Lei Feng volunteer service team. The Company combines the spirit of Lei Feng and volunteer work with job performance, as well as "filling gaps and solving problems", fully demonstrating the spiritual outlook of MCC volunteers. We encourages employees to participate in the "Learn from Lei Feng" theme volunteer service activities, carrying out various forms of "Lei Feng actions" such as environmental purification, tree-planting, voluntary blood donation, medical care and health, emergency assistance, etc., highlighting the responsibility and commitment of MCC employees. In 2022, the Company completed a total of 10 external donation activities, with a total investment of approximately RMB 3.265 million, continuously promoting the spirit of dedication.

RMB **3.265** Million  
Total amount of donation



Dragon Boat Festival campus manual class activities



Visiting to the elderly in social welfare homes



Tree planting volunteer service activities



"Protect the river and pick up garbage" activity



Voluntary blood donation

## Outlook for 2023

2023 is the first year to fully implement the spirit of the 20<sup>th</sup> National Congress of the CPC, and it is a critical year for the implementation of the "14<sup>th</sup> Five-Year Plan". In the face of new situations and challenges, MCC will take Xi Jinping's Thought on Socialism with Chinese Characteristics for a New Era as a guide, focus on the new goals, tasks and requirements proposed at the 20<sup>th</sup> National Congress of the CPC, and establish a strong sense of mission to achieve "stronger" development with loyalty and dedication to the original aspiration. We will firmly establish a sense of responsibility to achieve "better" development through practical work, and a sense of urgency to achieve "faster" development through hard work. MCC will seize the opportunity and rise to the occasion, promoting high-quality development of the enterprise through practical actions.

We will benchmark the advanced industry, break through the bottleneck of development, improve the quality of development and shape the development advantage through all-round reform. We will base ourselves on reality and focus on the future, seek development with an open mind, promote reform with entrepreneurial passion, prevent risks with a sense of urgency, and seek improvement with a confident mind. We will persist in focusing on our main responsibilities and main business, and adhere to the strategic positioning of "being the world's first-class national team for metallurgical construction, the main force and pioneer of infrastructure construction, the forerunner and leader of the emerging industries, and insisting on the road of high-tech and high-quality innovation and development in the long term". We will improve the comprehensive strength of the enterprise from the scale of development to the quality of operation. From basic management to system construction, we will comprehensively improve the level of corporate management and governance capabilities. From team building to cultural construction, we will boost the corporate spirit. In terms of ecological and low-carbon development, we will comprehensively promote the green transformation of enterprises. And finally, we will fully assume corporate social responsibilities from public welfare and charity to rural revitalization.

We will work hard and forge ahead, accelerate the realization of the goal of "one goal, two best and five strengths", and make performances that are responsible for the times, history and people on the new journey. We will create more value and greater achievements for stakeholders, and contribute our power to write a new chapter of Chinese-style modernization.



# Key Performance Indicators

## Key Economic Indicators

Key indicators	2022	Unit
Operating revenue	592.669	RMB Billion
Total profits	15.392	RMB Billion
Total value of newly signed contracts	1,343.574	RMB Billion
Total value of newly signed metallurgical engineering contracts	191.995	RMB Billion
Engineering contracting operating revenue	550.441	RMB Billion
Real estate development operating revenue	22.727	RMB Billion
Equipment manufacturing operating revenue	12.319	RMB Billion
Resources development operating revenue	8.866	RMB Billion

## Key Environmental Indicators\*

### Emissions and relevant statistics

Key indicators	2022 emissions	Unit
SO <sub>2</sub>	32,955	Ton
NO <sub>x</sub>	1,572	Ton
Hydrogen Chloride	54	Ton
Dust	28	Ton
Fluoride	329	Kg

\*Data scope: the key environmental indicators of 2022 cover all the subsidiaries of MCC, including the overseas business.

### Greenhouse gas emissions

Key indicators	2022 emissions	Unit	2022 emission intensity	Unit
*Direct (Scope 1) greenhouse gas emissions*	2,703,265	Ton CO <sub>2</sub> e	0.0456	Ton CO <sub>2</sub> e per RMB 10,000 revenue
*Indirect (Scope 2) greenhouse gas emissions*	4,158,567	Ton CO <sub>2</sub> e	0.0702	Ton CO <sub>2</sub> e per RMB 10,000 revenue

\* Direct (Scope 1) greenhouse gas emissions mainly come from the difference between the total carbon dioxide emissions of domestic subsidiaries and indirect (Scope 2) GHG emissions in the monthly report of MCC. The calculation of overseas scope 1 greenhouse gas emissions is based on the 2006 IPCC Guidelines for National Greenhouse Gas Inventories Chapter 2 – Stationary Combustion.

\* Indirect (Scope 2) greenhouse gas emissions cover the purchased electricity and heating power. The calculation of domestic data is based on the emission factors from MEE and NDRC. And the overseas data is calculated with tools according to the Greenhouse Gas Protocol and Sustainability Reporting Guidelines.

### Hazardous waste production

Business sectors	Key indicators	2022 production	Unit
Equipment manufacturing	Waste oil	32	Ton
	Waste paint bucket	382	Ton
	Emulsion	124	Ton
Other industries	Ash in waste incineration	35,620	Ton
Resource development	Waste oil	279	Ton
Total amount of hazardous waste		36,437	Ton
Total intensity of hazardous waste		0.0006	Ton per RMB 10,000 revenue

### Non-hazardous waste production

Business sectors	Key indicators	2022 production	Unit	Amount of recycled waste in 2022	Unit	Recycling rate in 2022
Engineering service	Waste concrete	2,422,774	Ton	961,347	Ton	39.68%
	Waste steel	369,605	Ton	162,983	Ton	44.10%
	Waste bamboo and wood	267,460	Ton	146,055	Ton	54.61%
Equipment manufacturing	Leftover material	36,455	Ton	30,081	Ton	82.52%
Other industries	Bottom ash from waste incineration	279,561	Ton	278,391	Ton	100%
	Sludge from waste water treatment	392,137	Ton	/	/	/
Resources development	Earth-rock stripping	24,384,265	Ton	/	/	/
Total amount of non-hazardous waste		28,152,257	Ton			
Total intensity of non-hazardous waste		0.4750	Ton per RMB 10,000 revenue			

### Other waste

Business sectors	Key indicators	2022 production	Unit
Resources development	Slags (Tailings)	5,169,200	Ton
	Deep-sea landfill tailings	4,287,500	Ton

### Energy consumption\*

	Key indicators	2022 consumption	Unit
Direct energy	Heavy oil	1,467,138	MWh
	Gasoline	2,747,276	MWh
	Diesel	4,990,150	MWh
	Natural gas	325,367	MWh
	Total consumption	9,529,931	MWh
	Total intensity	0.1608	MWh per RMB 10,000 revenue
Indirect energy	Electricity	7,568,451	MWh
	Heating power	302,959	MWh
	Total consumption	7,871,410	MWh
	Total intensity	0.1328	MWh per RMB 10,000 revenue

\* The factors used in the calculation are from the official data of NDRC based on MCC's four main sectors.

### Resources consumption

Business sectors	Key indicators	2022 consumption	Unit
Engineering service	Concrete	166,923,404	Ton
	Building blocks	27,557,863	M³
	Steel	21,207,507	Ton
	Timber formwork	10,408,703	M³
Equipment manufacturing	Steel	1,061,167	Ton
Other industries	Flocculant	6,879	Ton
	Silicon powder	5,576	Ton
	Antalkali	24,936	Ton

### Water management

Key indicators	2022 consumption	Unit
Freshwater	81,296,981	M³
Repeated water	261,185,962	M³
Emissions of COD	0.012	Ton
Emissions of ammonia nitrogen	0.036	Ton
Fresh water consumption intensity	1.3717	M³ per RMB 10,000 revenue

## Key Social Indicators

### Technology innovation

Key indicators	2022	Unit
Number of national-level science and technology R&D platform	28	/
Number of national engineering technology research center	5	/
Number of accumulative effective patents	47,120	/
Number of Metallurgical Science and Technology Awards	20	/

### Employment

Key indicators	2022	Unit
Number of on-the-job employees	98,385	person
Number of on-the-job employees by gender	Male	78,688 person
	Female	19,697 person
Number of on-the-job employees by employment type	Full-time	98,385 person
	Part-time	0 person

Key indicators		2022	Unit
Number of on-the-job employees by age	Under 35	41,605	person
	At the age of 36-40	16,861	person
	At the age of 41-45	11,749	person
	At the age of 46-50	11,088	person
	At the age of 51 or above	17,082	person
Number of on-the-job employees by educational background	Master's or higher degree	14,274	person
	Bachelor's degree	54,557	person
	Junior college education	13,693	person
	High school, secondary school or vocational school education	10,581	person
	Junior high school education or below	5,280	person
Number of on-the-job employees by region	China (including Hong Kong, Macao and Taiwan)	95,843	person
	Overseas	2,542	person

Key indicators		2022	Unit
Total employee turnover		4,260	person
Employee turnover rate by gender	Male	4.74%	/
	Female	2.71%	/
Employee turnover rate by age	Under 35	6.50%	/
	At the age of 36-40	4.19%	/
	At the age of 41-45	4.04%	/
	At the age of 46-50	1.43%	/
	At the age of 51 or above	1.26%	/
Employee turnover rate by region	China (including Hong Kong, Macao and Taiwan)	4.14%	/
	Overseas	11.33%	/

Key indicators		2022	Unit
Labor contracting rate		100%	/
Number of newly recruited graduates		5,540	person
Number of newly recruited talents from society		3,300	person

## Health and safety

Key indicators		2022	2021	2020	Unit
Number of work-related fatalities*		0	0	0	person
Rate of work-related fatalities		0	0	0	/

Key indicators		2022	Unit
Lost days due to work-related fatalities*		0	Day

Key indicators		2022	Unit
Coverage of occupational health file		100%	/
Number of projects that has been inspected on safety		4,144	/
Number of subsidiaries that has been inspected on safety		32	/
Number of articles about work safety published in magazines		809	/
Number of new occupational patients		0	person
Number of improved emergency rescue plan		11,984	/
Investments in emergency rescue		10,357	RMB 10,000
Number of emergency rescue drills conducted		9,380	/
Number of man-times in emergency rescue		274,992	man-time
Safe, civilized and standardized construction sites		464	/

\* The scope of data covers MCC employees.

## Development and training

Key indicators		2022	Unit
Number of employees trained*		87,002	person
The percentage of trained employees by gender	Male	79.11%	/
	Female	20.89%	/
The percentage of trained employees by employee category	Management personnel	36.42%	/
	Professional and technical personnel	52.77%	/
	Skilled personnel	10.80%	/

\* The scope of data covers MCC.

Key indicators		2022	Unit
Number of man-times trained		839,045	man-time
The average training hours completed per employee		98.70	Hour
The average training hours completed per employee by gender	Male	100.30	Hour
	Female	92.65	Hour
The average training hours completed per employee by employee category	Management personnel	101.47	Hour
	Professional and technical personnel	101.92	Hour
	Skilled personnel	73.55	Hour

\* The scope of data covers MCC.

### Supply chain management

Key indicators		2022	Unit
Total number of suppliers		340,956	/
Total number of suppliers (domestic)		339,981	/
Number of suppliers by geographical region	East China	105,987	/
	South China	27,457	/
	Central China	51,474	/
	North China	64,386	/
	Northwest China	15,154	/
	Southwest China	56,222	/
	Northeast China	19,249	/
	Hong Kong, Macao and Taiwan	52	/
Total number of suppliers (overseas)		975	/

### Product responsibility

Key indicators		2022	Unit
Customer satisfaction rate*		87.9%	/
Number of major customer complaints*		0	/
Complaint handling closure rate		100%	/

\* The scope of this data is the annual customer satisfaction and the complaints of MCC Real Estate.

### Anti-corruption

Key indicators		2022	Unit
Number of corruption lawsuits concluded by MCC or its employees		0	/

### Community investment

Key indicators		2022	Unit
Investment in consumption assistance		2,828	RMB 10,000

# Report Index

## HKEX - Environmental, Social and Governance Reporting Guide Index

### Environmental

General Disclosure & KPI		Indicator Description	Chapter References
<b>Aspect A1: Emissions</b>			
General Disclosure		Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to air and greenhouse gas emissions, discharges into water and land, and generation of hazardous and non-hazardous waste.	Ecological Environmental Protection to Enhance Sustainable Development - Strict Environmental Management
KPI	A1.1	The types of emissions and respective emissions data.	Key Performance Indicators - Key Environmental Indicators
	A1.2	Direct (Scope 1) and energy indirect (Scope 2) greenhouse gas emissions (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	Key Performance Indicators - Key Environmental Indicators
	A1.3	Total hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	Key Performance Indicators - Key Environmental Indicators
	A1.4	Total non-hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	Key Performance Indicators - Key Environmental Indicators
	A1.5	Description of emissions target(s) set and steps taken to achieve them.	Ecological Environmental Protection to Enhance Sustainable Development - Strict Environmental Management
	A1.6	Description of how hazardous and non-hazardous wastes are handled, and a description of reduction target(s) set and steps taken to achieve them.	Ecological Environmental Protection to Enhance Sustainable Development - Improve the Ecological Environment
<b>Aspect A2: Use of Resources</b>			
General Disclosure		Policies on the efficient use of resources including energy, water and other raw materials.	Ecological Environmental Protection to Enhance Sustainable Development - Develop Clean Energy Ecological Environmental Protection to Enhance Sustainable Development - Improve the Ecological Environment
KPI	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).	Key Performance Indicators -Key Environmental Indicators
	A2.2	Water consumption in total and intensity (e.g. per unit of production volume, per facility).	Key Performance Indicators -Key Environmental Indicators
	A2.3	Description of energy use efficiency target(s) set and steps taken to achieve them.	Key Performance Indicators -Key Environmental Indicators
	A2.4	Description of whether there is any issue in sourcing water that is fit for purpose, water efficiency target(s) set and steps taken to achieve them.	Key Performance Indicators -Key Environmental Indicators

General Disclosure & KPI		Indicator Description	Chapter References
KPI	A2.5	Total packaging material used for finished products (in tonnes) and, if applicable, with reference to per unit produced.	Not applicable
<b>Aspect A3: The Environmental and Natural Resources</b>			
General Disclosure		Policies on minimising the issuer's significant impact on the environment and natural resources.	Ecological Environmental Protection to Enhance Sustainable Development - Strict Environmental Management Ecological Environmental Protection to Enhance Sustainable Development - Improve the Ecological Environment
KPI	A3.1	Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them.	Ecological Environmental Protection to Enhance Sustainable Development - Strict Environmental Management Ecological Environmental Protection to Enhance Sustainable Development - Green and Low-carbon Construction
<b>Aspect A4: Climate Change</b>			
General Disclosure		Policies on identification and mitigation of significant climate-related issues which have impacted, and those which may impact, the issuer.	Ecological Environmental Protection to Enhance Sustainable Development - Strict Environmental Management
KPI	A4.1	Description of the significant climate-related issues which have impacted, and those which may impact, the issuer, and the actions taken to manage them.	Ecological Environmental Protection to Enhance Sustainable Development - Strict Environmental Management



Social

General Disclosure & KPI		Indicator Description	Chapter References
<b>Aspect B1: Employment</b>			
General Disclosure		Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to compensation and dismissal, recruitment and promotion, working hours, rest periods, equal opportunity, diversity, anti-discrimination, and other benefits and welfare.	Employee Growth to Consolidate Team Cohesion - Protecting Labor Rights and Interests
KPI	B1.1	Total workforce by gender, employment type (for example, full- or part-time), age group and geographical region.	Key Performance Indicators- Key Social Indicators
	B1.2	Employee turnover rate by gender, age group and geographical region.	Key Performance Indicators- Key Social Indicators
<b>Aspect B2: Health and Safety</b>			
General Disclosure		Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to providing a safe working environment and protecting employees from occupational hazards.	Employee Growth to Consolidate Team Cohesion - Caring for Employees
KPI	B2.1	Number and rate of work-related fatalities occurred in each of the past three years including the reporting year.	Key Performance Indicators- Key Social Indicators
	B2.2	Lost days due to work injury.	Key Performance Indicators - Key Social Indicators
	B2.3	Description of occupational health and safety measures adopted, and how they are implemented and monitored.	Employee Growth to Consolidate Team Cohesion - Caring for Employees
<b>Aspect B3: Development and Training</b>			
General Disclosure		Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities.	Employee Growth to Consolidate Team Cohesion - Empowering Employee Development
KPI	B3.1	The percentage of employees trained by gender and employee category (e.g. senior management, middle management).	Key Performance Indicators- Key Social Indicators
	B3.2	The average training hours completed per employee by gender and employee category.	Key Performance Indicators- Key Social Indicators
<b>Aspect B4: Labour Standards</b>			
General Disclosure		Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to preventing child and forced labour.	Employee Growth to Consolidate Team Cohesion - Protecting Labor Rights and Interests

General Disclosure & KPI		Indicator Description	Chapter References
KPI	B4.1	Description of measures to review employment practices to avoid child and forced labour.	Employee Growth to Consolidate Team Cohesion - Protecting Labor Rights and Interests
	B4.2	Description of steps taken to eliminate such practices when discovered.	Employee Growth to Consolidate Team Cohesion - Protecting Labor Rights and Interests
<b>Aspect B5: Supply Chain Management</b>			
General Disclosure		Policies on managing environmental and social risks of the supply chain.	Excellent Management to Build Core Competitiveness - Optimizing Supply Chain Management
KPI	B5.1	Number of suppliers by geographical region.	Key Performance Indicators- Key Social Indicators
	B5.2	Description of practices relating to engaging suppliers, number of suppliers where the practices are being implemented, and how they are implemented and monitored.	Excellent Management to Build Core Competitiveness - Optimizing Supply Chain Management
	B5.3	Description of practices used to identify environmental and social risks along the supply chain, and how they are implemented and monitored.	Excellent Management to Build Core Competitiveness - Optimizing Supply Chain Management
	B5.4	Description of practices used to promote environmentally preferable products and services when selecting suppliers, and how they are implemented and monitored.	Excellent Management to Build Core Competitiveness - Optimizing Supply Chain Management
<b>Aspect B6: Product Responsibility</b>			
General Disclosure		Information on: (a)the policies; and (b)compliance with relevant laws and regulations that have a significant impact on the issuer relating to health and safety, advertising, labelling and privacy matters relating to products and services provided and methods of redress.	Excellent Management to Build Core Competitiveness - Strict Quality Management MCC complies with the <i>Advertising Law of the People's Republic of China</i> and formulated <i>MCC Group and MCC Brand Management Measures, MCC Brand Identification Manual</i> and other documents to regulate the use of corporate trademarks.
KPI	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.	Excellent Management to Build Core Competitiveness - Promoting Customer Management Key Performance Indicators- Key Social Indicators

General Disclosure & KPI		Indicator Description	Chapter References
KPI	B6.3	Description of practices relating to observing and protecting intellectual property rights.	Leading Innovation to Drive Technological Advancement - Strengthening Scientific Development
	B6.4	Description of quality assurance process and recall procedures.	Excellent Management to Build Core Competitiveness - Strict Quality Management
	B6.5	Description of consumer data protection and privacy policies, and how they are implemented and monitored.	Excellent Management to Build Core Competitiveness - Promoting Customer Management
<b>Aspect B7: Anti-corruption</b>			
General Disclosure		Information on: (a)the policies; and (b)compliance with relevant laws and regulations that have a significant impact on the issuer relating to bribery, extortion, fraud and money laundering.	About Us - Corporate Governance
KPI	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.	Key Performance Indicators- Key Social Indicators
	B7.2	Description of preventive measures and whistle-blowing procedures, and how they are implemented and monitored.	About Us - Corporate Governance
	B7.3	Description of anti-corruption training provided to directors and staff.	About Us - Corporate Governance
<b>Aspect B8: Community Investment</b>			
General Disclosure		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.	Contributing to Society to Expand the Power of Kindness
KPI	B8.1	Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport).	Contributing to Society to Expand the Power of Kindness
	B8.2	Resources contributed (e.g. money or time) to the focus area.	Key Performance Indicators- Key Social Indicators

### SSE - Guidelines of SSE for Environmental Information Disclosure of Listed Companies Index

Disclosure Requirements	Page Reference
1. Company environmental protection policy, annual environmental protection objectives and results	Ecological Environmental Protection to Enhance Sustainable Development - Strict Environmental Management Key Performance Indicators- Key Environmental Indicators
2. Total annual resource consumption of the company	Key Performance Indicators- Key Environmental Indicators
3. Environmental protection investment and development of environmental technology	Ecological Environmental Protection to Enhance Sustainable Development - Green and Low-carbon Construction
	Ecological Environmental Protection to Enhance Sustainable Development - Develop Clean Energy Ecological Environmental Protection to Enhance Sustainable Development - Improve the Ecological Environment
4. The type, amount, concentration and destination of the company's emissions	Ecological Environmental Protection to Enhance Sustainable Development - Improve the Ecological Environment Key Performance Indicators- Key Environmental Indicators
5. Construction and operation of environmental protection facilities of the company	Ecological Environmental Protection to Enhance Sustainable Development - Improve the Ecological Environment
6. Company's waste treatment and disposal in the production process, waste products recycle and comprehensive utilization	Ecological Environmental Protection to Enhance Sustainable Development - Improve the Ecological Environment
7. Voluntary agreements signed with the environmental protection authorities on the act of improving the environment	There was no record in 2022.
8. The company rewarded by the environmental protection authorities	There was no record in 2022.
9. Other environmental information voluntarily disclosed by the company	Key Performance Indicators - Key Environmental Indicators

# Feedback Form

**Dear readers:**

Thank you for reading this report.

This is MCC's 14<sup>th</sup> 2022 Social Responsibility and ESG (Environmental, Social and Governance) Report. To continuously improve our corporate social responsibility information disclosure, better communicate with stakeholders, and more effectively promote social responsibility management and practice, we sincerely look forward to your feedback.

1. What is your overall evaluation of MCC's performance on social responsibility?  Very good  Good  Fair  Poor

2. What is your overall evaluation on this report?  Very good  Good  Fair  Poor

3. What do you think of MCC's performance in stakeholder communication?  Very good  Good  Fair  Poor

4. How do you think MCC is fulfilling its corporate responsibility?  Very good  Good  Fair  Poor

5. Do you think the content arrangement and layout design of this report are easy to read?  Very good  Good  Fair  Poor

6. What are your comments and suggestions for MCC to fulfill its social responsibility and this report?



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MCC Wechat  
Official Account QR Code