

2021 MCC

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



MCC,
a partner of choice.

ABOUT THIS REPORT

Reporting Boundary

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

Reporting Period: The report covers from January 1 to December 31, 2021 and includes additional information beyond the stated reporting period.

Reporting Cycle: The report is prepared on an annual basis. This report is the 13th report issued by Metallurgical Corporation of China Ltd.

Basis of Preparation

This report is mainly prepared in accordance with the Environmental, Social, and Governance Reporting Guide issued by Stock Exchange of Hong Kong Limited (HKEX), and regarding the following 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/T 36001-2015) 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 (CASS4.0) 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 2021 financial statement, and other data sources are mainly from 2021 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:

Department: Corporate Culture Department of MCC

Address: No. 28 West Shuguang Road, Chaoyang District, Beijing, PRC

Postal code: 100028

Fax: 0086-10-59869439

E-mail: CSR@mcc.com.cn

STATEMENT



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 2021 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.



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MESSAGE FROM THE CHAIRMAN

The year of 2021 marks the 100th anniversary of the Communist Party of China (CPC) and the first year of the "14th Five-Year Plan", which begins the new journey of building a modern socialist country in an all-around way. MCC shoulders the responsibility of the times and is devoted to national construction and social development. We are determined to be the world-class national team of metallurgical construction, the main force and pioneer of infrastructure construction, the forerunner and leader of emerging industries, and insisting on the road of high-tech and high-quality innovation and development in the long term.



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 13th MCC 2021 Social Responsibility and ESG (Environmental, Social, and Governance) Report. We sincerely appreciate your continuous care and support to the Company!

In 2021, we learned from the exceptional era and fulfilled our responsibilities as a state-owned enterprise (SOE). During the reporting period, we continued to strengthen our advantages in metallurgical construction. We also had a steady and healthy development in infrastructure construction and a robust growth in the emerging industries, with the overseas business moving on despite the difficulties. In 2021, our key financial indicators continued to improve, including the value of newly signed contracts, operating revenue, and total profit. Our influence of the capital market also increased significantly, and our major technology innovation and projects achieved fruitful results, which laid a solid foundation for our development. We have realized a good start for "14th Five-Year Plan", showing our responsibilities and capabilities in the year for CPC's 100th anniversary.

In 2021, we seized opportunities from crises to serve the national strategy of development. During the reporting period, we successfully secured a number of benchmark metallurgical construction projects such as the HanSteel urban renewal project, and the first domestic universal heavy rail production line of Yong Yang Special Steel. We also successively signed a number of billion-level projects for national economy and people's livelihood such as Zhanjiang Donghai Island Industrial Park and Liuzhou Expressway Cross-border Line Highway. We delivered the first bobsleigh and luge track in China and the third in Asia with high standards. We completed the Xiamen Tianma Electronic Factory Project 30 days ahead of schedule, which is the largest and most advanced flexible AMOLED panel factory in China. We created a series of classic works such as Dong'an Lake Park of the 31st World University Games, Beijing Universal Studios Theme Park, Tianjin Juilliard School, Lanzhou Olympic Sports Center, Shenzhen Metro and the joint construction of pipe galleries, providing solid support for serving major national development strategies.

In 2021, we made progress and revolutions during the development, heading for higher-quality development. We benchmarked with the world-class management and took improvement actions, fully implement the Three-Year Action Plan for SOEs Reform, benchmarked, and promoted the Double Hundred SOE Reform Campaign as well as the Pilot Action for Technology SOEs. We took multiple measures to accelerate the pace of

building a world-class enterprise. We accelerated the technology innovation, and initiated the 181 Plan, with major research and development projects in the non-steel field. We established four Low-Carbon Technology Research Institutes to promote the development of green and low-carbon metallurgical technology. We fully took the responsibility risk control and prevented and resolved various risks. During the reporting period, MCC won 4 National Science and Technology Awards, 6 Luban Prize for Construction Projects, and 26 National Quality Engineering Awards. The number of effective invention patents exceeded 10,000 for the first time, and MCC was awarded the Golden Bauhinia Award for The Listed Company with the Most Investment Value in the 14th Five-Year Period.

In 2021, we gained strength from the people while paid back by serving the people and contributing to society. We initiated the Serving for People projects to support local economy through over 4,000 engineering projects across the country. We made every effort to enhance the ecological and environmental protection, and strived to protect the sky, water and soil resources. We also devoted to ensuring the supply of heating, power and people's livelihood, supporting the safe and stable supply of energy. We contributed to the construction of pandemic prevention and isolation projects, supporting the local pandemic prevention and control. We also worked on the projects concerning food supply, helped to secure the national grain and vegetable reserves. We promoted the construction of educational infrastructure, providing every child an opportunity to live a wonderful life. We fully supported the construction of rural revitalization projects, creating a better life for hundreds of millions of rural residents.

Looking forward to 2022, the Beijing Olympic Winter Games would be held grandly, presenting a stronger China to the world. MCC will also fulfill its corporate social responsibility with a diligent and unswerving attitude, and continue to make progress on the new journey, under our vision of "Focusing on MCC's main business and building a better MCC".



ABOUT US

Corporate Profile

MCC is an ultra-large enterprise group in China, the earliest force to construct the steel industry in China, and the pioneer and main force of the metallurgical construction in China. In 1982, China Metallurgical Construction Corporation was established with the approval of the State Council and was under the purview of the Ministry of Metallurgical Industry. In December 2008, MCC Group established MCC. In September 2009, MCC was successfully listed in Shanghai and Hong Kong (A share stock code: 601618, H share stock code: 01618).

From 1948, MCC participated in the construction of Ansteel, the cradle of the iron and steel industry in China, to the construction of WISCO, Baogang Group, TISCO, Pangang Group, and Baosteel. We have undertaken the planning, investigation, design, and construction of major production facilities of nearly all large and medium iron and steel enterprises in China, hence becoming the founder of the "iron and steel backbones" of China.

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-beam and eight-pillar" 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.

Company Strategy



MCC Mission

Create value, return to the shareholders, benefit the staff and forge glories.



Overall Strategy

Focus on main business to be better and stronger, moderately diversify while developing steadily.



Corporate Vision

Focusing on MCC's main business and building a better MCC.



MCC Spirit

Never delaying, never slacking.



Strategic Positioning

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.



Core Values

Efficiency creates value, innovation drives development, and quality builds eternity.



MCC Social Responsibility

Developing innovatively and sustainably, building the future of the world together.



MCC Motto

MCC, a partner of choice.

2021

Ranked

6th

in ENR Top 250 Global Contractors, promoted two places from 2020, and is the highest ranking in the history

6

projects won the Luban Prize for Construction Projects (including participation)

4

National Science and Technology Awards

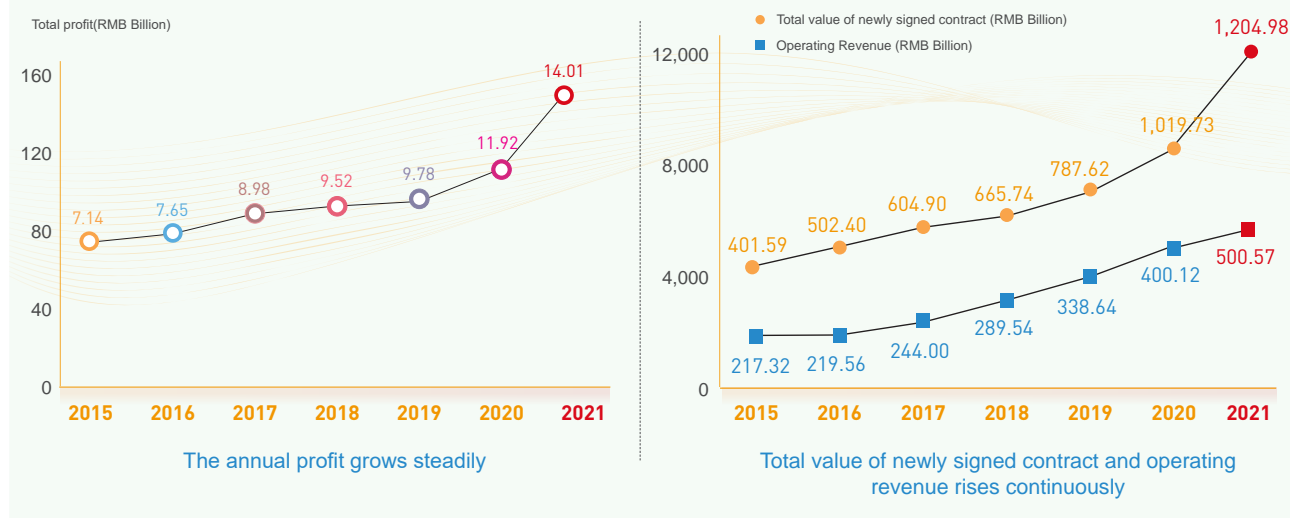
26

projects won the National Quality Engineering Awards (including participation)

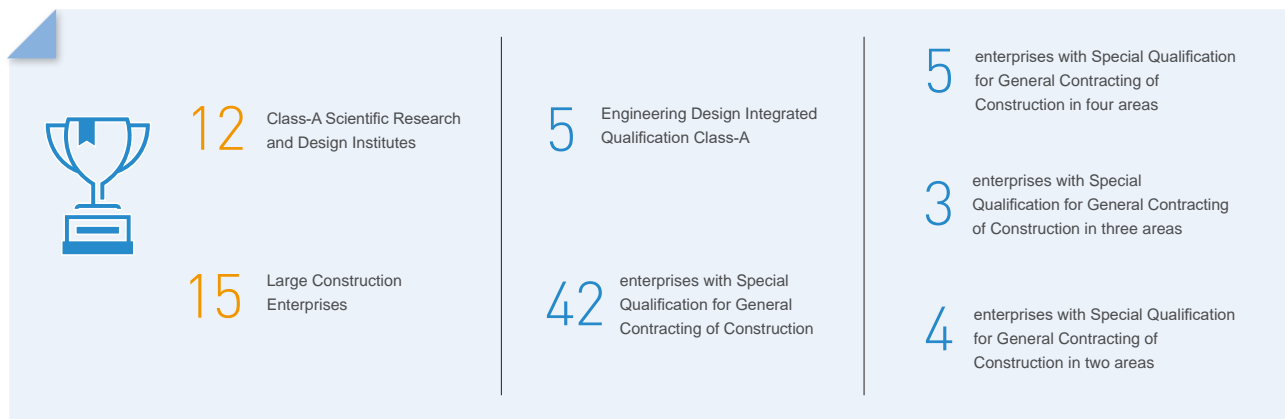


Development Performance

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



Qualification & Certification



Talent Structure



Honors of MCC

- MCC won the "Golden Round Table-the Best Board of Directors" award for 3 consecutive years.

- MCC won the Best Corporate Governance Award of the China ESG Golden Awards.

- MCC won the "Best IR" award for the Tianma Prize.

- MCC ranked 6th in the ENR's Top 250 Global Contractors and ranked as Top 10 for 13 consecutive years.

- MCC was named the "Best IR Hong Kong Listed Company" by New Fortune.

- MCC ranked No.114 of the Top 500 Best ESG Companies in China by Sina Finance.

- MCC was assessed as A-level (best level) of information disclosure by Shanghai Stock Exchange for 5 consecutive years.

- MCC won 6 Luban Prize for Construction Projects in 2021, with a total of 123 projects.

- MCC was selected in the Top 50 Index of Central Enterprises by SASAC.

- MCC won 26 National Quality Engineering Awards in 2021, with a total of 256 awards.

- MCC won the Golden Bauhinia "The Listed Company with the Most Investment Value in the 14th Five-Year Period" award.

- MCC won 5 Tien-yow Jeme Civil Engineering Prizes, achieving 24 prizes in total.

- MCC was selected into the Barron's China Top 50 Emerging Companies 2021 for the first time.

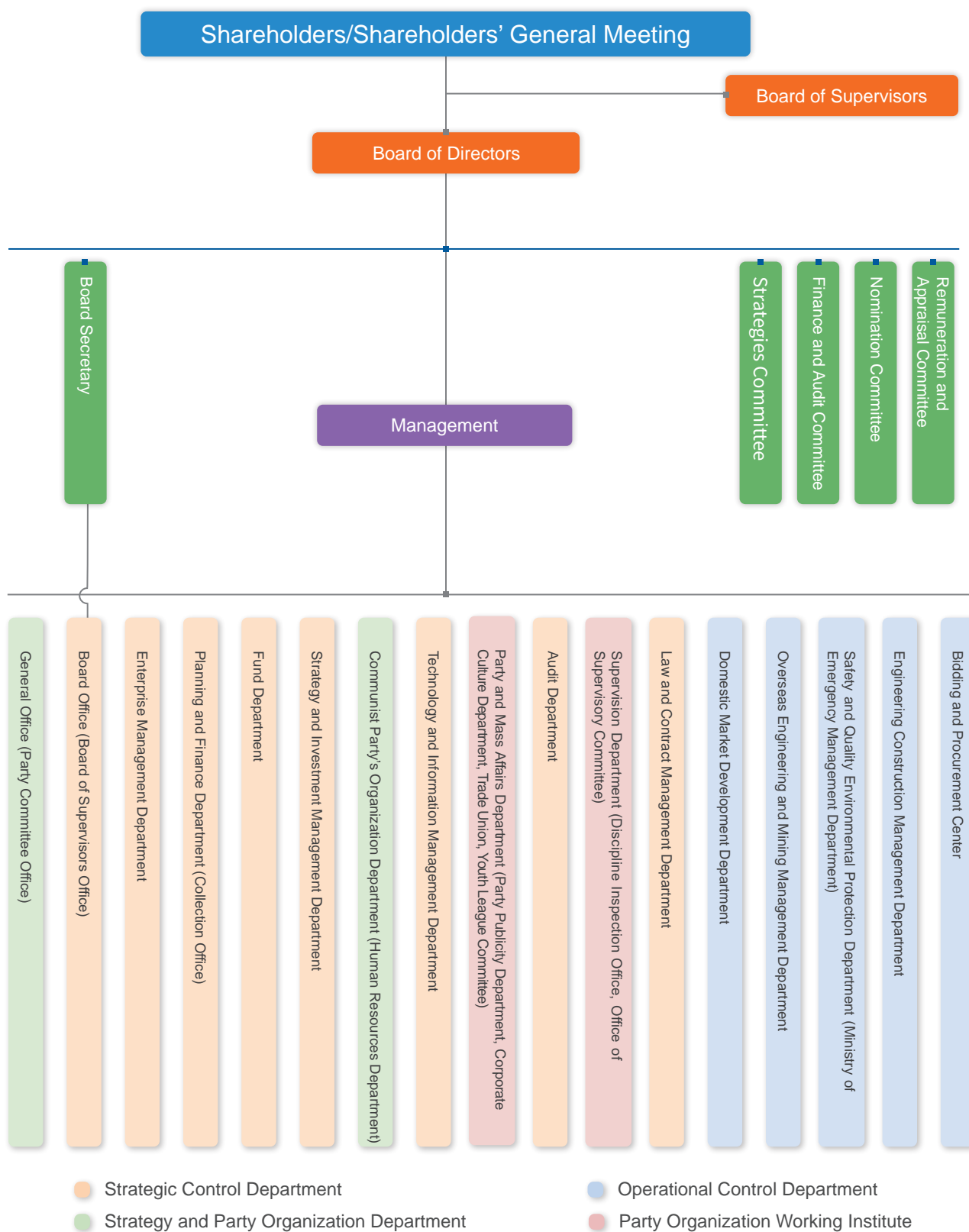
- MCC won 4 National Science and Technology Awards, achieving 55 in total.

- MCC won 9 China Patent Awards, achieving 82 in total.

Honors of MCC



Organizational Structure



Subsidiaries

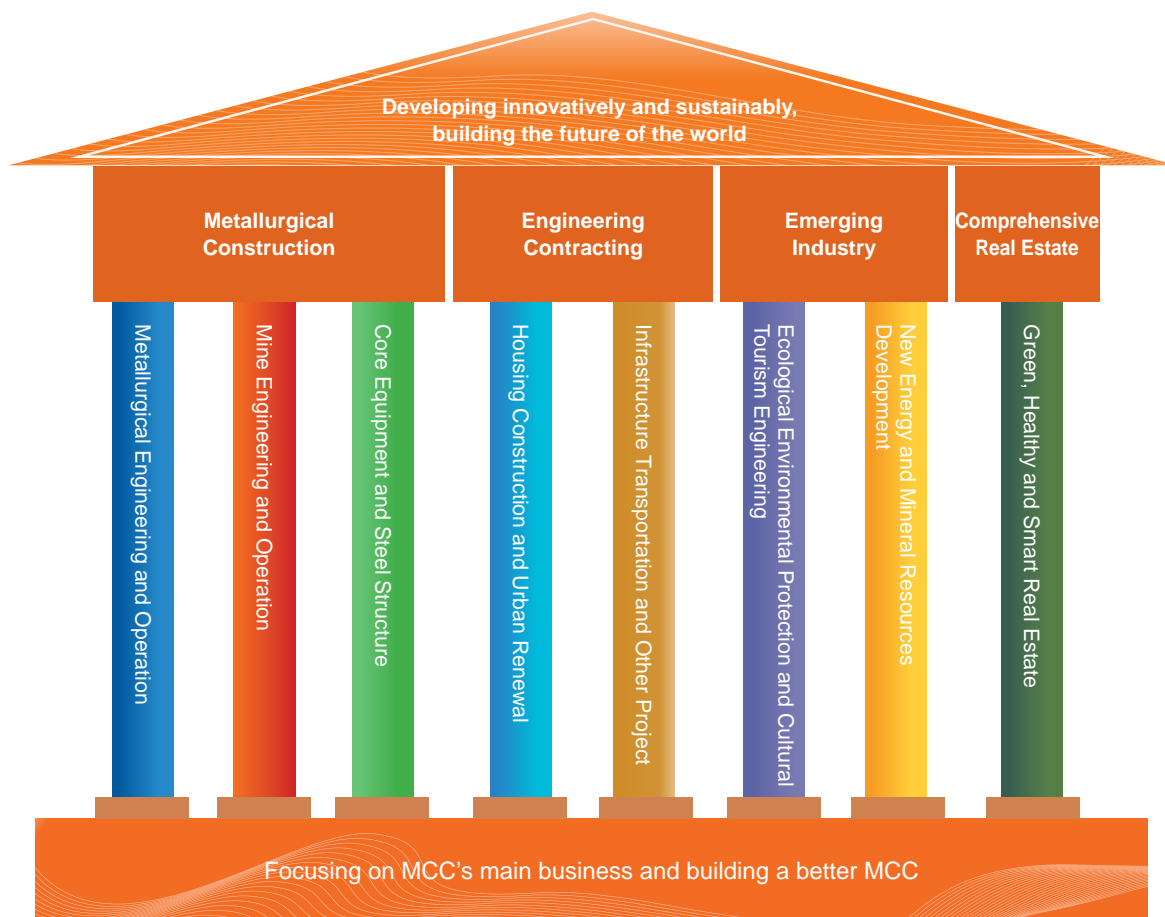
No.	Name of subsidiaries (short form)
1	Central Research Institute of Building and Construction Co., Ltd. (CRIBC)
2	Beijing Metallurgical Equipment Research Design Institute Co., Ltd. (MCCE)
3	China ENFI Engineering Co., Ltd. (China ENFI)
4	Capital Engineering & Research Incorporation Ltd. (CERI)
5	CISDI Group Co., Ltd. (CISDI)
6	WISDRI Engineering & Research Incorporation Limited (WISDRI)
7	Huatian Engineering & Technology Corporation, MCC (HT)
8	ACRE Coking and Refractory Engineering Consulting Corporation, MCC (ACRE)
9	Zhongye Changtian International Engineering Co., Ltd. (CIE)
10	Northern Engineering & Technology Corporation, MCC (NETC)
11	Shen Kan Engineering & Technology Corporation, MCC (SKET)
12	Wuhan Surveying-Geotechnical Research Institute Co., Ltd. of MCC (WSGRI)
13	China First Metallurgical Group Co.,Ltd. (CFMCC)
14	China Second Metallurgy Group Co., Ltd. (MCC2)
15	China Third Metallurgical Group Corporation Ltd. (TMCC)
16	China MCC5 Group Corp.,Ltd. (MCC5)
17	MCC Tiangong Group Corp.,Ltd. (CTMCC)
18	China MCC17 Group Co.,Ltd. (MCC17)
19	China Metallurgical Construction Engineering Group Co., Ltd. (CMCC)
20	China 19th Metallurgical Corporation (MCC19)
21	China MCC20 Group Corp.,Ltd. (MCC20)
22	China MCC22 Group Corp.,Ltd. (MCC22)
23	Shanghai Baoye Group Corp.,Ltd. (SBC)
24	China Huaye Group Co.,Ltd. (NCMCC)
25	MCC Baosteel Technology Services Co., Ltd. (MC-CBTS)
26	MCC Communication Construction Group Co., Ltd. (MCC-CC)
27	MCC Rail Transit Co., Ltd.
28	MCC Road & Bridge Construction Co., Ltd. (MRBC)
29	Metallurgical Corporation of Central China Ltd (Henan) Branch
30	MCC Utility Tunnel Science and Technology Development Co., Ltd. (UTMCC)
31	MCC Southern China Construction Investment Co., Ltd. (MCC Southern China)

No.	Name of subsidiaries (short form)
32	MCC (Hainan) Investment Development Co., Ltd. (MCC Hainan)
33	MCC Urban Investment Holdings Company Ltd.
34	MCC (Yunnan) Engineering Investment Construction Co., Ltd. (MCCYN)
35	MCC Fujian Investment Construction Co., Ltd.
36	MCC (Shanghai) Steel Structure Technology Corp, Ltd.,(MCC-SSC)
37	MCC Eco-Environmental Protection Group Co.,Ltd.
38	MCC Real Estate Group Co.,Ltd. (MCCZY)
39	MCC Tongsin Resources Ltd. (MCCT)
40	MCC Australia Holding Pty Ltd. (MCCH)
41	MCC-JJJ Mining Development Co., Ltd. (MCC-JJJ)
42	Ramu NiCo Management (MCC) Limited (Ramu Nico)
43	MCC Finance Corporation Ltd. (MCCFC)
44	MCC Financial Leasing Co.,Ltd.
45	MCC International Incorporation Ltd. (MCCI)
46	MCC Overseas Ltd.
47	MCC Vietnam Engineering and Technology Company Limited
48	China MCC International Economic and Trade Co., Ltd.
49	MCC Holdings (Hong Kong) Corp., Ltd. (MCC HK & Mac)
50	MCC-SFRE Heavy Industry Equipment Co., Ltd.
51	MCC MINING (Western Australia) Pty. Ltd. (MCCM)
52	China No. 13 Metallurgical Construction Co., Ltd.
53	Tianjin United Huixin Investment Partnership (Limited Partnership)
54	Tianjin United Huitong Investment Partnership (Limited Partnership)
55	Tianjin Hongxin Investment Partnership (Limited Partnership)

*The disclosure scope of the subsidiaries is consistent with the MCC 2021 Annual Report.

Business Layout

Industrial Structure – Four Sectors and Eight Types of Business



Engineering Contracting:

MCC is one of the largest engineering contractors in the world as well as the metallurgical engineering contractor with the strongest professional design, construction and service capacities in China. Relying on the excellent capabilities in research, survey, design, construction and service, MCC actively promotes its upgrading and transformation, and makes great achievements in the engineering contracting sector.

2021

Operating revenue
(RMB Billion):

462.29

Projects of RMB 1
billion or above:

288

Real Estate Development:

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

2021

Operating revenue
(RMB Billion):

21.42

Project on-going:

165

Four Business Sectors

Equipment Manufacturing:

MCC is one of the large metallurgical equipment manufacturing enterprises in China that can manufacture core metallurgical equipment with its own independent intellectual property rights. In the meantime, the Company is also the largest steel structure manufacturer in China, which holds a leading position in the R&D, design, manufacturing, and installation of steel structure in China.

2021

Operating revenue
(RMB Billion):

11.62

Steel structure
manufacturing base:

32

Resources Development:

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

2021

Operating revenue
(RMB Billion):

6.67

Types of metals:

7

Benchmark with the United Nations Sustainable Development Goals



Goal 1
End poverty in all its forms everywhere.

After poverty alleviation in an all-round way, we continue to help rural revitalization and prevent return to poverty through consumption assistance.



Goal 2
End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

We organize donations and voluntary service activities, donating food and other daily necessities.



Goal 3
Ensure healthy lives and promote well-being for all at all ages.

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.



Goal 4
Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

We carry out donations and support the schools in poor areas.



Goal 5
Achieve gender equality and empower all women and girls.

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.



Goal 6
Ensure availability and sustainable management of water and sanitation for all.

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.



Goal 7
Ensure access to affordable, reliable, sustainable and modern energy for all.

We strengthen the development of clean energy technologies.



Goal 8
Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

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.



Goal 9

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

We focus on housing construction, transportation and municipal infrastructure construction, mid-to-high-end real estate and other infrastructure fields. We promote scientific research and development and the construction of innovation platform.



Goal 10

Reduce inequality within and among countries.

We organize volunteering activities in poverty-stricken communities at home and abroad, and actively make donations to alleviate inequality.



Goal 11

Make cities and human settlements inclusive, safe, resilient and sustainable.

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.



Goal 12

Ensure sustainable consumption and production patterns.

We promote the research and development of green technologies, such as new energy metallurgical technology, energy efficient utilization and other technologies. We implement green procurement and promote green and low-carbon concepts in the supply chain.



Goal 13

Take urgent action to combat climate change and its impacts.

We set energy-saving target and improve energy efficiency, promote energy-saving and emission-reduction technologies, and adopt new environmental protection equipment.



Goal 14

Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

We carry out ecological restoration, sewage treatment and river basin treatment projects.



Goal 15

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

We strengthen soil pollution prevention and control and provide soil remediation consultation.



Goal 16

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.

We prohibit child labor and forced labor and have zero tolerance for corruption and fraud.



Goal 17

Strengthen the means of implementation and revitalize the global partnership for sustainable development.

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.

Responsibility Management

Following the social responsibility philosophy of "Developing innovatively and sustainably, building the future of the world", MCC actively improves its social responsibility management. Through communications with stakeholders in various forms, we respond to stakeholders' demands, and works together with all parties to achieve sustainable development goals.

Responsibility Management Mechanism

MCC continuously improve the organizational system and management of social responsibility to standardize the roles, responsibility and processes. By enhancing a scientific and effective sustainable governance, we strive to improve the CSR performance and practice. The Board of Directors of the Company is fully responsible for social responsibility work; the Sustainable Development Committee submits relevant proposals and provides relevant consultations or suggestions to the Board of Directors; the Board Office is responsible for daily work and coordination with departments, and all functional departments actively implement the sustainable development strategies, track and report the progress regularly.

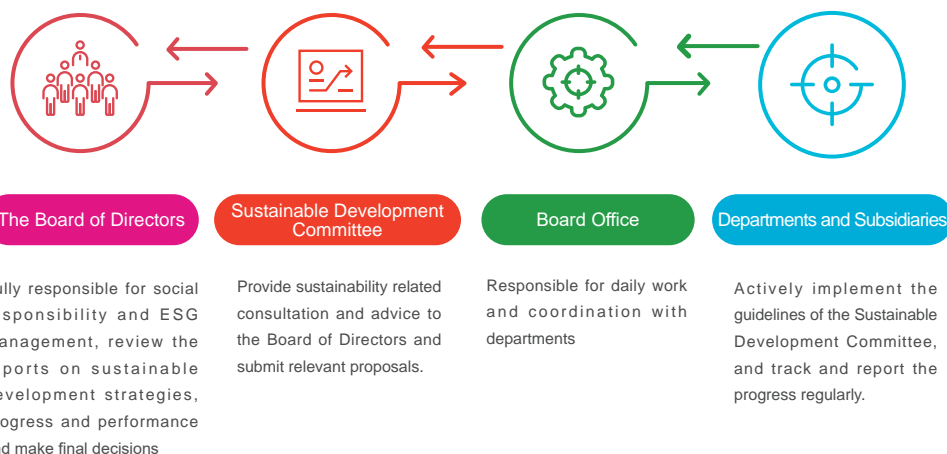
To strengthen the top-level design of the Company's sustainable development and deepen sustainable development management, MCC has established a Sustainable Development Committee at the board level, which is composed of one non-executive director, one executive director and one independent non-executive director. The main responsibilities of the Sustainability Committee include research on the Company's sustainable development-related goals, strategies, plans, and major decisions, and supervise the implementation and progress of the Company's sustainable development strategies and plans.

8

Board meetings

102

proposals were reviewed



BOARD STATEMENT

“The Board of Directors of the Company has continuously attached importance to corporate social responsibility and sustainable development and has overall supervisory responsibility for the ESG matters of the Company. In the board meetings, the board members receive relevant reports on ESG matters, and make deliberations and final decisions. During the reporting period, the Board of Directors deliberated on matters related to the Company's ESG management policy, the ranking of materiality issues, ESG risks and ESG report disclosure. At the same time, the Board of Directors also reviewed and approved the ESG-related target setting for 2021, conducted regular target reviews, and made unremitting efforts to continuously improvement the ESG performance and management level of MCC.”

Stakeholder Communication

MCC actively communicates with various stakeholders and collects their requirements and expectations of MCC through various channels to continuously improve its sustainable development performance. During the reporting period, the Company improved its communication and response mechanism with stakeholders according to its business characteristics and by drawing on the excellent practices of its peers.



Shareholders and investors

Expectations and Concerns

- Return on investment
- Protection of rights and interests
- Knowing about the Company's operation
- Corporate risk management

Communication and Responses

- Increasing profitability
- Shareholder's meetings
- Roadshows
- Timely information disclosure
- Improving risk management system



Clients and customers

Expectations and Concerns

- High-quality products
- Accomplishing project on time
- High-quality service
- Consumer rights and privacy protection

Communication and Responses

- Strengthening project quality
- Stable production and on-time performance
- Improving customer service mechanism



Employees

Expectations and Concerns

- Protection of legal rights and interests
- Career development platform
- Healthy and safe working environment

Communication and Responses

- Regular workers' congress
- Smooth internal communication channels
- Improving staff training system
- Strict measures to prevent the pandemic
- Providing occupational protection and physical check



Suppliers

Expectations and Concerns

- Win-win cooperation
- Being open and fair and keeping promises
- Promoting sustainable development of the industry chain

Communication and Responses

- Multi-channel cooperation and research
- Daily communication and regular meetings
- Open and fair procurement system and rules
- Sustainable supplier management



The government and regulatory institutions

Expectations and Concerns

- Implementing government policies and regulatory rules
- Promoting employment
- Maintaining and increasing the value of state-owned assets
- Promoting the "dual carbon" goal
- Conducting business in a law-abiding manner

Communication and Responses

- Responding to the government advocacy actively
- Receiving inspection and conducting rectification
- Complying with law, strengthening compliance management and strengthening anti-corruption
- Energy saving and carbon reduction



Competitors/industry associations

Expectations and Concerns

- Fair competition
- Technological innovation
- Promoting the industry development

Communication and Responses

- Enhancing research and development capabilities
- Participating in industry development forums
- Promoting cooperation among industry, academia and research
- Accelerating the industry's low-carbon transition



Communities and the public

Expectations and Concerns

- Protecting community environment
- Reducing pollutant emissions
- Responding to climate change
- Supporting community Welfare
- Driving local economic development

Communication and Responses

- Strengthening environmental protection and setting environmental targets
- Supporting rural revitalization
- Carrying out public welfare activities
- Participating community project construction
- Strengthening the localized management of overseas communities



Media

Expectations and Concerns

- Information disclosure and transparency

Communication and Responses

- Press Releases and announcements
- Media events



Experts and professionals

Expectations and Concerns

- Promoting the development of new industries

Communication and Responses

- Technology innovation
- Driving development of new industries



Communication with investors

MCC carried out various investor relations activities, including positive/reverse roadshows, meetings, field research visits, and keynote speeches. Meanwhile, MCC integrated ESG theme into internal and external communication, took the initiative to establish ESG information feedback mechanism with capital market and carried out ESG related training internally.

In 2021, MCC continues to maintain its high investment grade rating from Moody's, S&P, Fitch and other international credits. It is worth mentioning that the outlook of MCC's rating was upgraded from "stable" to "positive" by Moody's, which is the only central enterprise in the construction industry to receive such an upgrade in the past 3 years.



Reception of domestic and overseas investors:

35



Reception of domestic and overseas investors:

450



Investor communication meetings:

15



Answering the hotline for small and medium investors:

300



Identification of Material Issues

2,668

valid research questionnaires

8

issues were ranked as highly significant for 2021

In 2020, MCC conducted a large-scale stakeholder research and collected 2,668 valid research questionnaires, which provided important guidance for the assessment of materiality issues. In 2021, we updated the material topics based on the results of last year's research, in-depth analysis of the requirements of regulators and rating agencies, and combined with major national strategies, social hotspots and MCC's business priorities.

Based on two dimensions of importance to stakeholders and importance to MCC, a total of 8 issues were ranked as highly significant for 2021, namely climate change risk identification and response, pollutant emissions and management, sustainable supplier and contractor management, occupational health and safety, employment and employee rights, anti-corruption, technology innovation and driving low-carbon transition in the industry. We will make key disclosures on highly important topics in the report.

- | | |
|------------------------|-------------------------------|
| ● Environmental Issues | ■ Issues of low importance |
| ● Employee Issues | ■ Issues of medium importance |
| ● Operational Issues | ■ Issues of high importance |



Risk Management

In compliance with the Basic Standard for Enterprise Internal Control and related guidance, MCC has established a comprehensive risk management and internal control system at both corporate and business levels. Under this framework, through a risk control matrix, a corresponding relationship between key risk exposure points and control points is established, and control measures for risk identification, assessment, and response are implemented in various business processes within the Company, thereby realizing organic risk management and internal control integration, which has significantly improved corporate risk prevention and control capabilities and control methods. By improving the MCC Risk Management System, MCC Group Risk Assessment Management Measures, MCC continues to strengthen its enterprise risk management capability.

MCC focuses on monitoring the process of major risks and special risks and has developed quantitative monitoring indicators reflecting industry and business characteristics. Among the nine major risks identified in 2021, safety and environmental risks ranked first. For major risks, the Company implements the main responsibility of risk control one by one, analyzes risk performance, thoroughly studies the causes and impacts of risks, formulates control measures in advance, and evaluates their importance and urgency. 2021, the Company has identified over 200 risk events, including environmental protection, social responsibility, and corporate governance. During the reporting period, no systemic or disruptive risk events occurred.

Compliance Management

The rule of law

MCC closely tracks and strictly abides by laws and strengthens our compliance management according to the regulations. We enhanced compliance management in four aspects.

10

law promotion activities organized by the headquarter of MCC

Over

400

times of legal support to project

Over

10,000

people participated in the law promotion activities

Promote the construction of law system, strengthen the awareness of law for the main person in charge of the enterprise by formulating the Measures for the Main Person in Charge of Enterprises of MCC Group and MCC to Perform the Duty of the First Person in Charge.

Organize the "Year of Compliance Management Enhancement" initiative by formulating the Compliance Management Measures of MCC Group and MCC and the Compliance Management Guidelines for Overseas Business development of subsidiaries at all levels.

Strengthen the legal risk prevention mechanism, and compile Guide to Prevent Legal Risks of PPP Projects, Reference Model of Equity Transaction Agreement (Key Provisions) and Guide to Legal Due Diligence Investigation (Equity Acquisition).

Enhance the disposal of backlog cases with higher efficiency and quality, which had a satisfactory outcome by avoiding many costs.

All subsidiaries of MCC actively organized law popularization education activities in various forms to enhance employees' awareness of law-abiding and effectively help enterprises to prevent and resolve legal risks effectively.

Business Ethics

3,906

anti-corruption training sessions

98,208

participants in total

In terms of business ethics, MCC aims at building an anti-corruption system that ensure employees dare not to, unable to and unwilling to corrupt. We comply with the current laws and regulations of China and has formulated The Provisions on the Clean Practice of Leaders of MCC Group and MCC, and Management Measures for the Prevention and Control of Integrity Risks of MCC Group. We also organized leading members of the MCC Group and subsidiaries to sign the Liability Statement of Anti-corruption, and had zero tolerance for corruption, graft and malpractice. During the reporting period, there was no corruption lawsuits against MCC or our employees.

In terms of anti-corruption supervision, MCC continues to build a supervision platform, organizing financial audit, personnel, bidding and procurement, investment management and other departments to report integrity risk information on a quarterly basis, which has formed an information sharing and problem solving platform.

In terms of anti-corruption education, MCC continued to organize 3,906 anti-corruption training sessions for directors and general employees at all levels with the theme of "Respect, Ethics, and Style", with a total of 98,208 participants. Through various regular and institutionalized education activities such as Anti-Corruption and Integrity Publicity and Education Month, and educating people with the events around us, MCC has created a strong atmosphere for anti-corruption and integrity promotion throughout the Company.

Petition and whistle-blowing system

MCC arranges specific personnel to handle petitions and whistleblowing. The contact information such as phone number, email, and mailing address are publicized on the Company website. MCC requires relevant personnel to strictly comply with the work discipline, keep the work secrets, and must not leak the whistle-blowers' personal information. In tracking the threads, the whistle-blowers' data should be kept confidential. Reporting processes include reporting visits and registration, acceptance of reporting, disposal of reporting, completion of reporting, a re-examination of reporting, review of reporting. MCC is exceptionally cautious about the confidentiality of accusers' information and issued the Opinions on the Implementation of the Regulations for Discipline Inspection and Supervision Organs on Handling Reports and Accusations.



First, the name (unit name), work unit, address and other relevant information of the report and accuser and the contents of the accusations must be kept strictly confidential.



Second, they shall not transfer or inform the organization or person accused of reporting any information about the accusing materials or the accuser.



Third, the acceptance of accusations or the verification work shall be carried out under the condition that the identity of the accuser shall not be disclosed.



Fourth, in the case of reporting meritorious persons and involving the disclosure of their names, units and other personal information, consent shall be obtained from them.

FEATURE 1: FULFILLING THE MISSION OF SERVING NATIONAL DEVELOPMENT STRATEGY



Contribute to The Olympic Winter Games: Compose a Frozen Legend



National Sliding Center

The high-profile Beijing Olympic Winter Games is not only a window to show the image of China but also a major test for MCC builders. A number of subsidiaries of MCC successfully completed the construction of venues, operation and maintenance projects, and supporting facilities for the Beijing Olympic Winter Games and spared no effort to participate in the event security work, demonstrating the strength and responsibility of craftsmen in the country.

National Sliding Center was constructed by SBC is the competition venue for the Luge, Skeleton and Bobsleigh projects of the 2022 Beijing Olympic Winter Games. The project team took three years, from design and construction to operation and maintenance. The Baoye team not only overcame the "technical limit" step by step, developed new materials and cultivated new teams but also explored the best venue operation plan and adhered to the first line of service guarantee for the Olympic Winter Games on the day and night, achieving the successful completion of the track.

2018



On January 1, the project officially launched.



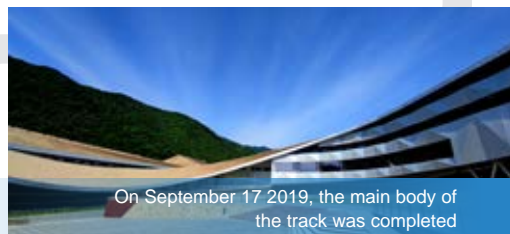
On October 10, the main body of the track held the first spray.



On September 17, the main body of the track was connected.

2020

On January 8, the wooden beam was hoisted, and the track's structure was formed.



On September 17 2019, the main body of the track was completed

On March 10, the first ice making of the track was completed, and the ice track passed through.



The hoisting of wooden beams was completed on January 8 2020



On March 10 2020, the first ice making of the track was completed.

2021



On November 1, the site pre-certification was successfully passed at one time.



On June 30, the project was completed and passed the acceptance.



In August, GAISF took a site visit.



In February, the project was put into use with operation and maintenance.

2022



The site pre-certification was successfully passed at one time on November 1, 2020



Operation team

Stadium Construction for Olympic Winter Games



Steel structure project for National Alpine Skiing Center



Steel structure project for Zhangjiakou Olympic Village and ancient poplar stadium group



Steel structure project for Wukesong Ice Sports Center

Operation and Maintenance for Olympic Winter Games



Comprehensive management and monitoring center project of service facilities in Yanqing Division



Temporary facilities project in Yanqing Division

Supporting Facilities for Olympic Winter Games



Coal to electricity project of Erdaogou Heat Source Plant in Chongli District, Zhangjiakou City



Shougang Park Beijing Olympic Winter Games Organizing Committee office renovation project



Transportation infrastructure testing projects



DoubleTree by Hilton Beijing Badaling



Contributing to Xiong'an, Supporting National Construction

MCC takes the initiative to serve major national strategies, actively gives play to its advantages in regional development, infrastructure construction and ecological environment management, and makes positive contributions to the construction and development of Xiong'an New Area. MCC has a total of 22 subsidiaries with permanent offices in Xiong'an, undertaking a total of 151 projects, ranking first among central enterprises in terms of the number, with an accumulated contract amount of nearly RMB 20 billion.

MCC fully participated in the construction and built the first investment project, the first infrastructure project, the first domestic waste comprehensive treatment facility project with hidden design, and resettlement housing project with a total gross floor area of nearly 2.6 million m²; We have organized more than 300 expert visits to provide various technical services for the new district, edited and participated in the compilation of 17 guidelines, standards and specifications for the Xiong'an New Area, and contributed MCC's wisdom to the construction of the New Area; The Company was awarded several honours for its pursuit of excellence.

MCC has a total of

22

subsidiaries with permanent
offices in Xiong'an

Total gross floor area
is nearly

2.6 million m²

Undertook a total of

151 projects

Organized more than
expert visits for over

300 people

Accumulated contract
amount of nearly

RMB 20 billion

Edited and participated in
the compilation of

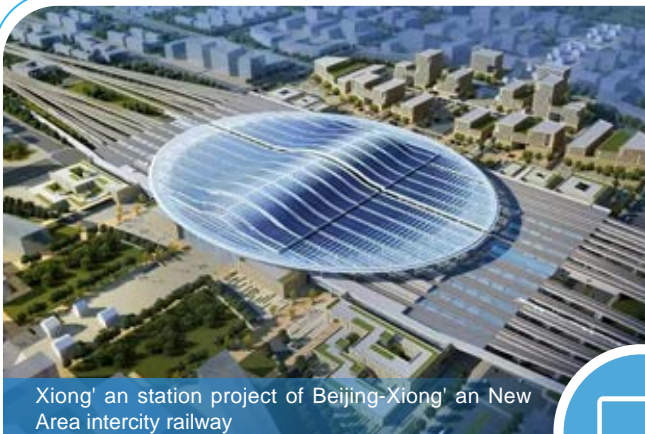
17
guidelines, standards
and specifications for the
Xiong'an New Area



MAJOR HONOURS



Well-connected Xiong' an



Xiong' an station project of Beijing-Xiong' an New Area intercity railway



Construction of the Xiong' an-Baigou connection line (Phase I)



Intelligent station project of building materials transportation channel (Rongcheng county-Yi county) in Xiong' an New Area



Comfortable housing project of Rongdong area in Xiong' an New Area

Development of Xiong' an



Primary school project in Rongcheng county



Xiong' an anti-corruption education base project



Ecosystem of Xiong' an



Rongxi No. 1 concrete batching plant in Xiong'an New Area



Central Green Valley Project in Xiong'an New Area



Comprehensive waste treatment facility (Phase I) project in Xiong'an New Area



Xiong' an New Area



Buildings in Xiong' an



Unit B resettlement house and supporting facilities (Section B2) project of Rongxi Area, Xiong'an New Area



Unit A resettlement house and supporting facilities project in Rongxi Area



Phase I of Southwest residential project in the start-up area of Xiong'an New Area

FEATURE 2: STRIVING TO SUPPORT THE REGIONAL ECONOMY

MCC closely follows the national regional development strategy, and enthusiastically devotes itself to the national economic construction strategic hotspots such as Beijing-Tianjin-Hebei, Guangdong-Hong Kong-Macao Greater Bay Area, Yangtze River Delta, Chengdu-Chongqing region, and Northwest region. Relying on the solid technical accumulation and comprehensive strength in three major directions, namely metallurgical construction, infrastructure construction and emerging industries, MCC successively won the bids and undertook a series of infrastructure and emerging industries construction projects, including urban complexes, ultra-high-rise buildings, transportation and municipal administration, theme parks, comprehensive pipe galleries, energy conservation and environmental protection. The total number of projects and the value of new contracts repeatedly hit new highs, making positive contributions to serving and supporting the major national strategies.



Chengdu-Chongqing Economic Zone



Dong'an Lake Park Project of the 31st World University Games in Chengdu



Chengdu Financial Innovation Center Phase I Project

Total number of projects
(over RMB 10 Million)

214

Value of newly signed contract

RMB 73.31 Billion



Guangdong-Hong Kong-Macao Greater Bay Area

Total number of projects
(over RMB 10 Million)

158

Value of newly signed contract

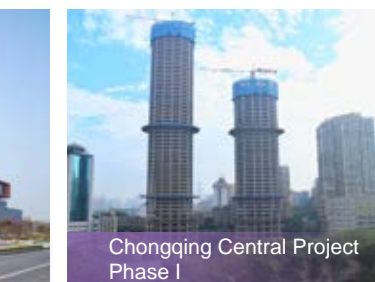
RMB 64.25 Billion



Guangzhou Baiyun International Airport Project



Sun Yat-Sen University-Shenzhen Construction Project



Chongqing Central Project
Phase I



Chengdu Jintang General Airport Complex Building and Work Zone,
Ancillary Works

Water Bay Area



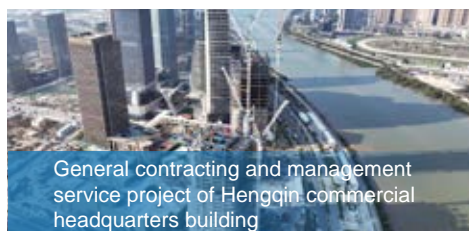
Qingyuan Olympic Sports Center Project in
Guangdong Province



Zhanjiang Steel No. 3 Blast Furnace Project



Urban Civic Art Center Project of Aviation
City, Jinwan District, Zhuhai



General contracting and management
service project of Hengqin commercial
headquarters building



Quzhou Sports Center

Total number of projects
(over 100)

72

Beijing-Tianjin-Hebei Region



Total number of projects
(over RMB 10 Million)

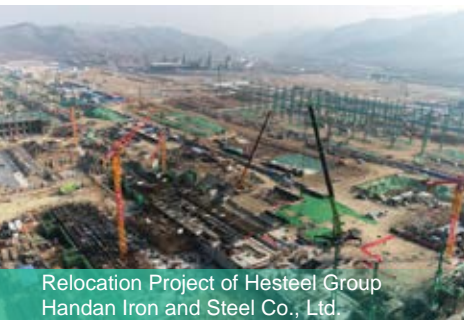
572

Value of newly signed contract

RMB 160.85 Billion



Reconstruction Project of Fengtai Station,
Beijing Railway Hub



Relocation Project of Hesteel Group
Handan Iron and Steel Co., Ltd.



Tangshan New Sports Center Project



Heyuehui High Street Project in Tianjin

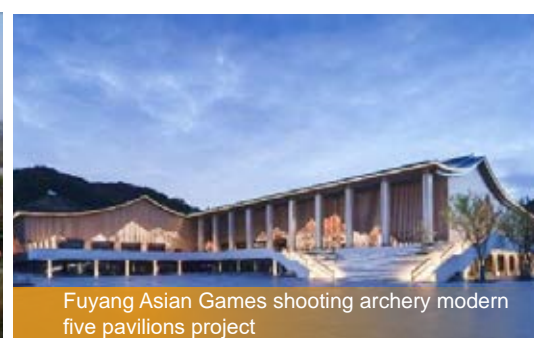
Yangtze River Delta



Sports Center Stadium Project



Yangzhou World Horticultural Exposition World
Exposition Project



Fuyang Asian Games shooting archery modern
five pavilions project

Number of projects
(over RMB 10 Million)

27

Value of newly signed contract

RMB 149.14 Billion



Comprehensive Environmental Improvement Project along
Yanjiang Road and Jiangtan in Fankou District, Ezhou



Northwest Area

Total number of projects
(over RMB 10 Million)

190

Value of newly signed contract

RMB 65.90 Billion



Xi'an Jiaotong University First Affiliated Hospital
International Land Port Hospital



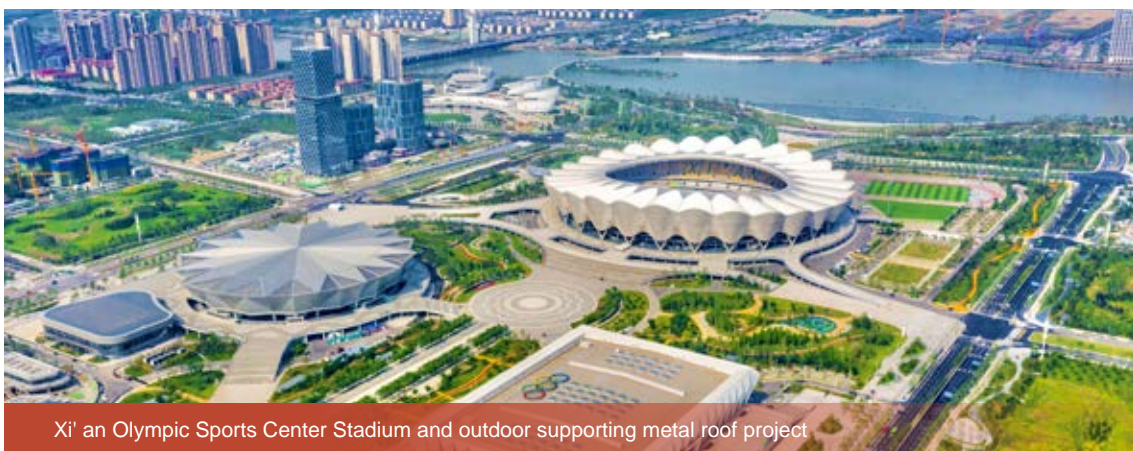
Mawu Xizhai No. 5 Project



Gansu Gymnasium Project



Yuzhong Resettlement Project



Xi'an Olympic Sports Center Stadium and outdoor supporting metal roof project

SHOULDERING THE RESPONSIBILITY OF IMPROVING PEOPLE'S LIVELIHOOD

FEATURE 3:

We continued to build affordable housing projects, vigorously promote livelihood projects such as affordable housing construction, low-rent housing construction, resettlement housing construction, old community renovation, and post-disaster reconstruction so as to promote social harmony and stability. We accelerated the construction of cultural tourism projects by exploring the cultural needs of the public to improve the level of public cultural services and effectively promote the high-quality development of public culture. We urgently supported the construction of epidemic prevention projects and actively participated in the construction of basic medical insurance and education infrastructure to ensure urban and rural residents's access to medical services and education.



Residence Enhancement



Baoding urban - village renovation ABO Project



Residential and Ancillary Facilities in Chenjiapi, Jiang' an District



Lanzhou New Area post-disaster resettlement housing project



Ma'anshan old community renovation project



Renovation project of old community in Qingshan District, Wuhan

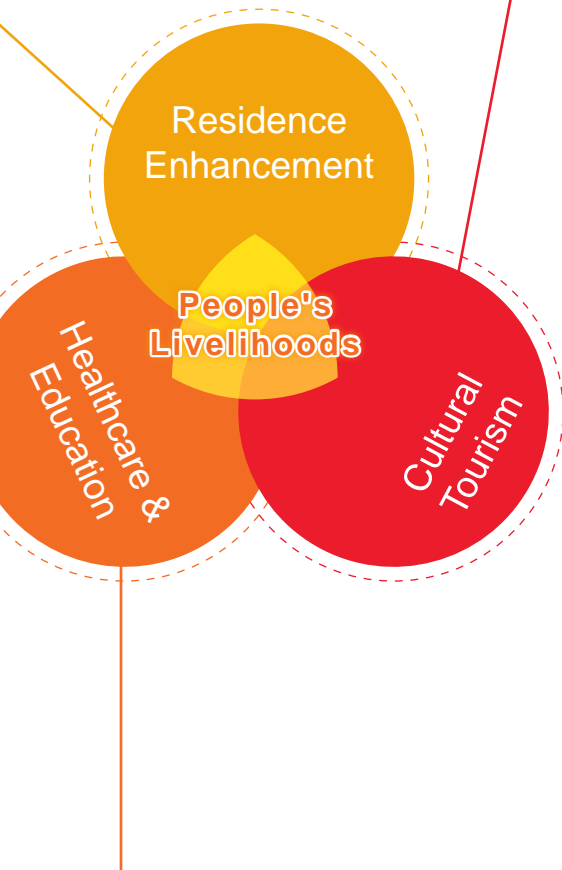


Healthcare & Education



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

Cultural Tourism



Universal Beijing Resort Project



Huai'an Xiyouji Cultural Experience Park Project



Chengdu Tianfu Art Park Project



Anyang Cultural and Sports Center Project



Cloud Rainbow Project



Hainan "Ocean Flower Island" Water Park Project



Yiyang City "One Park and Two Centers" PPP Project



General contracting of the construction of Shenzhen Second Children's Hospital



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



General Contracting Project of Xingtai Nangong Isolation

01

QUALITY CONSTRUCTION: STRIVING FOR WORLD-CLASS COMPANY





2021

Value of newly signed contract
RMB

1,204.98 Billion

Increase of

18.17 % vs 2020

In the first year of "the 14th Five-Year Plan", following the national strategic direction, MCC continued to make breakthroughs by promoting high-quality development, taking innovation as the fundamental driving force of the reform. In 2021, we continued to strengthen our advantages in metallurgical construction. We also had a steady and healthy development in infrastructure construction and a robust growth in the emerging industries, with the overseas business moving on despite the difficulties. We successfully realized the transformation and stable growth of the enterprises.

World-class National Team of Metallurgical Construction

MCC has always been at the leading position of the entire metallurgical industry. With the leading international core technologies, continuous innovation and R&D independent and controllable capabilities, and irreplaceable integration advantages of the entire metallurgical industry chain, MCC effectively fulfills the responsibility of leading China's metallurgical industry to achieve intellectual, green, low-carbon, and efficient development.

In 2021, as the first-class national team for metallurgical construction and operation globally, MCC achieved breakthroughs: 19 business units in 8 major parts of the iron and steel industry has been further consolidated. With the global leading core technology and the unique advantages of the whole industry chain, MCC successfully acquired domestic benchmark projects such as the urban renewal and integration project of the old zone of Han Steel, the domestic production line of universal heavy rail for the acceptance strip of Yongyang Special Steel, the No. 3 Steel blast furnace system of Baosteel Zhanjiang, the 2,700,000 tons high-quality special steel project in Linyi, and the Zhongtian green boutique steel project. Such projects make MCC continue to maintain the absolute leading position in the global metallurgical market.



Total value of newly signed metallurgical engineering contract

RMB 157.79 Billion



Baosteel Zhanjiang Steel Third Blast Furnace System Project

The third blast furnace system project of Zhanjiang Iron and Steel is appropriately expanded based on making full use of the first and second blast furnace systems. The third blast will meet the incremental market demand for ultra-high-strength steel products. More than ten subsidiaries of MCC gives full play to their respective advantages, implements the "green steel" throughout the whole service process, and effectively assumed the responsibility of promoting the intellectual, green, low-carbon, and efficient development of metallurgy.

Baosteel Zhanjiang Steel Base



Linyi Special Steel Project with an annual production of 2.7 million tons

With an annual production of 2.7 million tons, Linyi Special Steel Project is a key project in Shandong Province contracted by CERI. Intending to build a "green, harmonious, intelligent, high-quality, high-efficiency" project, CERI assisted the Lingang District of Linyi City in building the integrated park. It is of great significance to expand the local economy and accelerate the replacement of old growth drivers with new ones.



Linyi Special Steel Project with annual production of 2.7 million tons



Zhongtian Green Quality Steel Project

Zhongtian Green Quality Steel Project is a critical project in Jiangsu Province jointly constructed by 15 corporates, including HT, ACRE, and TMCC. MCC undertakes the whole process of steel production line with the design concept of "large-scale, high-efficiency, intensive, green, and intelligent" to help achieve efficient, flexible, and green manufacturing. After completion, the project will become the first "zero-wastewater discharge" emission project all over the world of great economic value and social significance.



Zhongtian Green Quality Steel Project



Baosteel Desheng Green Industrial Base for High-quality Stainless Steel Project

Baosteel Desheng Project is a key project in Fujian Province. MCC5, MCC17, MCC20, and SBC have constructed metallurgical units such as sintering, continuous casting of steel, raw materials, and steel making. The project is positioned to produce high-quality stainless-steel products with the goal of green, ultra-low carbon emission, smart manufacturing, and low cost. It is currently the most extensive high-quality stainless steel product production base in China. Upon completion, it will facilitate the high-quality development of the steel industry in Fujian Province and make it a world-class high-quality steel manufacturing base.



Baosteel Desheng Green Industrial Base for High-quality Stainless Steel Project

Key projects of metallurgical construction

1.Reconstruction and expansion project of Yulong Copper Mine in Changdu, Tibet

2.Guangxi Fangchenggang iron and steel base project

3.Tangshan HBIR industrial upgrading and Xuansteel capacity transfer project

4.Hebei Zongheng iron and steel project





5.Phase I project of Lingang advanced special steel industrial base of Shandong Iron and Steel Group Yongfeng Lingang Co., Ltd

6.Shangang steel base in Rizhao

7.CITIC Pacific special steel Tongling special material 4.3 m coke oven upgrading project

8.Shisteel environmental protection relocation project



Main Force and Pioneer of Infrastructure Construction

As the main force and pioneer of national infrastructure construction, MCC strives to improve contracting capabilities and strengthen brand-building capabilities with its excellent scientific research, survey, design, and construction strength. Our goal is centered around green, intelligent and industrial upgrading of buildings. We have built a competitive industry and high-quality brand with MCC characteristics in infrastructure construction.

In 2021, MCC actively participates major national strategies and vigorously promotes the coordinated development of upstream and downstream, production, supply, and marketing in related fields by giving full play to the leading role of the infrastructure construction industry. We undertake a number of hundred-billion-yuan national major projects, including the National Sliding Center, the 6th generation flexible AMOLED production line project of Xiamen Tianma Display Technology, the Lanzhou Olympic Sports Center project, and the Chaiji Xia Yellow River Bridge project in Lanzhou, Gansu, etc., which demonstrates the "Chinese image" to the world in the most beautiful attitude.



National Sliding Center Project of Beijing Olympic Winter Games

The National Snowboarding Center Project of Beijing 2022 Olympic Winter Games is one of the new competition venues with the most challenging design and construction. It is also the first snowmobile skid track in China. The project has formed five-track technology and acceptance standards, which fully complies with international certification requirements and makes a significant breakthrough. The total length of the engineering track is 1,975 m, with a vertical fall of more than 121 m, a leveling error of no more than 10 mm on the ground, and a maximum speed of 134.4 km per hour for athletes.

The engineering track

1,975 m

Vertical fall of more than

121 m



National Sliding Center Project of Beijing Olympic Winter Games



The 6th generation flexible AMOLED production line project of Xiamen Tianma Display Technology



The 6th generation flexible AMOLED production line project of Xiamen Tianma Display Technology

The 6th generation flexible AMOLED production line project of Xiamen Tianma Display Technology is currently the largest single flexible AMOLED monomer factory in China and the most advanced globally. It is also the largest single high-tech manufacturing project invested in Xiamen. The commencement of operation will promote industrial upgrading, drive the development of related industries, provide a large number of job opportunities, improve the urban layout and enrich industrial ancillary facilities, which are of great significance to Xiamen, Fujian Province and even the whole country.



Lanzhou Olympic Sports Center Project

Lanzhou Olympic Sports Center Project is a major livelihood project in Gansu Province. The project occupies a total site area of 515,989.3 square meters with a gross floor area of 450,080 square meters, including a 60,000 seats stadium, 8,000 seats Grade-A complex, 2,000 seats Grade-A swimming pool, 3,000 seats Grade-A tennis stadium, outdoor sports venues, sports industry buildings, athlete apartments, and outdoor auxiliary buildings. Upon completion, the project will become a new landmark in Lanzhou, integrating national fitness, large-scale gatherings, sports competitions and sports training.



Lanzhou Olympic Sports Center Project

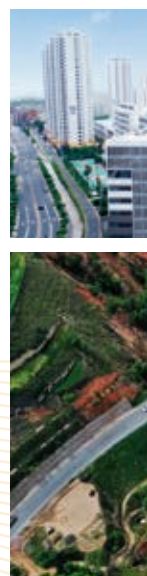
Key projects of infrastructure construction



- ▲ Jilin Changchun Longxiang International Business Center Project
- ◀ National flower trading center, national flower expo park, Heze City, Shandong Province

► Zhuhai
Hengqin
headquarters
building phase I
Project

▼ Chongqing
Xiantao data
Valley Project





- ▲ Sun Hotel-Crystal Plaza Project
- ◀ Jiangsu Nanjing Art Museum New Museum Project
- ▶ Lanzhou Chaiji Xia Yellow River Bridge Project
- ▼ Harbin Institute of Technology Shenzhen Campus Project



- ▶ Tianjin Julia School of Music Project
- ◀ Dinglin Expressway Project



Frontrunner and Leader in Emerging Industries

Emerging industries drive MCC's industrial development. We consistently take innovation-driven methods as the new engine for development. Driven by market demand, we focus on key areas of emerging industries such as utility tunnels, prefabricated buildings, sponge cities and intelligent cities. We take the responsibility of an innovator and leader in the development of national emerging industries and continuously promote sustainable development.

In 2021, with the unique technological advantages accumulated in iron and steel metallurgy and infrastructure construction, MCC continues to focus on emerging industries. It not only signs a number of energy-saving and environmental protection projects in Xiong'an, but also creates many internationally renowned projects such as Universal Beijing Resort Project, continuing to lead the emerging industries.



Universal Beijing Resort Project

Universal Beijing Resort is the world's largest, most intelligent, and highest-end Universal Studios Theme Park. MCC participated in constructing all six themed sections of Beijing Universal Studios, the only enterprise covering the entire industry chain among all participants. The Transformers Base constructed by MCC has undergone the research and construction of electrical system to realize the organic combination of sound and photoelectric effects.



Universal Beijing Resort Project



Huai'an Xiyouji Cultural Experience Park Project

Huai'an Xiyouji Cultural Experience Park is the first traditional cultural theme park project in China. It is a key project for Huai'an City to vigorously develop the cultural tourism industry and promote the economic development of old districts.



Huai'an Xiyouji Cultural Experience Park Project



Expansion Project of Phase III of Qingliu Sewage Treatment Plant in Chuzhou

The phase III expansion project of Qingliu Sewage Treatment Plant in Chuzhou City has a new sewage treatment capacity of 50,000 tons per day, effectively improving the water quality of Longpan River.



Chuzhou Qingliu Waste Water Treatment Plant Phase III Expansion Project



Dong'an Lake Park Project of the Chengdu World University Games

Dong'an Lake Park Project is constructed by MCC5, which is a key project in Sichuan Province and an important auxiliary infrastructure project for the 31st Summer Universiade. This project includes four ecological restoration areas, Liheyuan Relocation Project, Dong'an Reservoir, Subway Tunnels, and Bridge Works. Upon completion, the landscape with Chinese Bashu characteristics will be presented to the world.



Dong'an Lake Park Project of the Chengdu World University Games



Xiangyang Oct Yunhai Jiatu Hotel project



Yuhui District, Bengbu, Anhui Province

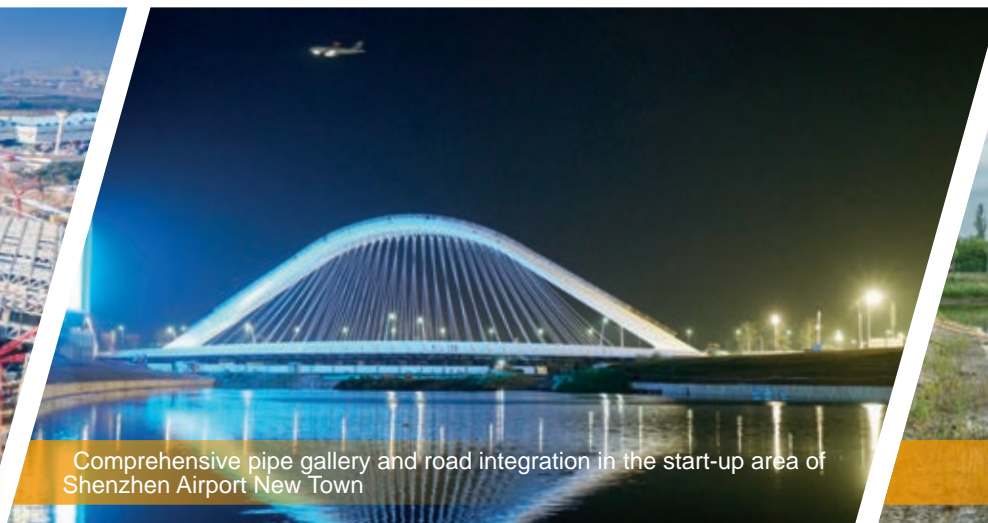
Key projects of emerging industries



Xi'an Pipe Gallery Project



Baoshan Renewable Energy Utilization Center Project



Comprehensive pipe gallery and road integration in the start-up area of Shenzhen Airport New Town



Sichuan Chengdu open air music Park Project



Xiangyang OCT Fantasy Valley Project

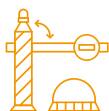


Lingwu wetland project



Hubei Wuhan High Tech Avenue comprehensive reconstruction project

MCC continues to undertake the important mission of the "Belt and Road" initiative and actively promotes the construction and development of overseas communities. We buildsstarts 382 overseas projects such as the 3,500,000 tons steel project in Dexin, Indonesia, the Olympic Stadium in Algeria, and the Prince Plaza in Cambodia, providing local enterprises and people with the opportunity to share and build together, which demonstrates an excellent international corporate image.

[illegible]

382

61



9,223

63.55%



Phase III OCH Project of Outer Circular Highway in Colombo, Sri Lanka

The Phase III OCH (Outer Circular Highway) Project of Colombo Outer Ring Expressway in Sri Lanka is constructed by MCC. The highway connects to the central expressway in the east, the airport expressway in the west, and the southern expressway, which enables the formation of a systematic expressway network in the surrounding areas of the capital of Sri Lanka and effectively alleviates traffic congestion. In 2021, the No. 1 viaduct of the project won the Luban Prizes for Overseas Engineering.



Outer Circular Highway phase III



3.50 Mt/a Iron and Steel Project for PT.Dexin Steel Indonesia

The 3.50 Mt/a Iron and Steel Project in Dexin, Indonesia is a large-scale and complete-process steel plant project built overseas by MCC, and it is one of the key projects of the "The Belt and Road" initiative. The project has been completed and put into operation in February 2021, and starts to gain profit in three months. By adopting the small-scale subcritical coal gas power generation technology pioneered by WISDRI, the project's cost per ton of steel has been reduced by more than RMB 200, achieving the goal of emission reduction and efficiency enhancement.



3.50 Mt/a Iron and Steel Project for PT.Dexin Steel Indonesia



Pakistan Saindak Copper-Gold Mine Project

MCCT operates the Saindak Copper and Gold Mine in Pakistan. It is the first large-scale modern non-ferrous mine and the only non-ferrous metal mine in Pakistan that integrates centralized procurement, processing, and metallurgy. Since the project leasing operation in 2002, it has striven to promote the non-ferrous metals industry in Pakistan and build a territorial development relationship with a shared destiny and harmonious coexistence. The company has made great efforts in creating jobs, fulfilling social responsibilities and stabilizing the frontier, and has achieved fruitful results.



Pakistan Saindak Copper-Gold Mine Project

Key projects of overseas business



India Tata KPO coking EPC project



Vietnam Rongju steel project



Yamama cement plant project in Saudi Arabia



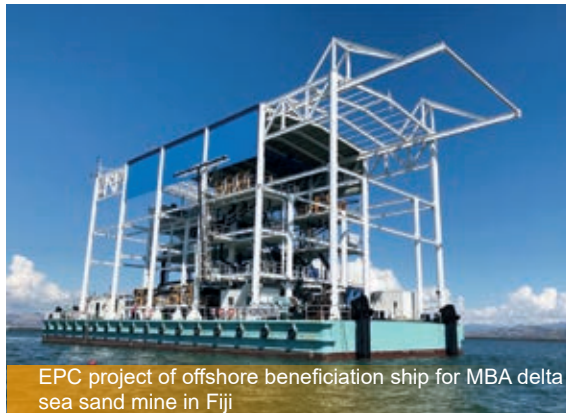
Malaysia China Kuantan iron and steel project



W hotel project in Kuala Lumpur, Malaysia



General contract project of Universal Studios Singapore



EPC project of offshore beneficiation ship for MBA delta sea sand mine in Fiji



Vietnam Formosa Plastics heating steel project



Indonesia Tadao iron ore project



Indonesia Obi Island ferronickel project

02

INNOVATION DRIVEN: LEADING HIGH-QUALITY DEVELOPMENT





2021

Total number of
patent applications

11,868

R&D investment
RMB

17.398

 Billion

Focusing on the national strategies and the core businesses, MCC adheres to the innovation-driven strategy, promotes scientific and technological self-reliance and self-improvement, strengthens the research of core technologies and accelerates the creation of the source of original technologies, which effectively improves the innovation, competitiveness, influence and risk resistance capacity of enterprises, and accelerates the construction of a world-class enterprise.

Improving Innovation System

To achieve a faster and more powerful technological innovation, it is necessary to accelerate the improvement of the technological innovation system. In recent years, MCC has focused on building an innovation system with comprehensive connection, mutual support, organic interaction, and efficient resource allocation in all aspects. It has deployed innovation chains around the industrial chain, improved the value chain by relying on innovation chains, steadily promoted the reform of the scientific and technological innovation system, and resolutely eliminated the institutional and mechanism obstacles that restrict scientific and technological innovation. The company achieved remarkable results in improving the innovation vitality and efficiency of enterprises.

Establishment of Professional Technology Research Institute

Focusing on the research of cutting-edge technologies and implementing breakthrough technologies are significant to scientific and technological innovation. MCC gathered internal resources and established 14 professional technology research institutes. Relying on the independent innovation capabilities of these professional technology research institutes, we will make great efforts in urban underground comprehensive pipe gallery, large theme park construction, sponge city, smart city, beautiful countryside, planning and consulting, environment and new energy, prefabricated construction and other fields, make every effort to ensure that we can obtain the leading position in emerging industries, and continuously promote the positive impact of sustainable development under the new normal.

14

professional
technology
research
institutes

- ◎ Utility Tunnel Technology Research Institute
- ◎ Beautiful village and smart city construction Technology Institute
- ◎ Sponge City Technology Research Institute
- ◎ Theme Park Technology Research Institute
- ◎ Water Environment Technology Research Institute
- ◎ Healthcare Industry Technology Research Institute
- ◎ Prefabricated Construction (Beijing) Technology Research Institute
- ◎ Prefabricated Construction (Hebei) Technology Research Institute
- ◎ Prefabricated Construction (Shanghai) Technology Research Institute
- ◎ Low Carbon Technology Research Institute (Beijing)
- ◎ Low Carbon Technology Research Institute (Wuhan)
- ◎ Low Carbon Technology Research Institute (Chongqing)
- ◎ Green Low-carbon Technology Research Institute (Non-ferrous)
- ◎ Underground Space Technology Research Institute



Building Technology Innovation Platforms

As a national innovative enterprise, MCC actively plays the leading role of scientific research platform to provide strategic support for the country's major needs and economic and social development. MCC has 27 national-level scientific and technological innovation platforms including the State Key Laboratory of Environmental Protection in the Iron and Steel Industry and the National Engineering Technology Research Center for Energy Efficiency Optimization of Iron and Steel Industry, and has cumulative issued 62 international standards and 602 national standards. The number of national-level scientific and technological platforms and the overall level of international standardization work rank at the forefront of central enterprises.



National Engineering Research Center of Metallurgical Equipment Integration

National Engineering Research Center of Metallurgical Equipment Integration has been continuously carrying out the research and development of core key processes, equipment and control technologies in order to realize the independent design, manufacturing, integration and construction of steel smelting technology and equipment, and promote the technological progress in the field of steel smelting technology and equipment.

In the past five years, the research center has implemented more than 300 scientific research projects, forming nearly 70 core finished products such as platforms, software, equipment and systems. More than 1000 sets/items have been applied, with the result conversion rate reaching 50%, more than 90% reaching domestic leading level and international advanced level, and 30% reaching international leading level. It has successfully provided remote interconnection technology services for more than 20 domestic and foreign customers.



Accelerating “Technology Reform Demonstration”

Seizing the opportunity of reform, grasping the key contradictions and problems, and launching the innovation engine at full speed are the keys to the demonstration action of scientific SOE reform. Since being selected as the model of the reform, CERI has improved its independent innovation capability through a series of reform measures such as improving the R&D innovation system, increasing R&D investment and implementing innovation drive, enhanced the vitality of enterprise development, and released the endogenous motivation of scientific and technological personnel, with its operating indicators ranking top among similar design enterprises. In the latest industry rankings published in 2020, CERI won the third place in the top 50 comprehensive strength of China's engineering survey and design industry, the fourth place in the top 100 comprehensive strength of China's whole-process engineering consulting industry. The scientific reform demonstration action has achieved remarkable results.

The top 50 comprehensive strength of China's engineering survey and design industry

In 2020, CERI won

3rd place

The top 100 comprehensive strength of China's whole-process engineering consulting industry

4th place

CERI Technology Reform Demonstration Project



Fujian Sanming heat recovery coke furnace waste heat power generation project



Full view of the digital factory in HBIS Tangsteel New Area

Promotion of "Double Hundred Actions"

"Double Hundred Actions" is a major project to deepen the reform of state-owned enterprises. Enterprises are required to complete the "specified reform actions" with high quality and high standards, and to explore and innovate flexible, practical and efficient "self-selected reform actions". As a company listed in the "Double Hundred Actions", CISDI, SMSC, China ENFI and China 17th Metallurgical Corporation actively played the role of technology leading demonstration and core support through continuous optimization of the mechanism and system, striving to achieve the transformation from high-speed growth to high-tech and high-quality development.



The converter continuous casting project of the Phase II of Quwo Base of WISDRI won the sole manufacturing award of the "2021 Global Infrastructure Digital Brilliant Award"

Focusing on Core Technologies

MCC closely follows the instructions of President Xi on "giving full play to the role of innovation as the primary driving force for development, implementing a number of major scientific and technological projects, accelerating the breakthrough of core key technologies, comprehensively improving the technological content of economic development, and improving labor productivity and return on capital". Taking scientific and technological innovation as the fundamental driving force, MCC has formed a new demand, new technology and new structure with its own characteristics through the systematic scientific and technological strategic layout combining "forging strengths and remedying weaknesses" in advance, and continuously stimulates the new vitality, new momentum and new resilience of scientific and technological innovation.

Total R&D investment in 2021

RMB **17.398** Billion

R&D investment percentage

3.48 %

Breaking Through the "Bottleneck" Problem

Overcome

181

core technologies in the field of metallurgical construction

By means of large-scale projects, large teams, large platforms, MCC aims to overcome 181 core technologies in the field of metallurgical construction and achieve complete autonomy, and quickly occupy the high-level of technology. In response to the problem of "bottleneck" in the production and manufacturing of heavy rail steel for the construction of high-speed railways in China, which is urgently needed to make breakthroughs in the metallurgical field, after ten years of independent research and development, design and manufacturing of universal rolling machines that can produce heavy rail for high-speed railways, MCC has realized the key technical indicators such as the dimensional accuracy of the cross-section, the uniformity of the full-length size, the quality of the surface and the flatness of the products, completely surpassing those of the same kind of equipment abroad, and the one-off investment and maintenance costs have decreased by more than 50%, realizing the self-reliance and self-improvement of the core equipment of the heavy rail production line, effectively promoting the rapid development of China's high-speed railway construction and the technology of production equipment for high-speed.



The universal rolling mill independently developed by CISDI is the first domestic universal heavy rail production line in China

Promoting Patent Layout

MCC attaches great importance to patents. We actively apply for the international patents and increase the proportion of invention patents and design patents to further strengthen our competitiveness. The number of patent applications, number of licenses and cumulative number of valid patents of MCC maintained steady growth. The number of cumulative valid patents exceeded 40,000, and the number of national intellectual property demonstration enterprises was 16. MCC is the only enterprise in China that has won the China Patent Gold Award for three consecutive years. In 2021, MCC applied for a total of 11,868 patents, including 5,648 invention patents; 7,881 patents were granted, including 1,554 invention patents (53 foreign invention patents); a total of 40,477 effective patents were applied, including 10,000 invention patents for the first time, reaching 10,641 (245 foreign invention patents).

MCC attaches great importance to intellectual property protection and strictly abides by the Patent Law of the People's Republic of China. During the Reporting Period, MCC funded the inventors of the authorized patents to motivate more employees to apply for patents. In order to strengthen employees' awareness of intellectual property protection, MCC conducted intellectual property training with the theme of "Improving Intellectual Property Management" by explaining Corporate Intellectual Property Management Standard GB/T 29490-2013, to promote the publicity and implementation of intellectual property.

Applied for patents

11,868

Including invention patents

5,648

Granted patents

7,881

Including invention patents

1,554

Cumulative effective patents

40,477

Including invention patents

10,641

Key Technological Achievements

MCC continues to make efforts in the scientific and technological innovation, strengthens industry-university-research cooperation, and focuses on cultivating advantageous award-winning projects. During the reporting period, MCC's technological cultivation achievements reached a new high:

4 research outcomes won the 2020 National Science and Technology Award

Won **20** Metallurgical Science and Technology Awards of China Iron and Steel Association and China Society for Metals in 2021, including **3** first prizes

Won **10** China Nonferrous Metals Industry Science and Technology Awards, including **5** first prizes

Won **9** Excellence Awards in the twenty-two th China Patent Award

Won **4** "Mao-Yi-Sheng Science and Technology Award — Constructor Award"; **5** items of the 19th Tien-yow Jeme Civil Engineering Prize



MCC won four 2020 National Science and Technology Awards

As a direct nomination unit for the National Science and Technology Award, MCC has continuously won a number of National Science and Technology Awards in recent years, which greatly enhanced MCC's influence in the national and industrial science and technology award system. In 2021, the four achievements led and completed by MCC were again awarded the 2020 National Science and Technology Award, of which:

Second prize of the 2020 National Technology Invention Award

The "Key Technology and Application for Improving Service Efficiency of Prestressed Structures" directly nominated by MCC Group and led by the MCC Research Institute as the first completion person and the first completion unit won the second prize of the 2020 National Technology Invention Award

First prize of the 2020 National Science and Technology Progress Award

CIE, as the second completion unit, participated in the project "Industrial Flue Gas Multi-pollutant Collaborative Deep Treatment Technology and Application" won the first prize of the 2020 National Science and Technology Progress Award

Second prize of the 2020 National Science and Technology Progress Award

ACRE participated in the project "Ultra-low Emission Control Technology and Application of Multi-process and Multi-pollutant in the Iron and Steel Industry" won the second prize of the 2020 National Science and Technology Progress Award

Second prize of 2020 National Science and Technology Progress Award

CERI won the second prize of 2020 National Science and Technology Progress Award

Upgrading Through Digitalization and Intelligent Technologies

MCC seized the new opportunities of digital and intelligent development, integrated the iron and steel metallurgy technology with cutting-edge information technology accumulated over 70 years, carried out in-depth research on big data intelligent innovation, took the lead in building a "five-in-one" intelligent ecological system, established a "digital enterprise brain". The company accelerated the development of industrial digitalization and digital industrialization, and laid a foundation for the improvement of enterprise management quality and efficiency.

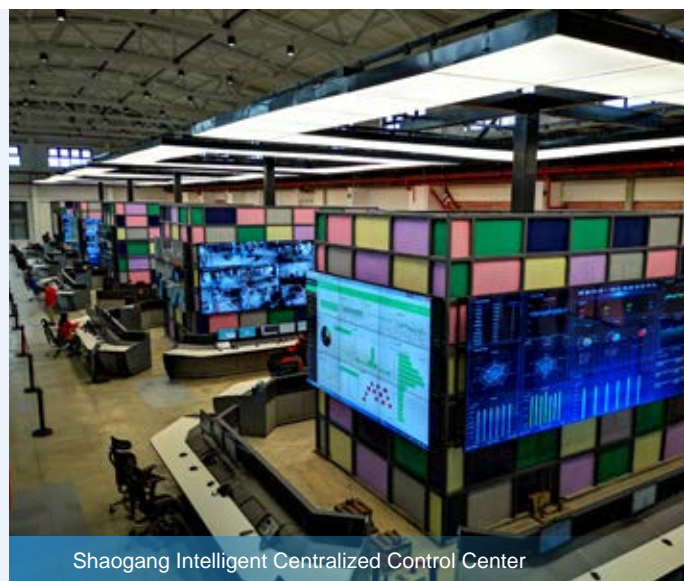
Digitalization Enlightens the Steel Factory

As a world-class national team for metallurgical construction, MCC closely follows the trend of intelligent manufacturing, comprehensively promotes the implementation of intelligent manufacturing strategy, builds efficient and safe intelligent steel plants, realizes the continuous conversion of old driving forces, and promotes the intelligent transformation of Chinese metallurgical industry. MCC has accelerated the innovation of the production process, technology system and organizational management of iron and steel enterprises, and successively developed the world's first digital twin material yard, the first steel integrated intelligent management and control center, the first domestic digital infrastructure platform based on independent chip architecture, the first industrial internet platform with full-process practical applications, the first full-process "smart mine" platform and other intelligent manufacturing benchmark projects, striving to build an intelligent modern steel dream factory with the national "5G + industrial internet" as a high-end model.



Integrated intelligent manufacturing technology of CISDI Iron Zone

By integrating advanced technologies such as the Internet of Things, big data and artificial intelligence and iron processing, CISDI has successfully developed the integrated intelligent manufacturing technology for the iron zone that is highly efficient and collaborative across processes, achieving a major breakthrough in the intelligent manufacturing field of China's iron and steel industry. At present, the technology has been successfully applied to a number of key projects at home and abroad, creating significant economic and social benefits for customers. The technology has obtained 15 authorized invention patents, 3 utility model patents, 45 software copyrights, published 54 papers, and won the first prize of MCC Science and Technology Award in 2021.



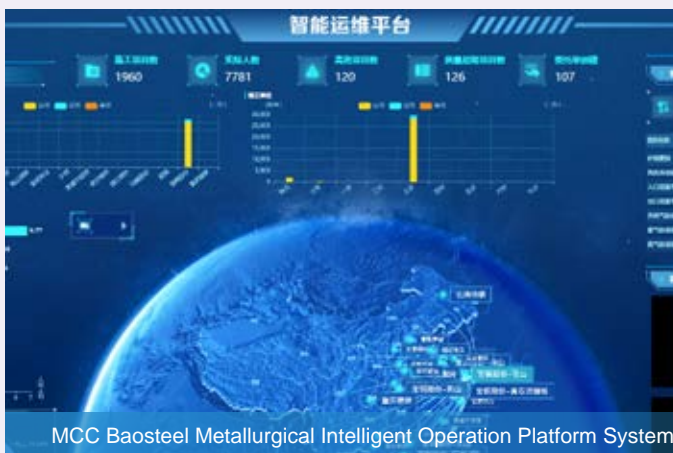
Shaogang Intelligent Centralized Control Center



MCC Baosteel Metallurgical Intelligent Operation Platform

In 2021, the full-process and whole-industry-chain metallurgical intelligent operation platform built by MCC Baosteel was officially put into use, and was awarded the 2021 Most Valuable Application Case of Corporate Digital Governance by the Ministry of Industry and Information Technology. The functions of intelligent maintenance, intelligent diagnosis, remote command, remote monitoring, etc. were launched, and data sharing was successively formed with the systems of Baosteel and Zhanjiang Steel to realize the visualization, controllability and controllability of the whole process of maintenance and inspection operations.

Among them, the intelligent maintenance system operated more than 60,000 maintenance work orders in Baoshan Base of Baosteel; The intelligent diagnosis system has collected more than 40,000 defect records; The intelligent monitoring system is connected to more than 150 monitoring equipment; Over 60 ten thousand safety inspection records and over 20 ten thousand quality inspection records in the safety and quality management system; Remote guidance system realized remote guidance for highly difficult on-site operations; More than 1,400 scientific and technological achievements in the technology management module.



MCC Baosteel Metallurgical Intelligent Operation Platform System



Information Empowers Infrastructure Construction

As the main force and pioneer of infrastructure construction, MCC has fully applied the BIM technology ("Building Information Modeling Technology") in the field of fundamental construction, realized the application of the whole process from design consultation to construction operation and maintenance, promoted the improvement of the level of informatization in the fundamental construction industry, built a digital driving system for smart construction, and promoted the improvement of quality and efficiency of engineering construction. In 2021, 12 BIM application technologies of MCC won the First Class Achievement Award of China Construction Engineering BIM Competition.

Two industrial big data application enterprise production process optimization demonstration projects and one experience management model innovation project of MCC were selected as the 2021 big data industry development pilot demonstration project by the Ministry of Industry and Information Technology.



BIM Design and Construction Integration Project of SBC Quzhou Sports Center

The intelligent construction application of the stadium of Quzhou Sports Center project based on BIM is the function of a large-scale cultural and sports mall integrating six functions of "sports events + fitness and sports + science education and tourism + culture and sports training + performance and entertainment + commercial sports". The project requires many monomers, large-scale shaped components, wide professional knowledge, and large workforce. The application of BIM technology is conducive to the overall balance optimization, guarantee of construction quality, construction coordination, deepening of drawings, and solving professional cross-problems, and has obvious economic and social benefits. The project was awarded the First Class Achievement Award in the 6th China Construction Engineering BIM Competition.



SBC Quzhou Sports Center Stadium Project



China MCC 5 Intelligent Construction Management Platform

In 2021, the "Practice of Smart Construction Management Platform in the Ancillary Infrastructure Construction Project in Dong' an Lake Area of the Universiade in Chengdu" led by China MCC 5 was successfully selected as the first batch of "Typical Cases of Innovative Services for New Intelligent Construction Technology and New Products" by the Ministry of Housing and Urban-Rural Development. In response to the situation where the Dongan Lake project in the main venue of Chengdu Dayun is large in size, tight construction period, high social attention, and the traditional management mode is difficult to meet, China MCC 5 adopted the "BIM (Building Information Model) + GIS (Geographic Information System) + IOT (Internet of Things) + AI (Artificial Intelligence)" technology to build a smart construction management and control hub for the whole life cycle, successfully achieving the transformation of the project modern innovation management mode, achieving the overall goal of in-depth service design, improving construction quality, accelerating construction progress, optimizing project costs, realizing virtual construction and informatization management.



Information Security

While promoting the digital and intelligent development, MCC also attaches great importance to information security management, and strictly abides by the Cybersecurity Law of the People's Republic of China and the Data Security Law of the People's Republic of China to conduct security management of MCC's digital system. MCC sorted out and checked digital assets, clarified the responsibilities of network security step by step, conducted vulnerability scanning on network security systems and equipment on a regular basis, and set up network security equipment at the network exit to resist external network attacks. At the same time, MCC deployed an automatic network monitoring and early warning platform to monitor network status in real time, and timely rectified and strengthened the abnormal problems found. MCC also strictly sets the right to use data operators, implements monitoring and post-audit to prevent unauthorized operation and illegal use of customer information. Through the implementation of the above measures, MCC has completed the major protection of network security for the 100th anniversary of the founding of the Communist Party of China and the network security plan for the Beijing Winter Olympics, ensuring the information security of enterprises and customers.



MCC also utilized the information system to facilitate the daily work under the normalization of the epidemic. Through the dedicated video conference, internet video conference and telephone conference system, timely communication with government departments, China Minmetals, subsidiaries at all levels and relevant personnel of domestic and overseas projects was ensured to ensure the orderly development of daily management. At the same time, MCC integrated information infrastructure resources, initiated the construction of off-site disaster recovery centers in the same city, and launched core business data disaster recovery services to effectively ensure system data security. MCC also further enhanced its network operation and maintenance capabilities, optimized and upgraded wireless network equipment, and significantly improved the access speed of mobile equipment.

Constructing Innovation Eco-system

MCC takes the scientific reform action as the starting point, promotes the creative leading reform as the driving force, and improves the scientific and technological innovation system and mechanism to effectively break the investment constraints, break the management barriers, solve the problem of transformation of achievements, stimulate the innovation vitality, motivation and potential of all parties, and build a good innovation ecosystem.

Improving Evaluation and Incentive Mechanism

In 2021, MCC continues to improve the evaluation system to stimulate scientific and technological innovation. Guided by MCC's assessment objectives, the subsidiaries of MCC have formulated a differentiated assessment indicator system based on the combination of quantitative and qualitative indicators and department-based assessment targets to further guide the focus on new technologies, new processes, new product development and achievement transformation. In addition, MCC further explores specific measures and implementation paths for the transformation, disposal and income distribution of scientific and technological achievements, and stimulates the innovation and creativity of scientific researchers at multiple levels and in an all-round way by establishing a reasonable and efficient medium and long-term incentive mechanism.

All-round Support for Research

In order to promote the sustainable development of scientific research, MCC accelerates the cultivation of innovative scientific and technological talents and continuously improves the quality of scientific and technological talents; MCC focuses on recommending more experts to become national-level scientific and technological award evaluation experts, and the main completion personnel of national awards were included in the list of national award evaluation experts; MCC issued the Administrative Measures for Chief Experts and Chief Experts in the Field of Professional Technology and other regulations, and built a group of high-quality steel technology teams. At the same time, we guide subsidiaries to effectively increase R&D investment and improve the intensity of R&D investment. MCC also provides financial support to researchers and help them go further in technological innovation.

Optimizing Systems and Mechanisms

Building a complete, scientific and standardized system and mechanism with efficient operation is a powerful measure to ensure the implementation of various management measures and the connection of the management chain, which plays a crucial role in the sustainable development of the enterprise. MCC will accelerate the improvement of the shortcomings of the systems and mechanisms, enhance the execution of the system, improve the governance efficiency, promote the implementation of various reform policies, and continuously help improve the high-quality development of MCC.

Measures taken by MCC and its branches to optimize the mechanism and system include:



Improving the governance structure to ensure the quality and efficiency of production and operation



Improving the tenure system and contractual management of the management to stimulate the mobility of the enterprise



Improving the organizational structure to establish an efficient enterprise management system

03

ENHANCING MANAGEMENT: CONSTRUCTING A QUALITY ENTERPRISE



2021

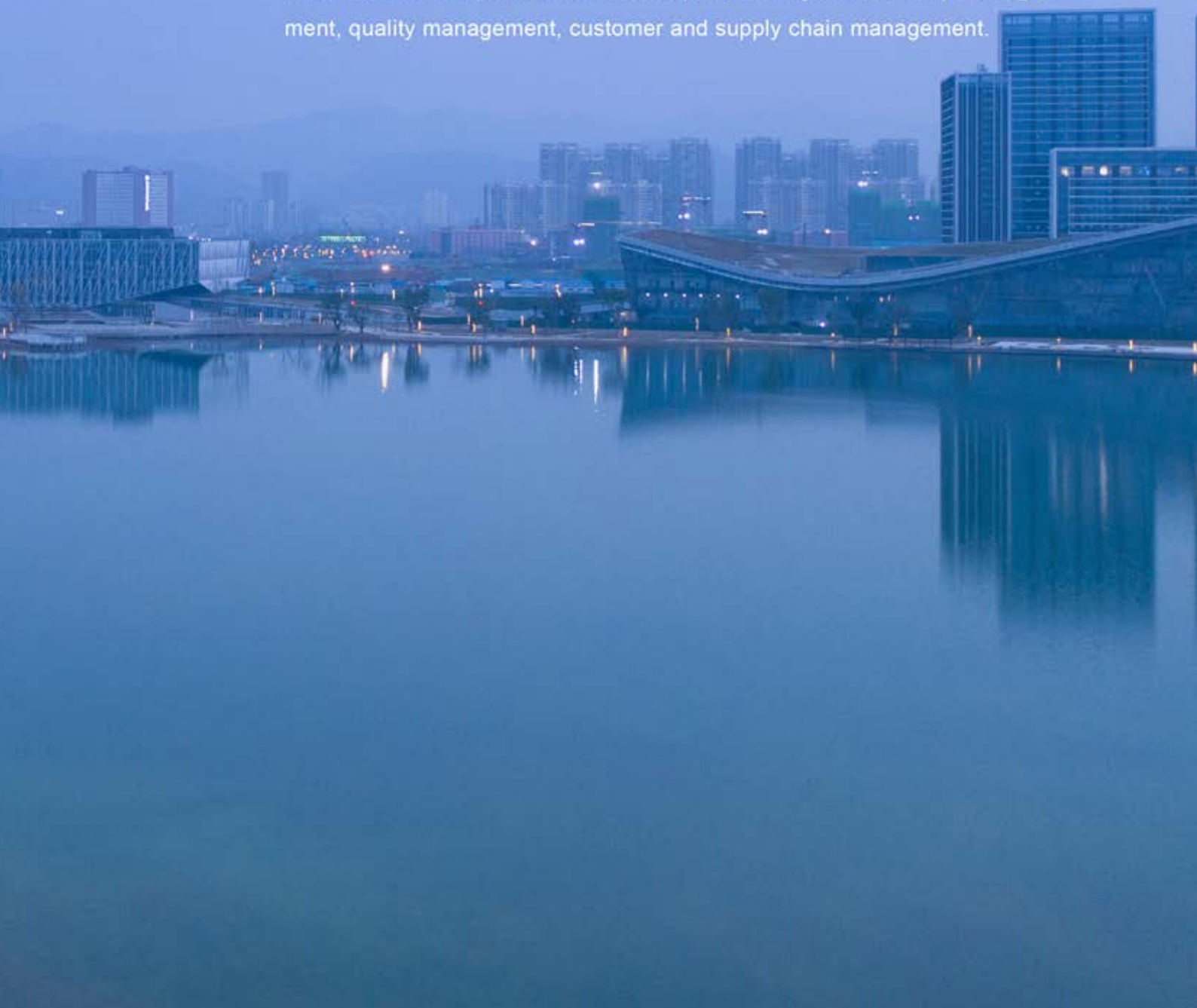
Won the Luban Prize for
Construction Projects

6 projects

Won the National Quality
Engineering Awards

26 projects

Strengthening management is the eternal theme of enterprise, which guarantees its sustainable development. By carrying out the world-class management action, MCC develops much faster by improving its management level in various aspects such as enterprise management, safety management, quality management, customer and supply chain management.



Fundamental Management to Create a Benchmark

MCC carried out world-class management and issued the Implementation Plan of MCC's Action to improve its "five-force". The implementation is proposed by 37 benchmarking items from eight management fields, and the benchmarking enterprises, work objectives, specific measures, work achievements and main responsible departments are also clarified, which aims to strengthen MCC's capabilities of strategy and operation management. On the basis of benchmarking first-class enterprises, MCC makes efforts in three aspects, innovation, quality assurance and talent cultivation establish management benchmarks. The company will give full play to the leading role of management benchmarks and promote the action to a new level.

First-class Cost Management

The construction industry is one of Chinese earliest and most market-oriented industries. Whether an enterprise can control its costs is essential for it to be more quality, efficient and competitive. With China MCC 5 as a pilot

project, MCC has explored and formed an industry-leading cost management model, achieving cost reduction and efficiency improvement.



MCC 5 Cost Management

MCC 5 is one of the first enterprises in the industry to implement centralized management. Through the reconstruction of various management systems and processes, MCC 5 has established and improved a centralized management and control system based on the headquarters' management system, highlighting the three key control points of project cost, contract performance and risk, investment and financial capital, and continuously enhancing first-class cost management capabilities.

Headquarters management

MCC 5 centralized the core elements of project management to the headquarters and branches and subsidiaries, delegated different management powers to all levels according to the project volume and importance, and assigned corresponding responsibilities to ensure the balance of power and responsibility, which enhanced the headquarters' centralized management and resource allocation capabilities, laying a solid institutional foundation for cost reduction and efficiency improvement.

Project cost management

The Group will continue to explore project cost management methods, focus on cost from the source, control cost through process control, and comprehensively strengthen low-cost competitiveness by strengthening contract review, procurement management and subcontracting management.

Performance and risk management

MCC will continue to strengthen the construction of the project management platform, deeply practice the project management concept of "contract performance-service-satisfaction", comprehensively strengthen the whole process management of contract performance, and gradually form a systematic management system and mechanism to ensure that the entire process of project duration, quality and safety are under control, laying a solid foundation for the cost and profit management.

Investment and capital management

MCC will continue to strengthen the management of capital projects, adhere to promote the construction of a financial sharing platform with high standards, and spare no effort to reduce receivables and claims to support enterprises to reduce costs and increase efficiency with solid and efficient financial capital management, and ensure the high-quality development.

Safety Management to Guarantee Protection

Strict Safety Management

MCC firmly bears in mind the concept of work safety and coordinates development and safety by resolutely implementing the Law of Production Safety Law of the People's Republic of China, Regulation on Work Safety Licenses, The Administrative Regulations on the Work Safety of Construction Projects, Regulations on the Reporting, Investigation and Disposition of Work Safety Accidents, Special Equipment Safety Law of the People's Republic of China and other national laws and regulations related to safe production. To better implement the national regulations and standards for work safety and solve major problems in practice, we established a Work Safety Committee- fully responsible for work safety, led by the president of MCC. In 2021, MCC signed a Liability Statement of Safety and Environmental Protection Target with 41 subsidiaries to strictly carry out work safety management with the goal of zero production safety accidents. For subsidiaries that have incurred production safety accidents, MCC will deduct points in their annual performance assessment, which will be directly linked to the performance-based remuneration of the senior management of the subsidiaries.

Enhancing Work Safety

MCC implements the three-year action of the national special rectification of work safety and consolidates the basic work of it. MCC carried out the "Foundation Action" of work safety throughout the year in accordance with the principle of problem orientation, with the theme of "strengthening the foundation to eliminate hidden dangers, and scientifically ensuring development". MCC sorted out and investigated the problems from seven aspects, namely the management and mechanism system, the construction of safety team, the disclosure of safety technology, special equipment management, subcontracting management, safety training, technology-based safety and safety culture construction, established a list of problems, identified rectification measures, clarified rectification plans, implemented rectification responsibilities, and continued to promote the improvement of work safety management system.



WSGRI Construction "Safety Visualization Platform" strengthens work safety with technology

The "Safety Visualization Platform" of Ercheng Iron & Steel, constructed by WSGRI, integrates the steel production equipment, production lines and employees closely through the industrial Internet and 5G positioning technology, so that the steel manufacturing industry can form the interconnection of cross-equipment, cross-system and cross-plant areas, and uses the geographic information three-dimensional visualization technology as a demonstration method to realize the visualization and dynamic monitoring of the liquid metal safety of steel mills and the safety management of gas operations, which is conducive to promoting the integration and development of the manufacturing industry and the intelligence of the manufacturing service system, and achieving the leapfrog development between the manufacturing industry and the service industry.



Safety visualization platform



Innovating Inspection Methods

At the same time, MCC innovated the inspection methods, gave full play to the role of experts in each business system, created the linkage inspection mode of each system, improved the effectiveness of safety inspection and hidden danger management, and improved the on-site safety management level with more strict standards. In 2021, a total of 15 projects of MCC won the national "Construction Work Safety Standardization Construction Site for Construction Project", 187 projects won the provincial safety and civilization standardization construction site, and 225 projects won the municipal safety and civilization standardization construction site.



Number of safety
inspection projects

2,564

Number of
subsidiaries under
safety inspection

28

Publication of production
safety-related articles in
publications (prefecture-
level and above)

522 Articles

Safe and Civilized
Standardized
Construction Site

427

Key Indicators	2021	2020	2019	Unit
Number of work-related fatalities*	0	0	0	person
Rate of work-related fatalities	0	0	0	/

* Data scope: employees of MCC

Key Indicators	2021	Unit
Lost days due to work injury*	0	day

*Data scope: employees of MCC

Work Safety Culture

In terms of promoting work safety culture, MCC carried out the work safety month activity with the theme of "implementing safety responsibilities and promoting safety development". At the same time, MCC also set up a special column of "work safety month" in the China Metallurgical News to promote advanced management experience and typical practices. During the event, MCC organized a total of 10,296 safety training and 1,392 safety competitions, published 2,230 safety essays, and organized 3,933 emergency drills to ensure the safety and health of employees through various activities.

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商企臻选世界 A Partner of Choice **安全生产月专版**

中国五冶：强基固本“五要诀” 担当尽责“守三线”

安全生产“强基行动”是中冶集团落实党中央、国务院决策部署，提升安全生产专项整治三年行动中攻坚的重要举措。是强基固本减少事故隐患、科学防范杜绝较大事故的根本手段。中国五冶持续提升强基行动，以“高度重视、强化工作部署、多措并举、强化队伍建设、深度落实、强化教育”六字诀，扎实推进“五要诀”，以“全面守牢安全发展底线、全力守好安全发展防线、全方位筑牢安全发展底线”三线为目标，进一步提升安全素质，提高本质安全水平，实现安全生产形势持续稳定好转，为高质量发展提供坚实保障。

高度重视，强化工作部署

凡事预则立。中国五冶成立了以总经理为组长，公司安委会成员为成员的安全生产“强基行动”领导小组。公司主要领导靠前指挥，通过办公会、安委会、安全生产例会等形式，管理对标提升会、现场带班安全检查等多种方式，多个场合亲自讲，将安全理念深入人心，反复强调安全生产工作极端重要性，严格要求公司上下切实落实安全生产“强基行动”各项要求，在公司领导严格要求下，一级带着一级，推动安全生产责任层层落实。

多措并举，强化队伍建设

中国五冶实施了强化安全队伍建设，岗位激励、责任落实等一揽子政策机制。公司配备了安全总监，实施了项目安全经理聘任制度，安全专职人员晋升通道，岗位聘任激励，能力提升等一系列项目安全队伍配置和激励措施，将分包人员纳入项目一体化管理，一体化培训，全面提升项目安全队伍素质。将分包安全人员配备作为评价AAA级分包单位重要评价标准，全面提升一支穿连到分包有战斗力的安全监管队伍。

深度落实，强化教育培训

中国五冶全面强化安全生产责任落实，尤其注重对基层项目一线管理团队和一线作业人员，通过基础安全教育培训和交底，每月对新开工项目一线管理团队和一线作业人员开展《中国五冶安全生产和标准化手册》和项目所在基地和标准化管理和安全交底；分级强化事故案例警示教育，将警示教育活动常态化、制度化，与政府主管部门培训平台，提升一线人员安全操作技能，增强作业人员主体责任意识。

严格奖惩，强化风险防范

中国五冶每月启动全员隐患排查安全生产风险，建立风险隐患排查、严防重大工程、建筑起重机械等重大安全风险。公司主要领导身先士卒，每月开展隐患排查治理，安全监管部门每月开展“四不两直”检查，各分公司严格落实开展全覆盖安全大检查。中国五冶还创新制定75米以上建筑使用全钢爬模式升降脚手架、大跨度、公共建筑施工现场应用和脚手架、核心地段项目采用钢箱梁的防护等新技术应用，持续提升安全生产水平。

探索创新，强化监管效能

中国五冶积极落实中冶集团科技兴安、科技兴安的要求，运用项目信息化集中管控平台，及时预警安全风险；试点应用现场、电梯等作业及使用设备的智能监控；试点开发基于工人休息时间的内嵌式安全培训系统；并逐步探索运用智能安全帽、现场标识识别系统等辅助手段，提升现场安全监管效能。目前相关开发应用试点工作已在成都高新新机场安置房项目和金堂“三校一中心”等26个项目开展。

中国五冶将“强基行动”作为“强基行动”主题，持续在“强基行动”上下功夫，强化项目基础管理，分包安全管理和服务，有效的防范安全事故发生。全面守牢安全发展底线，全方位筑牢安全发展防线，全方位筑牢安全发展底线，安全有保障的安全生产经营工作，以新作为、新气象为中冶集团高质量发展做出积极贡献。（续前）

Work safety publicity



First aid training

Coverage of occupational health records

100%

Number of new occupational diseases

0 person

Improving emergency rescue plan

7,764

Investment in emergency rescue

RMB 151.98 million

Number of emergency rescue drills

8,074 times

Number of participants in emergency rescue

242,903 people

Quality Management to Lay the Foundation

Quality Management System

MCC actively promotes comprehensive quality management, strictly abides by the Product Quality Law of the People's Republic of China, the Construction Law of the People's Republic of China, Regulations on the Quality Management of Construction Projects, the Measures for the Quality Management of Construction Project and other relevant laws and regulations. MCC seriously implements management systems such as the Quality Management Measures of MCC Group and MCC and the Implementation Rules for the Quality Management of Construction Enterprises of MCC. MCC actively implements the GB/T 19001 quality management system standards, establishes and improves the enterprise quality management system. The Company clarifies the quality management departments and their responsibilities at all levels, including quality accident reporting, handling, and quality improvement. MCC has obtained ISO 9001 quality management system certification during the reporting period.

"Building project to meet people's satisfaction"
Open Day Publicity Activity:

01

02

03

- 1.SBC Shanghai Precision Testing Semiconductor Technology Co., Ltd. R&D Building Project Event Site
- 2.The activity site of MCC 2 Dongjiageng Township Community Engineering Project
- 3.CTMCC Henan Zhoukou High-speed Railway Area Comprehensive Transportation Hub and Supporting Facilities Project



Quality Supervision and Inspection

MCC organized special quality inspections on engineering procurement construction projects, civil building projects, and key metallurgical engineering projects during the reporting period. MCC promoted subsidiaries to carry out self-inspections on overseas engineering quality, covering 1,769 projects under construction of 32 subsidiaries, further improving the overall level of construction quality. In addition, MCC continues to implement the quality system and carry out special inspections on the quality management system at the subsidiary headquarters to improve their quality system.

Excellent Performance in Quality

During the reporting period, MCC has achieved new progress in terms of quality. We won 6 Luban Prizes for China Construction Projects (including those participating in construction), 26 National Quality Engineering Awards (including those participating in construction), among which the steel rolling project of the high-quality steel of SD Steel Rizhao Co., Ltd won the National Quality Engineering Gold Award. The metallurgical project undertaken by MCC won this award for three consecutive years.

Luban Prizes for China
Construction Projects (including
those participating in construction)

6

National Quality Engineering
Awards (including those
participating in construction)

26



Client Management to Build a Win-win Partnership

Customer Development Strategy

Customers are vital to enterprises. Building a competitive advantage of high-quality service and precision marketing is an inevitable choice for MCC to stand out in the market competition. MCC provides customers with customized "one-to-one" high-quality services in a timely manner through a core customer database and a regular communication mechanism; By continuously deepening the connection and cooperation with core customers, MCC has built a high-end cooperation platform for government and enterprises to ensure a certain number of projects implementation every year. In 2021, MCC's

contract value from core customers accounted for more than 50%.

We actively promote high-end strategic cooperations and carry out high-level connection with local governments in Shandong, Hebei, Guangdong and Guangxi, as well as large-scale enterprises such as CTGI, Xiong'an Group, ZGC Group, Hong Kong Sunwah Technology Group, Guigang City Investment Group and Guangxi Modern Logistics Group to strengthen high-end strategic cooperation between government and enterprises.



China Metallurgical Construction Engineering signed a strategic cooperation agreement with Hong Kong Sunwah Technology Group



Five-Party Cooperation Framework Agreement among Guigang City Investment Group, Guangxi Modern Logistics Group, CTMCC, CFMCC and WSGRI

Customer Satisfaction First

In 2021, the proportion of MCC's contract value from core customers reached

50%

MCC adheres to the customer-oriented and quality-based service spirit and takes customer satisfaction as the ultimate goal, being committed to creating a comprehensive solution to meet customer needs. Our outstanding performance has also been highly appreciated by our customers. In 2021, we received many letter

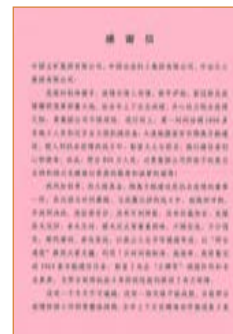
of thanks from SASAC, Baoding Municipal Government, Xingtai Municipal Government, Zhangjiakou Chongli District People's Government and other customers, demonstrating the fruitful achievements of MCC in serving customers and national strategies.



Letter of thanks from SASAC



Commendation letter of Baoding Municipal Party committee and municipal government



Letter of thanks from Xingtai municipal Party committee and government



Letter of thanks from Chongli District People's Government of Zhangjiakou

Customer satisfaction

84.9%

Number of major customer complaints

0

Complaint handling closure rate

100%

In response to the complaints from relevant parties of the projects, MCC communicates with these parties and the related subsidiaries to know the actual situation and supervise the subsidiaries to solve the complaints properly. For more serious complaints, MCC will organize meetings for complaints and send personnel to the project site for supervision according to the actual situation to ensure that the complaints are resolved in a timely manner. During the reporting period, all complaints were effectively resolved or are being resolved through coordination.

MCC's customer-related complaints mainly come from the property projects of MCCZY.

The protection of clients' privacy is our primary concern. MCC strictly complies with the Cybersecurity Law of the People's Republic of China, the Decision of the Standing Committee of the National People's Congress on Strengthening Information Protection on Networks and the Personal Information Protection Law of the Peoples Republic of China. MCC formulates and implements the Contract Management System of MCC Group and MCC, which clearly

The categories of customer complaints involve eight aspects, housing management, equipment management, safety management, environmental management, comprehensive services, household disputes, real estate related categories and other categories. The level of complaints includes general complaints and major complaints. After receiving the complaint, each branch shall complete the customer complaint within 48 hours and fill in the Customer Complaint Handling Record Form. According to the record, there are no major complaints in 2021, and all customer complaints have been handled.

stipulates that the competent department of contract business shall require the contracting parties to sign a confidentiality agreement for the part involving MCC's trade secrets and other confidential matters before the negotiation. When the relevant personnel of MCC is aware of the trade secrets of the counterparty in the negotiation process, they should keep it confidential to avoid the legal risk of infringement.

Supply Chain Management to Control the Risks

MCC always attaches great importance to supply chain management, abides by relevant national laws and regulations, continuously optimizes and improves the systems and regulations of supplier management. The company also actively communicates with suppliers, and jointly promotes the construction of a responsible and sustainable supply chain.

Responsible Supply Chain

Guided by the national laws and regulations on bidding and tendering, MCC follows the Procurement Management Regulations of MCC Group. MCC standardizes the business process of procurement and tendering, conducts procurement business following the principles of fairness, impartiality, and openness, and protects suppliers' reasonable rights and interests. The two-level procurement management departments of MCC and its subsidiaries are responsible for supervising the whole processes of the procurement business to ensure the fairness of the procurement business and prevent internal corruption. In terms of system, MCC has made specific provisions on the division of responsibilities, processes, nature of problems and treatment methods of procurement supervision based on the China Minmetals Corporation Procurement Supervision and Administration Measures.

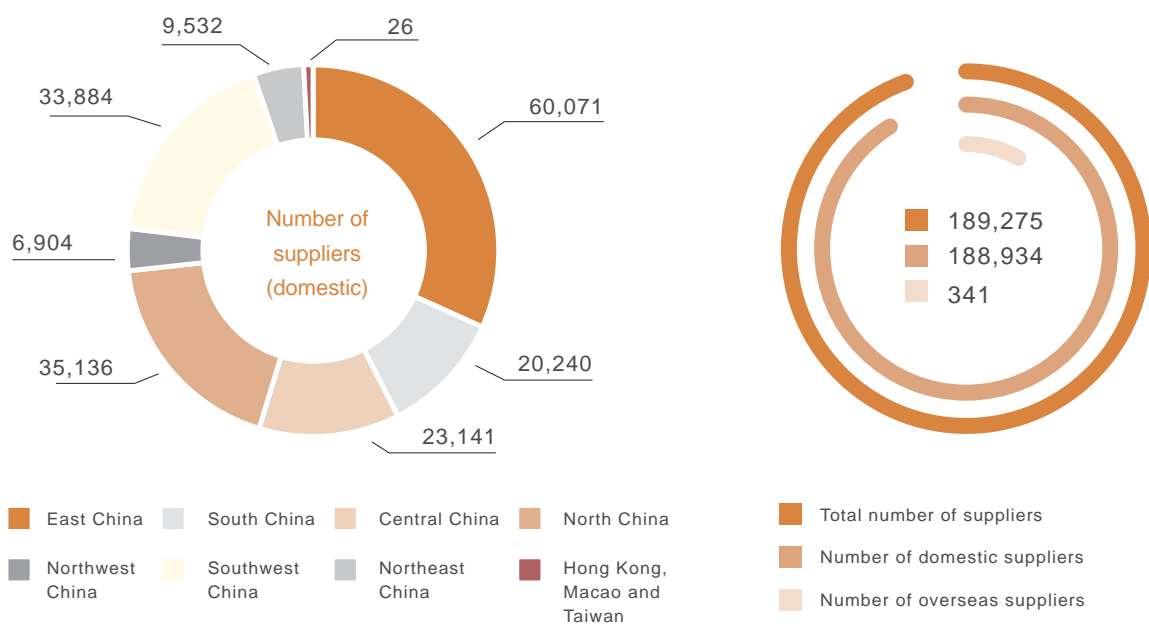
MCC has further strengthened the identification and management of environmental and social risks of the supply chain through the blacklist system and other management measures. MCC restricts suppliers from various aspects such as subcontracting performance, procurement, safety, quality, employment and environment, and formulates supervision and accountability clauses. In the formulation of the Administrative Measures for Construction Sub-contracting, MCC has set the conditions for subsidiaries to select excellent construction sub-contractors. Each subsidiary has also formulated corresponding incentive systems for them. Through the combination of positive incentives and negative constraints, the virtuous cycle of quality sub-contracting cooperation is continuously promoted.



Data management system to ensure payment for migrant workers

MCC implemented the Notice on the Special Action for the Eradication of Wage Arrears in Winter issued by the State Council, reported relevant issues in the construction projects and solutions for the project. Currently, MCC is constructing a real-name employment management system and requires its subsidiaries to upload the on-site data of new projects to link all the information of all the projects to the data platform of SASAC.





MCC actively communicates with suppliers on environmental protection issues to promote the green and low-carbon development of the industrial chain and to implement the concept of green supply chain. In the Supplier Management Measures, MCC clearly requires suppliers, subcontractors, and service providers to provide corresponding environmental protection qualifications from access to signing contract, and timely remove suppliers with poor records in the quality or environmental and safety supervision of government departments, industries and companies.



ENVIRONMENTAL- FRIENDLY: CREATING A LOW-CARBON FUTURE





2021

Greenhouse gas emission
intensity decreased by

19

% vs 2020

MCC actively responds to the national ecological civilization construction goals and plans, improves the overall business quality with the achievements of green development, and implements the sustainable development concept of multi-win environmental benefits and economic benefits. MCC has always adhered to the development mode of green and efficient, low-carbon and energy-saving, and technological innovation, unswervingly moved towards the green journey and made unremitting contributions to building a beautiful China where people and nature coexist in harmony.

Promoting Low-carbon Development

Deepen the R&D of Low-carbon Technology

With the proposal of the “Dual Carbon” goal, effective carbon emission reduction has become an urgent problem for the iron and steel metallurgy industry. As a “world-class national team for metallurgical construction”, MCC follows the action roadmap of the “Action Plan for Peak Carbon and Carbon Reduction in the Iron and Steel Industry” and establishes four MCC Low-Carbon Technology Research Institutes and

the “MCC Carbon Emission Assessment and Certification Center” to effectively leverage the integrated advantages of the entire metallurgical industry chain. MCC vigorously invests in scientific and technological innovation and effectively assumes the responsibility of leading Chinese metallurgical industry to achieve intelligent, green, low-carbon, and efficient development.



Hydrogen Energy Development and Utilization Project at HBIR



“Hydrogen metallurgy” technology achieved significant carbon reduction

Energy consumption and emissions of the pre-ironmaking system account for about 70% of the entire steel process, which is the focus of steel production, emission reduction and carbon reduction. How to replace blast furnace smelting with a new “zero-carbon” pre-ironmaking system is a “bottleneck” problem to achieve a low-carbon smelting model in the future. MCC has continuously made breakthroughs in the “replacement of carbon with hydrogen” technology and explored a new path for low-carbon development of the iron and steel industry. The HBIS Xuansteel hydrogen energy development and utilization demonstration project undertaken by CERI is the first step in the world for the “hydrogen metallurgy” from laboratory to physical plant. After the project is put into use, hydrogen energy will be used to replace traditional carbon energy, and carbon emissions during ironmaking production will be reduced by more than 70%.



Smelting efficiency of super electric arc furnace

The super electric arc furnace technology independently developed by CISDI can reduce carbon emissions by 57% in the process. With the deployment of non-carbon-related smelting technology and green power application technology, it can achieve near-zero emissions from molten steel production, which will serve as a new technological pathway for the steel industry to achieve carbon neutrality.



Super EAF technology

Promote Energy-saving Equipment

MCC has the technical advantages covering the whole process of metallurgy. In addition to achieving long-process carbon reduction in the fields of iron, steel and casting and rolling, MCC also carries out energy-saving improvement on heating furnaces, sintering machines, logistics vehicles and other equipment to achieve full carbon reduction coverage. Subsidiaries of MCC have successively invested in the research and development of equipment and energy-saving technologies, and a number of outstanding scientific research and practical achievements have emerged.



Heating furnaces: the energy saving and emission reduction technology of annealing furnaces for galvanized production line developed by CERI has been applied to many cold rolling projects, which can save a total of 2.9 million m³ of natural gas per year and reduce CO₂ emissions by 5,500 tons;

Save of natural gas per year

290 million m³

Reduce CO₂ emissions

5,500 tons



Annular coolers: the engineering design undertaken by NETC adopts a number of new technologies for energy conservation, emission reduction and waste heat utilization such as multi-functional high-efficiency ring coolers and sintering flue gas circulation with its own intellectual property rights, achieving a recovery of 16 ~ 18 kWh of electricity per ton of combustion, which is expected to save approximately 167,400 tons of standard coal per year, and reduce CO₂ emissions by approximately 441,800 tons per year while achieving ultra-low emissions of pollutants;

Save of standard coal per year

167,400 tons

Reduce CO₂ emissions
per year

441,800 tons



Sintering machines: CIE has applied a series of self-developed key technologies of production, equipment and control in the project, forming a complete set of ignition technology and equipment to achieve ultra-low energy consumption and a long service life. After the transformation, CO₂ emissions can be reduced by 12,000 tons per year;

Reduce CO₂ emissions per
year

12,000 tons



Logistics equipment: Chinese first special vehicle for new energy metallurgical logistics independently developed by MCCBTS has changed the traditional fuel-powered vehicle to a new energy electric drive. Each vehicle can reduce CO₂ emissions by approximately 44,500 tons per year.

Reduce CO₂ emissions
per year

44,500 tons

Enhancing Environmental Protection and Management

Environmental Management

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 ISO14001 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 accomplish the environmental protection tasks and clarify the environmental protection responsibilities at all levels, MCC has formulated the environmental protection responsibility list of MCC Group and MCC headquarters, established the environmental information list of production enterprises, the Company's key pollution source management database, and "Hazardous Waste Monitoring Source List" to strengthen the control of risk sources. In addition, through the "MCC Energy Conservation and Emission Reduction Big Data Information System", MCC continues to improve the efficiency of energy conservation and ecological environmental protection indicators analysis, statistics and supervision. During the reporting period, the Company's subsidiaries received 29 administrative penalties for environmental problems such as noise, dust and sewage, with a cumulative penalty amount of RMB1.975 million. At present, all penalties have been rectified.

In 2021, MCC signed a Liability Statement of Safety and Environmental Protection Target with 41 subsidiaries, revised 3 environmental management systems, and linked the implementation of safety and environmental protection goals with the remuneration and performance of senior management of subsidiaries, so as to further improve the ecological and environmental protection responsibility system at all levels of MCC Group, MCC and subsidiaries, and strengthen the implementation of the main responsibility of ecological and environmental protection of enterprises.

To effectively reduce the negative impact of the MCC's operations and project construction on the environment and implement the environmental accountability system, MCC has formulated four environmental goals with 2021 as the base year and 2025 as the target year, which are as follows:

MCC signed a Liability Statement of Safety and Environmental Protection Target with

41

subsidiaries

Environmental Goals



By 2025, actively formulate carbon emission reduction plans to reduce greenhouse gas emission intensity;



By 2025, explore the use of clean energy to reduce coal consumption intensity;



By 2025, improve the efficiency of water use and gradually reduce the density of fresh water consumption;



By 2025, strength manufacturing process and strive to reduce the density of non-hazardous and hazardous waste.

Enhance Environmental Awareness

To further enhance employees' awareness of environmental protection, MCC organized the 2021 Energy Conservation Promotion Week and Low Carbon Day with the themes of "Energy Conservation and Carbon Reduction, Green Development" and "Live Low-carbon Life, Build Green Future", to create a low-carbon atmosphere and promote green development. During the reporting period, MCC organized a total of three training and education sessions on energy conservation and emission reduction, carbon emission management, water pollution prevention and control regulations and pollutant discharge licensing management. The trainings were conducted through online videos for subsidiaries at all levels, production workshops and project departments, with a total of more than 2,000 participants.

Respond to Climate Change

To actively respond to climate change and formulate a scientific and feasible action plan for energy conservation and emission reduction as soon as possible, MCC has issued the Notice on Carrying out a Greenhouse Gas Emissions Investigation to further understand the energy consumption and greenhouse gas emissions of affiliated enterprises, and provide basic data support for evaluating the policy situation of "Dual Carbon" goals and formulating work plans. Based on the carbon verification, MCC is preparing the Carbon Peak and Carbon Neutrality Action Plan under the guidance of China Minmetals Corporation, to further clarify the MCC's "Dual Carbon" target setting and pathway to achieve it.

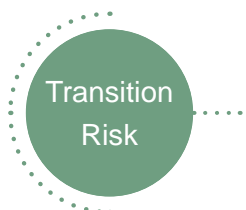
In terms of specific energy conservation and emission reduction measures, MCC complies with laws and regulations to promote cleaner production, energy efficiency, and continuous improvement. In strict accordance with the national industry standards on technology, environmental protection, safety, energy consumption and other industries, MCC implements a series of energy conservation measures such as the implementation of energy conservation projects and the promotion of emission reduction technologies. MCC eliminates obsolete and energy-consuming mechanical equipment and gives priority to advanced environmental protection equipment to energy consumption.

Climate change risk analysis

MCC has realized the potential risks caused by climate change to the Company, and analyzed the potential risks that climate change may cause to the Company with reference to the Task Force on Climate-related Financial Disclosures (TCFD) framework.



- Extreme weather such as typhoons and rainstorms may cause damage to MCC's construction in progress and equipment, causing personnel and property losses, resulting in project delays;
- Extreme weather may also cause production interruptions and road interruptions to suppliers, causing delays in supply and indirectly affecting project performance;
- Rising sea levels may affect the construction and operational safety of MCC's key major projects in coastal areas.



- Policy risk: Under the "dual carbon" goal, the state and local governments have introduced more active carbon emission reduction policies, which may set strict limits for MCC's carbon emissions and restrict MCC's production and operation;
- Market risk: In the long run, the market is more inclined to low-carbon and environmentally friendly products, and the rapid development of peers in green building and clean technology will bring certain competitive pressure to MCC;
- Technology risk: The development of new business forms relies on strong scientific research investment and high-quality research and development results. The transformation of low-carbon business will increase the innovation costs of enterprises.

Controlling Pollution through Green Construction

Green Construction

MCC organized and applied for green construction level evaluation projects of China Construction Enterprise Management Association.

64

MCC adheres to green construction standards, and promote systematic and refined management in key areas by adopting environmental protection technologies and measures, strengthening environmental monitoring and source emission reduction, and applying scientific waste disposal. MCC is strengthening environmental monitoring and source emission reduction, and scientific waste disposal, so as to steadily promote the achievement of environmental objectives. In 2021, MCC organized and applied for 64 green construction construction level evaluation projects of China Construction Enterprise Management Association.

In terms of waste gas management, MCC further promotes the standardization and green construction of project sites. All production enterprises strengthen the control of pollutants' emissions and the management of production waste gas emissions, take measures to collect and treat smoke, dust and other pollutants generated in the production process. We also properly carry out organized emission treatment of key processes of air pollutants such as electric furnace smelting, heating furnace and heating boiler, strengthen the unorganized emission control in the production process, and establish and improve the list of treatment engineering projects. The sewage treatment plant adds a deodorization system through upgrading, renovation or expansion projects, and reduces the environmental pollution caused by waste gas through the process of collecting, processing and re-discharging waste gas.

In terms of waste management, MCC strictly complies with the newly revised Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste and has formulated a list of hazardous waste supervision sources. Each production enterprise has established a solid waste account and designated special personnel to supervise the whole process of the generation, transfer and storage of hazardous waste, and strictly complies with the pollutant discharge permit and entrusts qualified units to handle it. We have also set up proper protective measures for construction waste generated from each construction project and improved the corresponding solid waste disposal working mechanism. In addition, MCC reduces construction waste arising from repeated construction by combining the utilization of temporary facilities and permanent facilities to ensure the harmonious coexistence of production and environmental protection to the greatest extent.



The construction project requires dust control to reach "six 100%"

100%

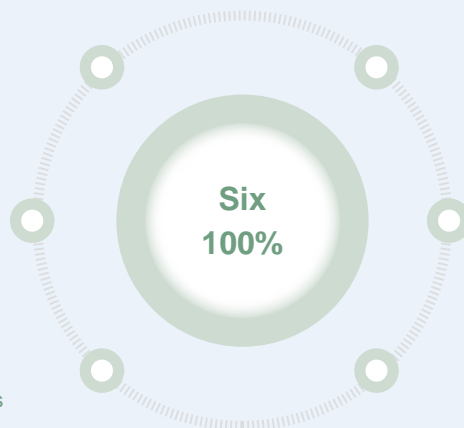
enclosure around the site

100%

washing of incoming and outgoing vehicles

100%

method work at demolition sites



100%

coverage of material stacking

100%

hardening of the ground

100%

airtight transportation of muck trucks

Soil Pollution Prevention and Remediation

In terms of the use of soil resources, MCC has conducted risk assessment and control on soil pollution, established a ledger, formulated a supervisory list, and carried out pollution treatment and remediation plans in accordance with the requirements of local environmental protection authorities. During the reporting period, MCC continued to improve the soil pollution prevention and treatment, strengthened the supervision and management of hazardous chemicals in the production process, ensuring an accurate implementation of various safety management measures to prevent soil pollution caused by improper storage and use. In addition, MCC continuously improves and enrich the soil remediation technology system, develops its own brand soil remediation equipment and chemicals, eliminates soil pollution and effectively repairs soil.



Soil remediation of Ramu Nico

In the process of mining, Ramu Nico has formulated a mine restoration plan according to local conditions, the location and the local economic development, so as to meet the requirements of the local landowner, and create a mine with the ecological environment, scientific mining methods, efficient use of resources, digital management information and harmonious community. In 2021, Ramu Nico completed a reclamation of 299,800 m².



Green Mines of Ramu Nico

Water Resources Management

In terms of water resources, MCC subsidiaries have actively participated in the investigation and remediation of sewage outfalls into the river, strengthened the control of sewage discharge into the river. Construction projects continue to optimize rain and sewage diversion, and check the generation, collection, transportation and treatment of rainwater and sewage. We standardize and implement the initial rainwater collection, and treatment at the construction site, improve the anti-seepage measures in key areas and key locations, promote the comprehensive construction of the rain and sewage diversion system, and effectively reduce the wastewater treatment load.

In terms of obtaining water sources, MCC has included water pollution risk prevention in the MCC Group and MCC Energy Conservation and Environmental Protection Inspections Implementation Rules to ensure that there are no violations of laws and regulations or damage to the local ecological environment in the use of water sources. During the reporting period, no issues were found in terms of obtaining suitable water sources.

Environmental Protection

MCC adheres to the implementation of ecological environmental protection and formulates various environmental protection plans in engineering construction and operation activities, and has a series of sound process systems in environmental risk management and emergency management. To ensure a timely response to environmental emergencies, MCC and its subsidiaries have established emergency response plans and filed them at each level. At the same time, construction projects and production enterprises are required to formulate special plans or disposal plans in accordance with relevant environmental protection laws, regulations, and industry standards. They also need to make specific emergency plans according to different types of situation at different levels, and report to the local government and MCC.

Accelerating Green Business Transformation

MCC closely follows the national high-quality development strategy, takes environmental protection innovation technology as the starting point, makes every effort to promote the construction of ecological and environmental protection projects. MCC implements the concept of innovative development and green development of enterprises, accelerates the layout of green industries such as sewage treatment, waste-to-energy and clean energy. The Company strives to win the blue sky defense battle, the clean water defense battle and the clean land defense battle.

New Energy Construction

MCC actively seized the new opportunities of energy transformation and low-carbon economy, accelerated the development and construction of clean energy businesses such as PV and wind power. MCC replaced high-carbon fossil energy, and promoted the realization of the national "dual-carbon" goal while achieving its own business development.

MCC continuously promotes the combination of renewable energy and steel structure, and plays a significant role in achieving the goal of "dual carbon" by providing new energy power generation project construction plans. SBC took the lead in the implementation of the "wind-solar complementary" energy solution in the Jiangbei Library Project, and solved the electricity shortage at the beginning of the project within seven days. By using the combination of silicon plate and wind turbine generator and battery for photovoltaic power generation, the clean energy generated each day is equivalent to reducing CO₂ emissions from fossil fuels by more than 4 tons.



Distributed Photovoltaic Power Generation Project

Ecological Environment Industry

MCC firmly implements the concept of "lucid waters and lush mountains are invaluable assets", and closely integrates the concept of ecological civilization construction with its own business development. Relying on its own new advantages in the field of energy conservation and environmental protection, MCC has started the vivid practice of assisting urban and enterprise environmental governance, industrial upgrading, and green and high-quality development, and protected the beautiful homeland that is always in the mountains, green water and fresh air. The Company has made comprehensive efforts in ecological and environmental protection industries such as water ecological management, green soil remediation and waste disposal, contributing MCC's wisdom and strength to the regional ecological environment.



Water ecosystem restoration technology

CRIBC carried out the engineering technology research on Baiyangdian aquatic vegetation regulation and water environment improvement engineering technology in Xiong'an New District. This project aims to solve the difficulties of controlling, repairing and rebuilding aquatic vegetation in Baiyangdian, improve the efficiency of reconstruction and restoration of the water ecosystem, and provide a reference for the ecological management of grassland lakes in northern China.



Baiyangdian water ecosystem restoration project



Dabaoshan Xinshan Area mine restoration project

In the project of Xinshan Area in Dashanbao, Shaoguan, Guangdong, China ENFI made use of the technology of "In-situ Soil Improvement + Direct Vegetation" to significantly reduce the content of heavy metal elements in external drainage, ensure that there are 7 species or more in each 100m² of vegetation, and form a multi-layer vegetation group system to restore and reconstruct the ecosystem.



Ecological restoration project in Xinshan area, Daban



Xiamen WTE Plant Project

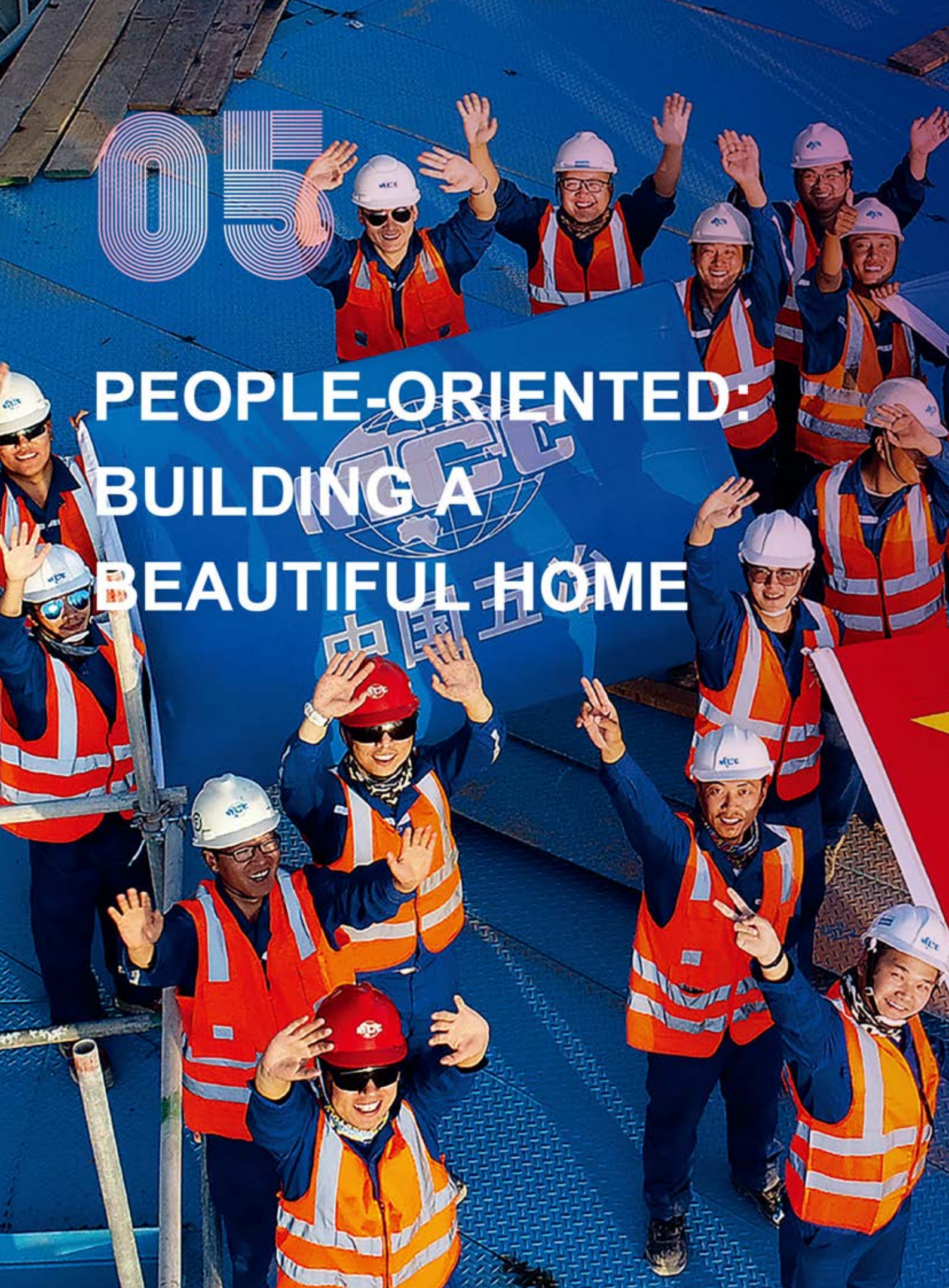


Xiamen Waste-to-Energy (WTE) Power Plant

The WTE power plant in eastern Xiamen contracted by China ENFI fully utilized the facilities built in the park for collaborative treatment. After the completion of the project, it will help Xiamen to implement the relevant national instructions and achieve the strategic goal of "Zero Landfills" in advance. In 2021, 6 waste incineration projects contracted by China ENFI received green finance support of RMB 616 million.

05

PEOPLE-ORIENTED:
BUILDING A
BEAUTIFUL HOME





2021

Number of on-the-job
employees

97,972

Number of participants
in training

800,000+

man-time

MCC has made great achievements in the journey of "building a better MCC". Our achievements came from the hard work of every member of MCC. MCC has always regarded every employee as the most valuable partner of the enterprise and is committed to providing employees with all-round protection and benefits. Through a sound training system and a variety of employee activities, MCC builds a port of work and a spiritual home for every employee of MCC.

Protecting the Labor Rights of Employees

Talents are the driving force for the sustainable development of the Company. MCC unswervingly protects the legitimate rights and interests of each employee, provides the most comprehensive rights and interests protection system, attracts outstanding talents from all parties to join the MCC, and lays the foundation for the happiness of employees.

Employee Rights Protection

In 2021, the number of on-the-job employees was

97,972

The percentage of male on-the-job employees was

79.72 %

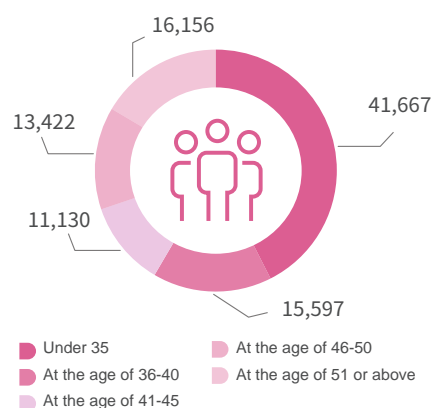
The percentage of female on-the-job employees was

20.28 %

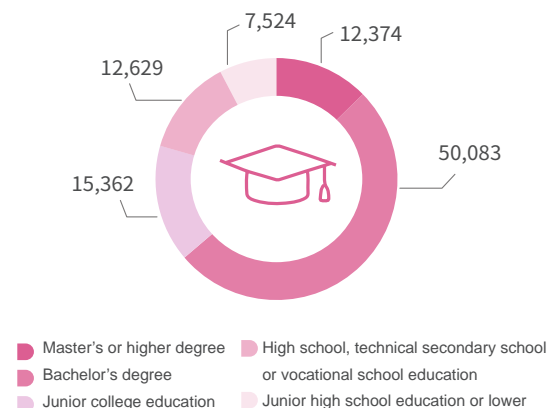
MCC attaches great importance to the protection of employees' rights and interests, establishes and improves the employee representative meeting system. MCC fully solicits employees' opinions on major issues involving the vital interests of employees and submits them to the employee representative meeting for discussion and consideration. The Company strictly abides by 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 Leave for Employees and other labor laws and regulations. At the same time, the Company actively carried out activities related to labor law to strengthen employees' awareness of protection of rights and interests.

In accordance with the principle of "pay by position and pay by performance", the Company has established a remuneration system that is competitive and fair, continuously improving the sense of happiness and achievement of employees. MCC pays social insurance and housing provident fund for employees in full and on time, regulates the operation of enterprise annuity plans, and makes reasonable arrangements for employees' vacation. Moreover, through strict abidance by labor laws and regulations, MCC pursues an equal and non-discriminatory labor employment policy, opposes forced labor, and eliminates child labor. If such incidents are found, a strict investigation will be conducted, and relevant personnel will be severely punished. In 2021, 100% of the employee labor contracts have been signed. The relationship between the enterprise and labor remains harmonious and stable.

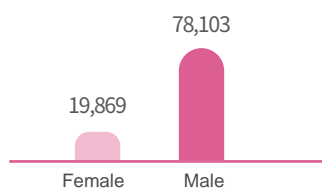
Proportion of on-the-job employees by age



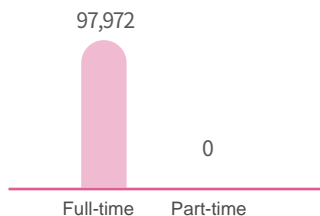
Proportion of on-the-job employees by educational background



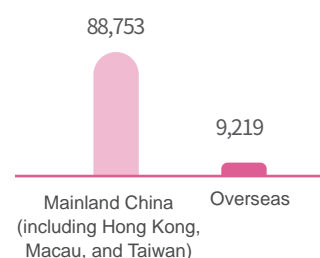
Proportion of on-the-job employees by gender



Proportion of on-the-job employees by employment type



Proportion of on-the-job employees by region



Talent Recruitment

4,600

university graduates
recruited

MCC gives full play to the leading and exemplary role of SOE, actively fulfills its social responsibilities, and establishes various channels to recruit talents, promoting stable employment and improving people's livelihoods. In 2021, the company has strengthened campus recruitment management, organized subsidiaries to directly connect with key metallurgical universities, and set up a convenient and efficient communication platform through special campus recruitment fairs, so as to provide the greatest convenience for graduates to apply for jobs. At the same time, MCC has launched special recruitment activities for college graduates in Tibet, Qinghai and Xinjiang, attracting graduates from the three places to work outside the province/region. During the reporting period, MCC has recruited 4,600 university graduates.



Establishing recruitment channels for talent recruitment

In order to further strengthen the strategic position of talent-led development, build a unified, efficient and high-quality talent introduction platform for the Company, in 2021, MCC carried out a series of 2022 campus recruitment activities of "Building the Dream of MCC", so as to serve subsidiaries to hire outstanding talents, and promote the national team of metallurgical construction. The recruitment team held four job fairs in key universities in the metallurgical field, with the first station in the University of Science and Technology Beijing. During the first session, we received a total of nearly 1,400 applications from graduates, including 106 doctoral candidates and over 1,100 master candidates. The successful holding of campus job fairs has enhanced the connection between the school and enterprise, deepened the graduates' understanding of MCC Group, and achieved efficient connection between the supply and demand sides.



The 2022 MCC Campus Career Fair held in Beijing



The 2022 MCC Campus Career Fair held in Baotou



Cultivating Employees' Capabilities

MCC further improves its top-level design of human resources to provide guidance and institutional support for related work during the "14th Five-Year Plan". MCC not only constantly strengthens incentives and encourage talent development, but also makes every effort to promote the provincial-level filing of branches for vocational skill level accreditation. In addition, MCC enhances its position system, strengthens application of performance appraisal results, and guides its subsidiaries to establish a diversified employee development mechanism.

Employee Development Channel

While deepening implementation of the multi-channel career development path of "positions" and "ranks" with "vertical and horizontal connection", MCC continues to carry out the work of grading new employees and promotion personnel of management sequence in accordance with the relevant provisions of Position System Management Measures and Professional Sequence Qualification Management Measures. Furthermore, MCC promotes the establishment of its professional qualification evaluation system, organizes and carries out evaluation of human resources professional sequence and enterprise management professional sequence by senior experts.

Improving the Training System

Under the guidance of MCC's education and training plan, the Company follows the education and training management mechanism of "unified leadership, centralized management, hierarchical responsibility, and classified implementation", highlighting training priorities, broadening training channels, and enriching training content. In 2021, MCC and its subsidiaries held and organized training courses for young leaders, special training courses for project managers, job training courses for vocational skill level recognition, and pre-job training courses for new employees. The purpose of training courses is to continuously improve theoretical knowledge and professional ability of the employees. During the reporting period, MCC had a total of over 8,4000 trainees, and the number of participants in training courses reached over 800,000 by man-time.



2021 SBC Project Manager Training Course



MCCBTS Skills Competition

Establishing Talent Model

In 2021, MCC continued to strengthen the selection and training of high-level leading talents:

4 people were admitted to the list of valid candidates for the election of academicians of Chinese Academy of Engineering.

2 people were recognized as Design Masters issued by the Ministry of Construction.

20 people were approved as National Technical Experts.

10 people were selected as MCC Craftsmen and 20 people were selected as MCC Group Chief Technician.

1 person won the China Skills Competition.

1 person was awarded the title of "Individual with Outstanding Contribution to National Skilled Talent Cultivation".

Led by Corporate Culture

MCC encourages employees to forge ahead, continuously enhance the team's unity and strengthen the loyalty to the enterprise through various corporate culture activities. In 2021, the Company carried out the corporate open day publicity activity themed with "100-year Glory: Passing on the Flame" to stimulate all employees to inherit the corporate's spirit and actively serve the local economic and social development and build high-quality projects for the people. The Company also encourages employees to contribute to the development of the country through various means, such as the documentary film of MCC's red history and compiling 13 books for cultural publicity.



Safeguarding Employees' Health

In order to ensure the health and safety of employees, MCC strengthens the prevention and control of occupational diseases, popularizes the knowledge of occupational disease prevention and control, and protects the health rights and interests of employees. In the face of normalized epidemic prevention and control, we have taken various measures and organized epidemic prevention and control drills to ensure the health of employees.

Occupational Health and Safety

Occupational health management is one of our major concerns for our employees. MCC complies with relevant national laws and regulations on occupational health management, strictly implements relevant provisions of the Law on the Prevention and Control of Occupational Diseases, formulates the MCC Group and MCC Occupational Health Management Measures, and implement occupational health management requirements to workers employed by contractors. In 2021, each subsidiary continues to organize special inspection activities for occupational hazards to eliminate potential dangers and carry out promotion week activities regarding the Law on the Prevention and Control of Occupational Diseases to raise awareness on occupational health. During the reporting period, no new or suspected cases of occupational were found, and no incidents of acute occupational poisoning occurred.



MCC5 brought medical resources to frontline workers

Establishing Pandemic Prevention Barriers

In order to strengthen the normalized prevention and control management of the COVID-19 pandemic in projects under construction, MCC issued the Guidance Manual for Normalized Pandemic Control of COVID-19 in MCC Projects. MCC established a leading group for the prevention and control of COVID-19 pandemic. Through the establishment of a sound pandemic prevention system, the harm of the epidemic to employees' health is minimized. In 2021, we carried out pandemic prevention and control drills to improve employees' awareness and their proficiency in handling procedures. Through orderly and efficient implementation of management and control, we effectively guaranteed the personal health of employees.

For overseas pandemic prevention, MCC has taken a series of effective measures in COVID-19 response as well as prevention and control, prioritizing health and safety of employees. In 2021, we organized video conferences regarding prevention and control of the pandemic at all levels, updated prevention and control plans, and implemented overseas prevention and control and responsibility statements on stability maintenance, strengthening mutual support among different subsidiaries within the same country. At the same time, the use of telemedicine platform allows us to better manage health status of overseas Chinese personnel of our subsidiaries and to report materials and equipment reserve on a monthly basis. As of December 31, 2021, 98.33% of the overseas Chinese personnel had been vaccinated. At the frontline of pandemic prevention, Ramu Nico has formulated strict overseas pandemic prevention policies, organized employee vaccinations, strengthened nucleic acid testing capabilities and medical capacity of infirmaries, increased the construction of isolation facilities, effectively protected the physical and mental health of employees in their daily work, and to ensure that emergencies can be calmly handled.



Overseas Pandemic Prevention and Control

In 2021, MCCT formulated a strict pandemic prevention system to ensure sufficient prevention materials and established 187 isolation rooms and nucleic acid testing laboratories to ensure timely and effective isolation and testing in the event of an outbreak. MCCT also cared about employees, established an incentive mechanism, and provided generous on-the-job subsidies to Pakistani employees who stayed committed to their jobs. In addition, MCCT distributed masks, milk, hand sanitizer, disinfectant brochure, and other items to employees on vacation and educated them on pandemic prevention to ensure their health during vacation.



Nucleic acid testing laboratories

Caring for Employees

MCC always puts the well-being of employees in the first place and pays attention to humanistic care. The labor union of MCC visited and expressed condolences to employees in urgent difficulties and major diseases in a timely manner, and actively expressed their own wishes and solutions to help solve some difficulties within their capacity. In addition, the Company accurately grasped the situation of employees, caring the female employees with childbirth, major diseases, retired employees, and employees with deceased relatives. MCC took the initiative to visit hospitalized employees, paid close attention to female employees with childbirth, actively helped employees with family difficulties, so as to increase the unity of the labor union and enhanced the passion of the workforce. In addition, the Company carried out the winter warmth and summer cool activities to bring care to the front-line workers, which greatly encouraged employees' enthusiasm.



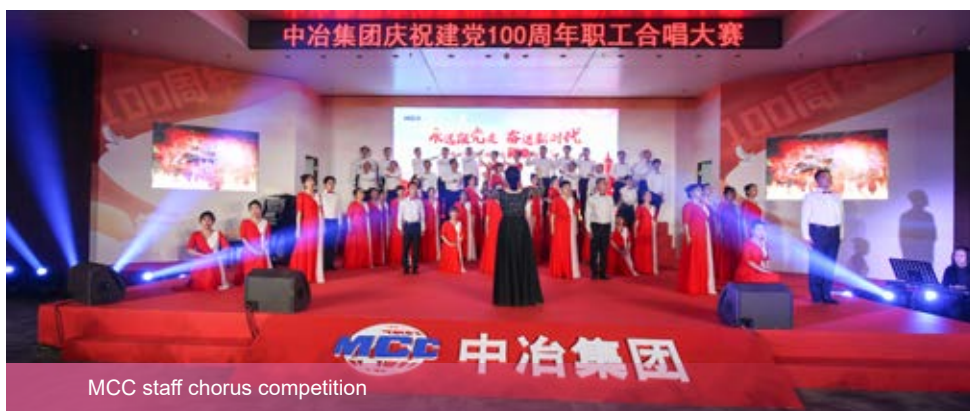
MCC22 launched the "Cool Delivery" activity



CFMCC delivers the porridge in winter

Enriching Employees' Colorful Life

MCC takes responsibility in meeting the needs of employees for a better life, and promotes the work and comprehensive development of employees. In order to cultivate the "family culture", MCC actively organizes chorus competition, badminton competition and art exhibition activities to enrich the cultural and sports life of employees and enhance the work-life balance of employees. These activities effectively promoted the extensive communication, friendship, and vitality of employees, which not only enriched the cultural life of employees, but also further improved the sense of ownership of employees and stimulated the enthusiasm of employees.



MCC staff chorus competition



CCTV broadcasted the song of MCC on the International Workers' Day



Literature and art exhibition



"She" power class on the International Women's Day



Mid-Autumn Festival theme story meeting on feelings of family and

MCC also carried out a series of themed activities on major festivals, to celebrate the festive season with employees and share joy with employees, including a series of activities on International Women's Day on March 8, "Singing the Song of MCC on the International Workers' Day", the "Celebrating Dragon Boat Festival and Recalling the History of Party", the exclusive concert of MCC people on the National Day, the Mid-Autumn Festival family patriotism theme storyline, etc.



Employees visited literature and art exhibition



CCTV broadcasted MCC's exclusive concert on the National Day



MCC22 collective wedding for young employees



d country



MCC staff badminton competition



**UNITED AS ONE:
CREATING A
HARMONIOUS SOCIETY**



2021

Investment in consumption assistance

RMB **29.37** million

MCC is inspired by the concept of "wholeheartedly serving the people" and actively undertakes corporate social responsibilities. We fought with the disaster and contributed to the flood control and disaster relief. We fought against the virus and spared no effort to protect the local community against. We insisted on consolidating the achievements of poverty alleviation and building a better future for rural revitalization. MCC's employees contribute to the society with their love and responsibility, which demonstrates MCC's role as a central enterprise.

Devoting to Rural Revitalization

Relying on the three major methods of consumption assistance, industrial assistance and engineering assistance, MCC helps consolidate the achievements of poverty alleviation and leads the long-term sustainable development of poverty-stricken areas.

Consumption Assistance

In 2021, MCC and its subsidiaries invested to assist consumption in poverty-stricken areas for

RMB

29.37 million

In 2021, in order to consolidate the achievements of poverty alleviation and respond to the national call for rural revitalization, MCC guided employees to participate in consumption assistance through welfare procurement work, and carried out in-depth and high-quality characteristic product development in six regions and one county, respectively. Through the "one-stop service platform for consumption poverty alleviation", MCC realized the centralized display of characteristic products in targeted poverty alleviation counties. MCC continued to expand the consumption of products and services from poverty alleviation areas, especially in areas affected by the epidemic, so as to promote farmers to increase income, prevent returning to poverty, and cultivate and expand regional characteristic and advantageous industries.



WISDRI directly purchased agricultural products from poverty-stricken counties

All subsidiaries of MCC have pioneered innovation via multiple measures and have achieved remarkable results. MCC Steel Structure held a series of exhibitions of targeted assistance products, attracting employees to purchase. CIE called on employees to buy agricultural products in Baohe Village, Zhonghe Town, Ningyuan County, Yongzhou City, Hunan Province. The purchase helped the local farmers increase their income by more than RMB 12,000. Other subsidiaries such as NETC and MCC-CC took full advantage of traditional holidays like the Mid-Autumn Festival and National Day and purchased holiday gifts for employees in the form of consumption assistance after consulting with them. In 2021, MCC and its subsidiaries invested a total of RMB 29.37 million to assist consumption in poverty-stricken areas.



HT purchased rice from targeted poverty-stricken villages

Industrial Assistance

CISDI established a sound operation guarantee mechanism through its subsidiary CISDI Yinong, and collaborated with agricultural research institutes and other cooperative units, using advanced technologies such as cloud computing, big data and artificial intelligence to solve the prominent problems of high circulation cost of agricultural products, poor market information, lagging brand building and poor product quality in poverty-stricken areas, so as to drive poverty alleviation by way of strengthening industry, and help the poverty-stricken areas continue to increase income and become rich.

As of the end of 2021, CISDI Yinong Agriculture has developed more than 100 kinds of characteristic agricultural products in 6 targeted counties of China Minmetals, assisted dozens of legal entities of China Minmetals in carrying out consumption assistance work. CISDI Yinong provided assistance to more than 600 enterprises and cooperatives in the counties, and realized the original intention of MCC to "truly help the poor and help the true poor".

Project Assistance

MCC deeply implemented the spirit of President Xi's "July 1" speech, and solidly carried out a series of activities to help rural revitalization with engineering construction. Since 2016, MCC20 has undertaken major livelihood projects worth a total of RMB 5.125 billion in Bama Yao Autonomous County, Guangxi, including construction, municipal administration, urban renewal, immigration relocation, transportation and tourism,

medical and health, education and training, and people's livelihood improvement projects. All the projects have driven nearly 5,000 local people to work, spent RMB 455 million on labor, increased annual income per capita by nearly RMB 2,000 realized local construction output value of RMB 146 million, and tax implementation of RMB 65.47 million, helping Bama Rural Revitalization and benefiting the people.



Bama Old Town Renovation Project



Bama Yao Autonomous County Ethnic Hospital Project



Group photo of the personnel of Guangxi Bama Station of MCC20



Bama Shanty Town Renovation Project



Poverty Alleviation Relocation Project of Liuneng Migration moving to New Town



CISDI Yinong's Digital Platform



CISDI Yinong's "100 villages assistance plan" went to Aiqun Village, Heishui Town

Combating Pandemics and Flooding Disasters

Strong Protection against the Pandemic

In 2021, the COVID-19 pandemic in China has been combined with sporadic outbreaks and local clusters. The pandemic situation in Xingtai, Dalian, Xinji, Heihe, Chengdu and other places was complex and severe, and emergency response procedures were quickly launched in many places. At the critical moment, MCC once again demonstrated of the national team of metallurgical construction, CISDI、CFMCC、MCC、TMCC、MCC5、CTMCC、MCC17、CMCC、MCC20、MCC22、SBC、MCCZY、MCC-CC、MRBC、MCC Steel Structure and other subsidiaries, which demonstrated their hard strength and speed, and provided a strong guarantee for winning the battle against the pandemic and the battle. At the same time, MCC people were fighting in various regions, and went to the community as soon as the outbreak of the pandemic to assist the local government in epidemic prevention and control.



CTMCC quickly supported Nangong to fight the epidemic

In order to urgently support the construction of the square cabin isolation room of Xingtai Nangong in Hebei Province, CTMCC, with the power of the whole company, urgently convened deployment meetings and employees moved forward against the difficulties, built 2,064 sets of isolation units in accordance with the “one person, one room” standard. CTMCC built the square cabin observation room of Nangong Maternity and Child Health Hospital with 96 sets of boxes in accordance with the “three regions and two passageways” standard.



MCC's construction of Nangong Hospital Project



Volunteer of MCC22 service for local epidemic prevention and control

In the Chengdu-Chongqing region, the Southwest Company of MCC22 dispatched a number of party member commando teams and youth commando teams to the local big data statistics center, nucleic acid testing points, body temperature testing points, travel code testing points and other places to carry out volunteer services and assist the local government in epidemic prevention and control.



Youth volunteer group of MCC supported nucleic acid testing in Hai'an Community

Responsibility for Disaster Relief

Between May and July 2021, Wuhan and Zhengzhou were hit by heavy rainstorms, resulting in emergencies such as urban waterlogging and flooded roads. While ensuring safety of the project personnel, MCC organized employees from subsidiaries to conduct overnight rescue. CFMCC, MCC5, MCC17, MCC20, SBC, WSGRI and other subsidiaries rushed to the front line. Fighting against flood and conducting emergency rescue, they built a solid line of defense, and fully demonstrated the spirit and social responsibility of a state-owned enterprise to overcome difficulties and make contributions.



MCC5 took the responsibility of flood control and disaster relief in Henan

On the occasion of Henan's special torrential rain, MCC5 immediately established the Henan flood control and disaster relief on-site headquarters to support the Jinguang Road office in the core area of the disaster. After 48 hours of high-intensity rescue, a total of more than 500 people were rescued, including 10 pregnant women and 126 children, to help the affected people transport 67 materials. MCC donated a large amount of materials to the disaster area, including 7 winters, two 8-kilowatt generators, one 300-kilowatt generator, 20 pumps, and 3 emergency vehicles, as well as the necessities of raincoats, rain boots, shovels, medicines and food.



MCC5 rescue team dispatched excavators to help trapped people



MCC5 rescue team



CFMCC supporting Anyang



CFMCC supporting Zhoukou

Volunteering and Contributing to Society

MCC pays attention to the needs of different groups from all walks of life, actively responds to social needs, and organizes employees to participate in public welfare and charity. In 2021, all subsidiaries worked closely with their communities and carried out public welfare activities such as helping the poor, beautifying the environment, pandemic prevention and control, and blood donation. For example, volunteers from MCCE assisted the Shenggu Nanli Community, Chaoyang District, Beijing, for the election and voting of 2021 National People's Congress. WISDRI established a team that integrates urban and rural planning, architectural design, garden landscape, water supply and drainage engineering, and engineering economy. This "Rural Revitalization Service Team" is connected with Changjiang Village, the "One Village One Product Demonstration Village" in Jiangxia District, Wuhan. After multiple on-site examination, surveys and interviews, the team learned about development bottlenecks of the village economy and needs of the farmers and drafted the Strategic Development Plan for Rural Revitalization of Changjiang Village. Additionally, volunteers from SKET visited the Yijingyuan community in Shenhe District, Shenyang, to help clean up the park which was well received by the local residents. Furthermore, TMCC organized young volunteers to participate in voluntary blood donation activities once a year, which fully reflects the volunteer spirit of "Serving others and contributing to society".



CIE visited the elderly in the nursing home



MRBC to organize tree planting volunteer service activities



MCC20 entered the special education school in Wuhe County



MCC20 carried out voluntary blood pressure measurement services for community residents

Caring for Overseas Community

Upholding the principle of sustainable development in projects and communities, MCC pays close attention to local people's livelihood and social progress in overseas regions where projects are developed. We make every effort to actively participate in community construction and become excellent corporate citizens. During the reporting period, overseas subsidiaries of MCC donated various living materials to the Mohammad Agha District of Afghanistan. We undertook the entire freight and docking work of the Chinese government's donation of COVID-19 vaccines and other prevention substances to the Afghan government, with a donation amount of about RMB 1.5887 million. MCC also donated oxygen supply equipment with a total amount of approximately RMB 185,000 to Madang Province in Papua New Guinea.



MCCT contributes to the development of local education

On 12 October 2021, the signing ceremony for four social projects, including the renovation of water supply system in Saindak Village, Pakistan and the construction of new women's classrooms in Sarawa Village, was held at Saindak School, with a contract amount of approximately RMB 2.86 million. The project will improve the local education infrastructure on the basis of respecting Pakistan customs and improving the quality of water for the public. On 31 December 2021, MCCT and its owner, SML, jointly donated Rs. 20 million to Karachi College for the Disabled, equivalent to approximately RMB 1.66 million.



MCCT attended the signing ceremony of social responsibility projects in surrounding communities



MCC Ramu Nico fully supports community development

In 2021, Ramu Nico invested about RMB 16.92 million for the local community to build bridges, roads, and improve the basic conditions of local education and health services. In addition, Ramu Nico invested about RMB 440,000 to build school and teachers' houses, helping 132 students complete their annual studies. Ramu Nico has been improving its support for local agricultural development, through direct or indirect investment about RMB 770,000 to provide financial support, technical guidance and training for the cultivation of cocoa, vanilla and agarwood in the affected areas of the project.



Ramu Nico donated anti-pandemic materials to the Health Bureau of the Province of Malaysia

Invested RMB

16.92 million

to build bridges and roads

Invested RMB

440,000

to build school and teachers' houses

Helped

132 students

complete their annual studies

APPENDIX

2021 Key Performance Indicators

Key Economic Indicators

Key indicators	2021	Unit
Operating revenue	500.57	RMB Billion
Total profits	14.01	RMB Billion
Total value of newly signed contracts	1,204.98	RMB Billion
Total value of newly signed metallurgical engineering contracts	157.79	RMB Billion
Engineering contracting operating revenue	462.29	RMB Billion
Real estate development operating revenue	21.42	RMB Billion
Equipment manufacturing operating revenue	11.62	RMB Billion
Resources development operating revenue	6.67	RMB Billion

Key Environmental Indicators*

Emissions and relevant statistics

Key indicators	2021 emissions	Unit
SO ₂	30,416	Ton
NO _x	1,577	Ton
Hydrogen Chloride	48	Ton
Dust	27	Ton
Fluoride	20	Kg

*Data scope: the key environmental indicators of 2021 cover all the subsidiaries of MCC, including the overseas business.

Greenhouse gas emissions

Key indicators	2021 emissions	Unit	2021 emission intensity	Unit
Direct (Scope 1) greenhouse gas emissions*	2,596,364	Ton CO ₂ e	0.0519	Ton CO ₂ e per RMB 10,000 revenue
Indirect (Scope 2) greenhouse gas emissions*	3,886,924	Ton CO ₂ e	0.0776	Ton CO ₂ 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	2021 production	Unit
Equipment manufacturing	Waste oil	72	Ton
	Waste paint bucket	228	Ton
	Emulsion	52	Ton
Other industries	Ash in waste incineration	27,237	Ton
Resource development	Waste oil	283	Ton
Total amount of hazardous waste		27,872	Ton
Total intensity of hazardous waste		0.0006	Ton per RMB 10,000 revenue

Non-hazardous waste production

Business sectors	Key indicators	2021 production	Unit	Amount of recycled waste in 2021	Unit	Recycling rate in 2021
Engineering service	Waste concrete	2,271,608	Ton	964,352	Ton	42.45%
	Waste steel	362,809	Ton	165,819	Ton	45.70%
	Waste bamboo and wood	304,629	Ton	180,924	Ton	59.39%
Equipment manufacturing	Leftover material	39,616	Ton	32,329	Ton	81.60%
Other industries	Bottom ash from waste incineration	177,283	Ton	177,283	Ton	100%
	Sludge from waste water treatment	434,951	Ton	/	/	/
Resources development	Earth-rock stripping	21,205,273	Ton	/	/	/
Total amount of non-hazardous waste		24,796,169	Ton			
Total intensity of non-hazardous waste		0.4954	Ton per RMB 10,000 revenue			

Other waste

Business sectors	Key indicators	2021 production	Unit
Resources development	Slags (Tailings)	5,265,400	Ton
	Deep-sea landfill tailings	4,104,756	Ton

Energy consumption*

Key indicators		2021 consumption	Unit
Direct energy	Heavy oil	1,409,747	MWh
	Gasoline	2,852,047	MWh
	Diesel	5,217,618	MWh
	Natural gas	370,380	MWh
	Total consumption	9,849,792	MWh
	Total intensity	0.1968	MWh per RMB 10,000 revenue
Indirect energy	Electricity	7,152,897	MWh
	Heating power	96,197	MWh
	Total consumption	7,249,094	MWh
	Total intensity	0.1448	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	2021 consumption	Unit
Engineering service	Concrete	166,316,359	Ton
	Building blocks	28,395,631	M ³
	Steel	20,715,408	Ton
	Timber formwork	11,098,563	M ³
Equipment manufacturing	Steel	956,279	Ton
Other industries	Flocculant*	5,886	Ton
	Silicon powder	3,089	Ton
	Antalkali	12,551	Ton

*During the reporting period, as more types of flocculants were calculated and the volume of wastewater disposed continued to grow, the consumption of flocculants increased comparing to 2020.

Water resource consumption

Key indicators	2021 consumption	Unit
Freshwater	80,526,467	M ³
Repeated water	208,578,209	M ³
Emissions of COD	21	Ton
Emissions of ammonia nitrogen	0.4	Ton
Fresh water consumption intensity	1.6087	M ³ per RMB 10,000 revenue

Key Social Indicators

Technology innovation

Key indicators	2021
Number of national level science and technology R&D platform	27
Number of national engineering technology research center	5
Number of effective patents	40,477
Number of Metallurgical Science and Technology Awards	20

Employment

Key indicators		2021
Number of on-the-job employees		97,972
Number of on-the-job employees by gender	Male	78,103
	Female	19,869
Number of on-the-job employees by employment type	Full-time	97,972
	Part-time	0
Number of on-the-job employees by age	Under 35	41,667
	At the age of 36-40	15,597
	At the age of 41-45	11,130
	At the age of 46-50	13,422
	At the age of 51 or above	16,156
Number of on-the-job employees by educational background	Master's or higher degree	12,374
	Bachelor's degree	50,083
	Junior college education	15,362
	High school, technical secondary school or vocational school education	12,629
	Junior high school education or lower	7,524
Number of on-the-job employees by region	China (including Hong Kong, Macao and Taiwan)	88,753
	Overseas	9,219

Key indicators		2021
Total employee turnover		5,885
Employee turnover rate by gender	Male	6.49%
	Female	4.09%
Employee turnover rate by age	Under 35	9.45%
	At the age of 36-40	7.09%
	At the age of 41-45	3.94%
	At the age of 46-50	1.52%
	At the age of 51 or above	1.22%
Employee turnover rate by region	China (including Hong Kong, Macao and Taiwan)	6.45%
	Overseas	1.70%

Key indicators	2021
Labor contracting rate	100%
Number of newly recruited graduates	4,653
Number of newly recruited talents from society	4,123

Health and safety

Key indicators	2021	2020	2019
Number of work-related fatalities*	0	0	0
Rate of work-related fatalities	0	0	0

*The scope of data covers MCC employees.

Key indicators	2021
Lost days due to work-related fatalities*	0

*The scope of data covers MCC employees.

Key indicators	2021	Unit
Coverage of occupational health file	100%	/
Number of projects that has been inspected on safety	2,564	/
Number of subsidiaries that has been inspected on safety	28	/
Number of articles about work safety published in magazines	522	/
Number of new occupational patients	0	/
Number of improved emergency rescue plan	7,764	/
Investments in emergency rescue	151.98	RMB Million
Number of emergency rescue drills conducted	8,074	/
Number of participants in emergency rescue	242,903	/
Safe, civilized and standardized construction sites	427	/

Development and training

Key indicators		2021
Number of employees trained		84,032
The percentage of trained employees by gender	Male	79.81%
	Female	20.19%
The percentage of trained employees by employee category	Management personnel	38.26%
	Professional and technical personnel	49.07%
	Skilled personnel	12.67%
Number of man-times trained		826,096
The average training hours completed per employee		97.50
The average training hours completed per employee by gender	Male	102.32
	Female	78.55
The average training hours completed per employee by employee category*	Management personnel	92.76
	Professional and technical personnel	67.53
	Skilled personnel	49.45

*Due to the overlaps between each employee category, the average training hours completed per employee by employee category is less than the average training hours completed per employee.

Supply chain management

Key indicators		2021
Total number of suppliers		189,275
Total number of suppliers (domestic)		188,934
Number of suppliers by geographical region	East China	60,071
	South China	20,240
	Central China	23,141
	North China	35,136
	Northwest China	6,904
	Southwest China	33,884
	Northeast China	9,532
	Hong Kong, Macao and Taiwan	26
Total number of suppliers (overseas)		341

Product responsibility

Key indicators		2021
Customer satisfaction rate*		84.9%
Number of major customer complaints*		0
Complaint handling closure rate		100%

*The scope of this data is the annual customer satisfaction and the number of complaints of MCCZY.

Anti-corruption

Key indicators		2021
Number of corruption lawsuits concluded by MCC or its employees		0

Community investment

Key indicators	2021	Unit
Investment in consumption assistance	29.37	RMB Million

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A. Environmental

General Disclosure & KPI		Indicator Description	Chapter References
Aspect A1: Emissions			
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.	Enhancing Environmental Protection and Management
KPI	A1.1	Types of emissions and respective emissions data.	2021 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).	2021 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).	2021 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).	2021 Key Performance Indicators -Key Environmental Indicators
	A1.5	Description of emissions target(s) set and steps taken to achieve them.	Enhancing Environmental Protection and 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.	Enhancing Environmental Protection and Management
Aspect A2: Use of Resources			
General Disclosure		Policies on efficient use of resources including energy, water and other raw materials.	Enhancing Environmental Protection and Management; Controlling Pollution through Green Construction
KPI	A2.1	Water consumption in total and intensity (e.g. per unit of production volume, per facility).	2021 Key Performance Indicators -Key Environmental Indicators
	A2.2	Water consumption in total and intensity.	2021 Key Performance Indicators -Key Environmental Indicators
	A2.3	Description of energy use efficiency target(s) set and steps taken to achieve them.	Enhancing Environmental Protection and Management
	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.	Enhancing Environmental Protection and Management; Controlling Pollution through Green Construction
	A2.5	Total packaging material used for finished products (in tonnes) and, if applicable, with reference to per unit produced.	Not applicable

General Disclosure & KPI		Indicator Description	Chapter References
Aspect A3: The Environmental and Natural Resources			
General Disclosure		Policies on minimizing the issuer's significant impact on the environment and natural resources.	Enhancing Environmental Protection and Management
KPI	A3.1	Description of the significant impacts of activities on the environment and natural resources and actions taken to manage them.	Enhancing Environmental Protection and Management; Controlling Pollution through Green Construction
Aspect A4: Climate Change			
General Disclosure		Policies on identification and mitigation of significant climate-related issues which have impacted, and those which may impact, the issuer.	Enhancing Environmental Protection and 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.	Enhancing Environmental Protection and Management

B. Social

General Disclosure & KPI		Indicator Description	Chapter References
Aspect B1: Employment			
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, antidiscrimination, and other benefits and welfare.	Protecting the Labor Rights of Employees
KPI	B1.1	Total workforce by gender, employment type (for example, full- or part time), age group and geographical region.	2021 Key Performance Indicators- Key Social Indicators
	B1.2	Employee turnover rate by gender, age group and geographical region.	2021 Key Performance Indicators- Key Social Indicators
Aspect B2: Health and Safety			
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.	Safeguarding Employees' Health
KPI	B2.1	Number and rate of work-related fatalities in the past three years including reporting year.	2021 Key Performance Indicators- Key Social Indicators
	B2.2	Lost days due to work injury.	2021 Key Performance Indicators- Key Social Indicators
	B2.3	Description of occupational health and safety measures adopted, how they are implemented and monitored.	Safeguarding Employees' Health
Aspect B3: Development and Training			
General Disclosure		Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities.	Cultivating Employees' Capabilities

General Disclosure & KPI		Indicator Description	Chapter References
KPI	B3.1	The percentage of employees trained by gender and employee category (e.g. senior management, middle management).	2021 Key Performance Indicators- Key Social Indicators
	B3.2	The average training hours completed per employee by gender and employee category.	2021 Key Performance Indicators- Key Social Indicators
Aspect B4: Labour Standards			
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.	Protecting the Labor Rights of Employees
KPI	B4.1	Description of measures to review employment practices to avoid child and forced labour.	Protecting the Labor Rights of Employees
	B4.2	Description of steps taken to eliminate such practices when discovered.	Protecting the Labor Rights of Employees
Aspect B5: Supply Chain Management			
General Disclosure		Policies on managing environmental and social risks of the supply chain.	Supply Chain Management to Control the Risks
KPI	B5.1	Number of suppliers by geographical region.	2021 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.	Supply Chain Management to Control the Risks
	B5.3	Description of practices used to identify environmental and social risks along the supply chain, and how they are implemented and monitored.	Supply Chain Management to Control the Risks
	B5.4	Description of practices used to promote environmentally preferable products and services when selecting suppliers, and how they are implemented and monitored.	Supply Chain Management to Control the Risks
Aspect B6: Product Responsibility			
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.	Quality Management to Lay the Foundation; MCC complies with the Advertising Law of the People's Republic of China and formulated MCC Group and MCC Brand Management Measures, MCC Brand Identification Manual 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.	Client Management to Build a Win-win Partnership; 2021 Key Performance Indicators- Key Social Indicators
	B6.3	Description of practices relating to observing and protecting intellectual property rights.	Focusing on Core Technologies
	B6.4	Description of quality assurance process and recall procedures.	Quality Management to Lay the Foundation
	B6.5	Description of consumer data protection and privacy policies, and how they are implemented and monitored.	Client Management to Build a Win-win Partnership

General Disclosure & KPI		Indicator Description	Chapter References
Aspect B7: Anti-corruption			
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- Business Ethics
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.	2021 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- Business Ethics
	B7.3	Description of anti-corruption training provided to directors and staff.	About Us- Business Ethics
Aspect B8: Community Investment			
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.	United as One: Creating a Harmonious Society
KPI	B8.1	Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport).	United as One: Creating a Harmonious Society
	B8.2	Resources contributed (e.g. money or time) to the focus area.	2021 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	2021 Key Performance Indicators - Key Environmental Indicators
2. Total annual resource consumption of the company	2021 Key Performance Indicators - Key Environmental Indicators
3. Environmental protection investment and development of environmental technology	Focusing on Core Technologies; Promoting Low-carbon Development
4. The type, amount, concentration and destination of the company's emissions	2021 Key Performance Indicators - Key Environmental Indicators
5. Construction and operation of environmental protection facilities of the company	Promoting Low-carbon Development; Accelerating Green Business Transformation
6. Company's waste treatment and disposal in the production process, waste products recycle and comprehensive utilization	Enhancing Environmental Protection and Management; Controlling Pollution through Green Construction
7. Voluntary agreements signed with the environmental protection authorities on the act of improving the environment	There was no record in 2021.
8. The company rewarded by the environmental protection authorities	There was no record in 2021.
9. Other environmental information voluntarily disclosed by the company	2021 Key Performance Indicators - Key Environmental Indicators



Address: No.28 West Shuguang Road, Chaoyang District, Beijing, PRC

Postal code: 100028

Fax: 0086-10-59869439

E-mail: CSR@mcc.com.cn

<http://www.mcc.com.cn>



MCC Wechat
Official Account QR Code