



Jiangxi Copper Company Limited

(A Sino-foreign joint venture joint stock limited company incorporated in the People's Republic of China)
(Stock Code · H Share: 0358 · A Share: 600362)



2019

ENVIRONMENTAL, SOCIAL AND
GOVERNANCE REPORT

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ABOUT THIS REPORT

This is the fourth environmental, social, and governance (hereinafter referred to the “ESG”) report issued by Jiangxi Copper Company Limited, which focuses on the disclosure of relevant information of the environmental, social, and governance performance of the Group. This report covers the work from 1 January 2019 to 31 December 2019 (hereinafter referred to as the “Reporting Period”) and some information on previous years and the first quarter of 2020 are involved.

GUIDING PRINCIPLE

This report is prepared mainly with reference to the revised Environmental, Social and Governance Reporting Guide issued by The Stock Exchange of Hong Kong Limited (hereinafter referred to as the “Hong Kong Stock Exchange”) in December 2015. The contents of this report are determined based on a set of systematic procedures. Such procedures include identifying and prioritizing relevant key stakeholders, identifying and prioritizing relatively important ESG issues, determining the scope of this ESG report, collecting relevant materials and data, compiling the report based on relevant information, and reviewing information in the report.

SCOPE AND BOUNDARY OF THE REPORT

The related ESG policies, statements, implementation of policies described, and the data performance quantified in this report mainly cover the headquarters and subsidiaries of Jiangxi Copper Company Limited and the environmental data covers key production subsidiaries of the Group. Unless otherwise specified, reference to currencies in this report is RMB. In addition, separate explanations have been given for any mention of Jiangxi Copper Corporation Limited, the parent company of Jiangxi Copper Company Limited in certain parts hereof.

APPELLATION EXPLANATION

For the convenience of formulating and reading, any reference to the “Group”, “we” or “us” in this report refers to Jiangxi Copper Company Limited (hereinafter refer to the “Company”) and its subsidiaries. “JCC” refers to Jiangxi Copper Corporation Limited, the parent company of the Company.

SOURCE OF INFORMATION AND RELIABILITY ASSURANCE

The information in and the cases presented by this report are mainly derived from the Group’s statistical reports and relevant documents. The Group undertakes that this report does not contain any false information or misleading statement and accepts responsibility for the contents hereof as to authenticity, accuracy and completeness.

CONFIRMATION AND APPROVAL

This report was considered and approved at the twentieth meeting of the eighth session of the board (the “Board”) of directors (the “Directors”) of the Company on 21 July 2020 after confirmed by the management.

ABOUT THIS REPORT

ACCESS TO AND FEEDBACK FOR THIS REPORT

This report is available for inspection in both traditional Chinese and English. Based on the consideration of environmental protection, we recommend reading the electronic version of the report which can be obtained on the website of the Hong Kong Stock Exchange, the website of Shanghai Stock Exchange or the official website of the Company. In case of any discrepancy between the two versions, the Chinese version shall prevail.

We hold the opinions of stakeholders in high regard and we welcome readers to get in touch with us via the following contacts. Your opinions will be helpful for us to further improve this report as well as to enhance the overall environmental, social and governance performance of the Group.

CONTACTS

Email: jxccwhp@163.com

Tel.: +86 791 82710118

Fax: +86 791 82710114

Address: 7666 Changdong Avenue, High-tech Development Zone, Nanchang, Jiangxi Province

CHAIRMAN'S STATEMENT

During the development in the past 40 years, JCC started from scratch and overcame difficulties and transformed from a weak company into a strong group, making outstanding contributions to the development of the modern copper industry in the People's Republic of China (the "PRC"). 2019 is an impressive and extraordinary year for us. Facing with severe and complicated external situations, the Group united as one, continued to follow the strategic direction of "copper-based, strengthening non-ferrous, diversified development, global layout" and fully mapped out the campaign on "Doubling Innovation in Three Years". Meanwhile, we actively integrated social responsibility concepts with operation strategies, collaborated stakeholders in promoting high-quality and sustainable development of the enterprise and devoted to achieving leapfrog development in the global mining industry.

During the year, we strengthened operation and governance and continuously optimized the organizational structure and management control model. Not only did we vigorously carry out the construction of a "significant risk management system" to strengthen the overall risk management and control standard, we consistently improved the environmental, social and governance system to continuously create values for every stakeholder. On such basis, we always keep in mind of our responsibilities as a state-owned enterprise, endeavor to create an honest and clean business environment and strive to be a responsible corporate citizen.

During the year, we continued to improve the quality management mechanism, consolidated the basis for quality management and sped up the promotion of scientific and technological innovation. We advanced scientific research results transformation and intellectual property rights protection work in an orderly way, advocated the construction of informatization and the development of intelligent mines and consistently promoted the spirit of craftsmanship and innovation. In addition, facing the intensified market environment, we conducted close communications and contacts with our customers and suppliers, fully safeguarded the interests of customers, responded to customers' request and suggestions promptly, worked hard in improving the environmental and social performance of suppliers and promoted the sustainable development of supply chain.

During the year, we advanced the enhancement of human resources management with high quality and optimized the systems and mechanisms on the "selection, cultivation, use and retaining" of human resources. In addition to creating an equal, diversified and integrated corporate atmosphere, we also built a healthy and safe working environment, scientific and reasonable training systems and equal and fair promotion mechanisms for all employees. We insisted on co-creation and sharing and carried out various activities on the construction of corporate culture and poverty relief to allow more outstanding talents to obtain the sense of happiness and achievement while striving for the development of the copper industry in the PRC.

During the year, we insisted on green development, adhered to the concept of ecological civilization, sped up the construction of green mines and green factories and strived to build a green manufacturing enterprise. We strictly followed the requirements of the ISO 14001 environmental management system and the ISO 50001 energy management system, solidly fulfilled the responsibility system on environmental management and implemented environmental management policies precisely. We insisted on the reasonable use of resources, actively implemented measures on energy saving and energy consumption reduction as well as governance at source and fully met the requirements on standard discharge of pollutants. We continuously advanced ecological reclamation in surrounding areas of projects to practically reduce the impact of production and operation on the environment.

CHAIRMAN'S STATEMENT

During the year, while consistently enhancing our economic benefits performance, we actively participated in social public welfare activities. In response to and to implement policies on "targeted poverty alleviation", we helped poverty alleviation by initiating village renovation and infrastructure construction in targeted impoverished villages. Based on the characteristics of each poverty-stricken village, we assisted villagers in industrial construction, which significantly enhanced the income per capita and quality of life of impoverished households. Meanwhile, we actively gave back to society and made contributions in areas such as environmental protection, taxation, employment, community construction and public welfare investments, practicing the responsibilities and undertakings of a state-owned enterprise with practical actions.

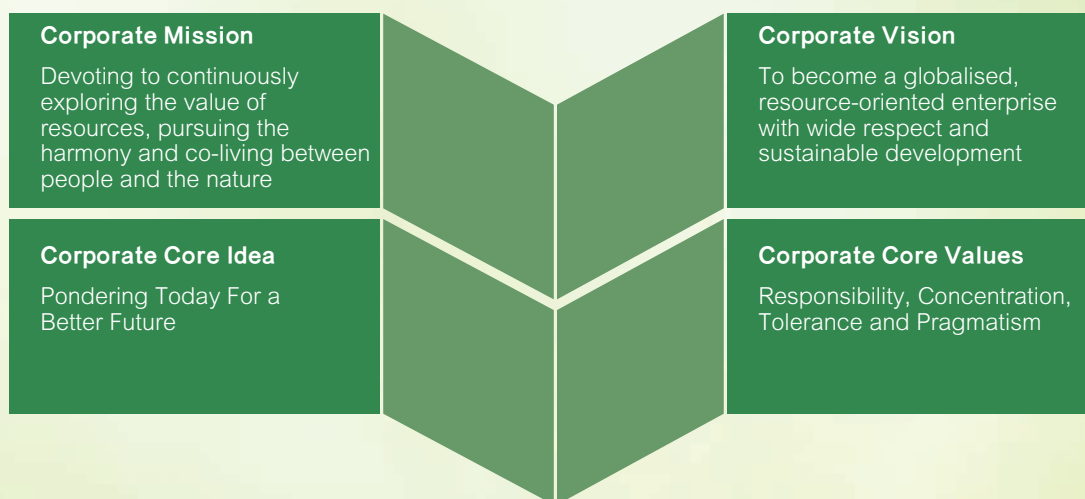
Efforts will always return and hardships will make one stronger. The fruitful results in 2019 further strengthened our pace to move forward. 2020 is a crucial year of our "Doubling Innovation in Three Years" plan as well as the final year of the "Thirteenth Five-Year Plan" of the Group, which brings us pressure as well as impetus. We will stay true to the original aspiration on revitalizing the copper industry in the PRC, coordinate the demands of government and regulatory authorities, customers, investors, employees, partners, communities and other stakeholders, balance risks and development opportunities of the environment, social and governance and strive to advance towards a widely respected world's leading enterprise.

Long Ziping

Chairman, Party Committee Secretary and Executive Director

ABOUT JCCL

Jiangxi Copper Company Limited is the largest integrated copper producer in the PRC. Its principal business covers copper and gold mining and dressing, smelting and processing, extraction and processing of scattered metals, sulphuric chemistry as well as finance and trading fields. It has established a complete industrial chain integrated with exploration, mining, ore dressing, smelting and processing in copper and related non-ferrous metal fields. It is the largest production base of copper products, associated gold and silver and an important base of sulphuric chemistry in the PRC. Our main products include more than 50 varieties, such as copper cathode, gold, silver, sulphuric acid, copper rod, copper tube, copper foil, selenium, tellurium, rhenium, bismuth, etc..



With Jiangxi, the Bohai Rim region, the Yangtze River Delta region, the Guangdong-Hong Kong-Macao Greater Bay Area and the Southwest China as five major industrial bases, we have achieved the T-shaped industrial layout along the Yangtze River and the coast and established an investment, marketing, finance and trading network covering the whole country with overseas presence.

ABOUT JCCL

To achieve high-quality and leapfrog development and build a world's leading enterprise, JCC formulated the "Doubling Innovation in Three Years" plan. We adhere to the strategic direction of "copper-based, strengthening non-ferrous, diversified development, global layout" and the working principle of "innovation-oriented, green development, leading copper industry and expanding openness" and strive to complete the overall target of "Doubling Innovation in Three Years" in 2021 and edge into top 10 of the world's mining industry in terms of comprehensive strengths. We will continue to work harder on this basis and strive to maintain stable improvements on indicators such as revenue, assets, profit and market value, continuous improvement on development quality, significant enhancement on innovation capability and preliminarily establish a world's leading enterprise with global competitiveness by 2023.

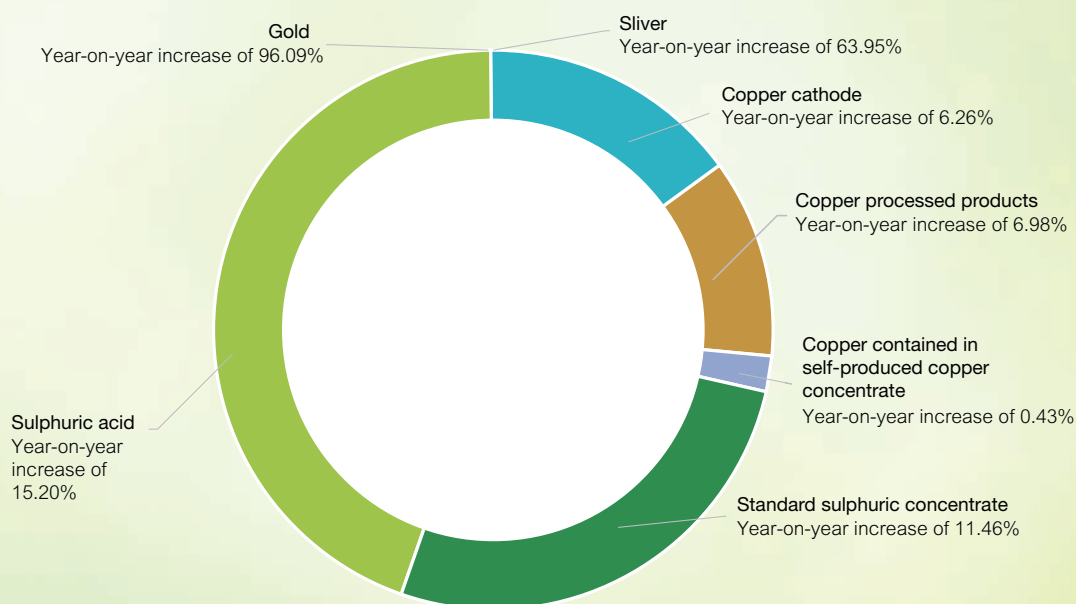


ABOUT JCCL

OPERATING PERFORMANCE IN 2019

- Realizing operating income of RMB**240.4** billion in 2019
- Representing an increase of **11.64%** as compared to 2018

Production of Major Products in 2019



ABOUT JCCL

HONORS AND AWARDS

No.	Award	Awarded by
1	Ranking 358th among Global 500 (JCC)	Fortune
2	Global 500 Green Enterprises (JCC)	The U.S. Newsweek
3	National Green Factory	Ministry of Industry and Information Technology of the People's Republic of China
4	National Green Mine	Ministry of Land and Resources
5	Prize for Outstanding Contribution to Green Mines in 2019	Zhongguancun Green Mine Industry Alliance* (中關村綠色礦山產業聯盟)
6	Prize for Outstanding Personal Contribution to Green Mines in 2019	Zhongguancun Green Mine Industry Alliance* (中關村綠色礦山產業聯盟)
7	Star of Mines for "Cost Reduction, Efficiency Improvement, Energy Saving and Environmental Protection" in 2019	Caterpillar Remanufacturing Services (Shanghai) Co., Ltd.
8	Brand of Jiangxi	Jiangxi Province Famous Brand Strategy Promotion Association* (江西省名牌戰略促進會)
9	National Outstanding QC Team	China Association for Quality
10	National Teams with Reliable Quality	China Association for Quality
11	Outstanding QC Team in Non-Ferrous Metal Industry	China Association for Quality
12	Rhododendron Prize for Quality Construction Projects in Jiangxi Province in 2019	Department of Housing and Urban-Rural Development of Jiangxi Province* (江西省住房和城鄉建設廳)
13	Prize for Case Innovation in 2019	China Internet Weekly
14	Prize for Innovation in Copper Industry	International Copper Association
15	Outstanding Member of Shanghai Gold Exchange in 2018	Shanghai Gold Exchange
16	Second Prize of the 25th National Enterprise Management Modernization Innovation Achievement	China Enterprise Confederation
17	Enterprise of Integrity in National Automobile Maintenance and Repair Industry	China Automobile Maintenance and Repair Trade Association* (中國汽車維修行業)
18	"Prize for Contribution of the Year" on Industrial Rising in Jiangxi Province for 2016-2018	Department of Industry and Information Technology of Jiangxi Province* (江西省工業和信息化廳) Department of Finance of Jiangxi Province
19	Prize for Technology Progress in Jiangxi Province in 2018	The People's Government of Jiangxi Province

1. Establishing a Responsible Enterprise and Sharing an Economic Future

While vigorously developing its own business, the Group abides by commercial ethics and conducts compliance operation in accordance with laws. We always keep in mind of our responsibilities as a state-owned enterprise, consistently improve the environmental, social and governance system to continuously create value for all stakeholders and strive to be a responsible corporate citizen.

1.1 CORPORATE GOVERNANCE

We establish and consistently improve our steady and transparent corporate governance system, ensure the compliance operation of the enterprise, practically safeguard the interests of shareholders and other stakeholders and continuously improve the corporate value and management transparency of the Company.

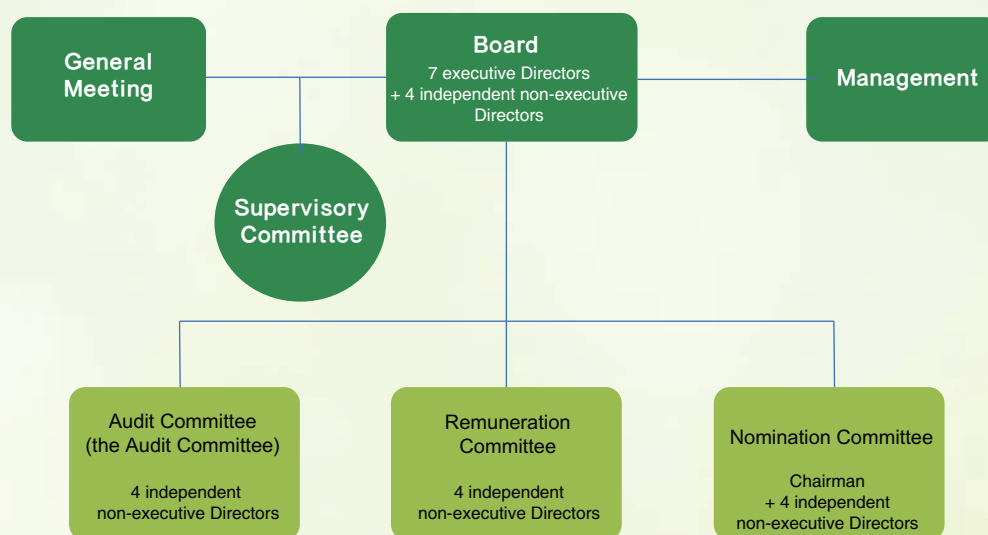
The Group strictly complies with provisions of laws, regulations and regulatory documents including the Company Law of the People's Republic of China (《中華人民共和國公司法》), the Securities Law of the People's Republic of China (《中華人民共和國證券法》) and the Code of Corporate Governance for Listed Companies (《上市公司治理準則》) and continues optimizing the corporate governance structure to safeguard the compliance operation and development of the Group.

The Group seeks to ensure that all shareholders, especially minority shareholders, are able to enjoy equal status and exercise their rights and obligations effectively and fully. The general meetings provide all shareholders, especially minority shareholders, with the platform to fully exercise their rights to know, participate and vote.

The Board of the Group is mainly responsible for formulating the overall strategies and overseeing the operations of the enterprise, standardizing corporate operation and disclosure and consistently pursuing corporate governance with higher standards. The Board establishes the Independent Audit Committee (the Audit Committee), the Remuneration Committee and the Nomination Committee. The Independent Audit Committee is mainly responsible for reviewing the Group's financial reporting, financial control, internal control and risk management systems and overseeing the preparation and contents of financial statements as well as the appointment and removal of auditors. The Remuneration Committee is mainly responsible for various decision-making of human resources, including formulating the remuneration structure of Directors and senior management and making relevant recommendations to the Board on the adjustment of their remuneration. The Nomination Committee is mainly responsible for reviewing the structure, size and composition of the Board and making recommendations to the Board on the appointment, re-appointment and succession plans to the Directors.

1. Establishing a Responsible Enterprise and Sharing an Economic Future

The supervisory committee (the “**Supervisory Committee**”) of the Group consists of 5 supervisors (“**Supervisors**”), including 2 employees representative Supervisors. It supervises the operation, internal control system and financial conditions of the Group and the duty performance of Directors and senior management and issues independent opinion.



Corporate Governance Structure of the Group

(For more details, please refer to the Corporate Governance Report in the 2019 Annual Report of the Group)

1. Establishing a Responsible Enterprise and Sharing an Economic Future

1.2 ESG GOVERNANCE

We always insist on performing the mission of “devoting to continuously exploring the value of resources, pursuing the harmony and co-living between people and the nature” and actively promote safe, friendly, harmonious environment and community construction during the development and operation process of mineral resources.

During the Reporting Period, the Group preliminarily established an ESG governance structure with clear scope of duties on all levels. Through conducting in-depth and effective communications with stakeholders, the Group identified material issues and implemented relevant work on ESG governance.

ESG Governance Structure

To further improve the corporate ESG governance standards and implement relevant ESG governance work, we intended to establish a top-down ESG governance structure, and thereby ensure a set of appropriate and effective ESG reporting procedures for risk management and internal control to integrate sustainable development policies into the ordinary business of the Company.

1. Establishing a Responsible Enterprise and Sharing an Economic Future

Communications with Stakeholders

The Group always believe that two-way, transparent and regular communications can help us effectively understand and respond to the expectations and requests of all stakeholders, consistently improve the duty performance of the enterprise and lay a solid foundation for the sustainable development of the Group.

During the Reporting Period, we identified six groups of major stakeholders with decision-making and influence on the Group and in a close relationship with the Group. We actively established a comprehensive and effective routine communication mechanism and integrated their issues of concern into the operation and decision-making process to create value for all stakeholders.



Categories of Stakeholders of the Group

Categories of Stakeholders	Issues of Concern	Communication Channels and Methods for Feedback
Investors/ Shareholders	<ul style="list-style-type: none"> - Corporate governance - Business performance - Compliance operation - Risk management - Information disclosure - Technological innovation 	<ul style="list-style-type: none"> - Annual general meeting/ Extraordinary general meeting - Results presentation - News release/announcement/ annual report/corporate communications - Roadshow - Investors meeting

1. Establishing a Responsible Enterprise and Sharing an Economic Future

Categories of Stakeholders	Issues of Concern	Communication Channels and Methods for Feedback
Customers	<ul style="list-style-type: none"> - Product quality safety - Customer service - Customer privacy protection - Technological innovation 	<ul style="list-style-type: none"> - Customer satisfaction survey - Customer feedback - Company website - Social media official account
Employees	<ul style="list-style-type: none"> - Employees' interests - Diversity and inclusiveness - Remuneration and welfare - Occupational health and safety - Training and development 	<ul style="list-style-type: none"> - Internal communications - Employees' training - Collection of comments and reasonable suggestions - Employees' activities - Survey on employees' thinking
Partners	<ul style="list-style-type: none"> - Safe production management - Product quality and safety - Integrity and honesty - Supply chain management - Business performance - Packaging materials management - Intellectual property rights protection 	<ul style="list-style-type: none"> - On-site inspection - Suppliers' qualification review - Technical training - Procurement materials and contracts
Community and Public	<ul style="list-style-type: none"> - Community services - Charity - Targeted poverty alleviation - Greenhouse gases emission and climate change - Biodiversity protection 	<ul style="list-style-type: none"> - Community activities - Community communications - On-site inspections - News release / announcement
Government and Regulatory Authorities	<ul style="list-style-type: none"> - Safe production management - Compliance operation - Pollutants discharge management - Energy management - Water resources management 	<ul style="list-style-type: none"> - On-site inspection - Communications and interviews - Regular report and announcement

1. Establishing a Responsible Enterprise and Sharing an Economic Future

Categories of Stakeholders	Issues of Concern	Communication Channels and Methods for Feedback
Media	<ul style="list-style-type: none"> - Charity - Compliance operation - Targeted poverty alleviation - Safe production management - Business performance 	<ul style="list-style-type: none"> - News release / announcement - Interviews - Results presentation

We closely follow the market and rules, attach great importance to close communications with investors and actively listen to investors' suggestions. During the Reporting Period, the Group served over 30 batches of investors and inspection and research institutions through on-site receptions, emails and telephone to ensure the open and transparent information disclosure of the Group.

Investors Group Reception Day

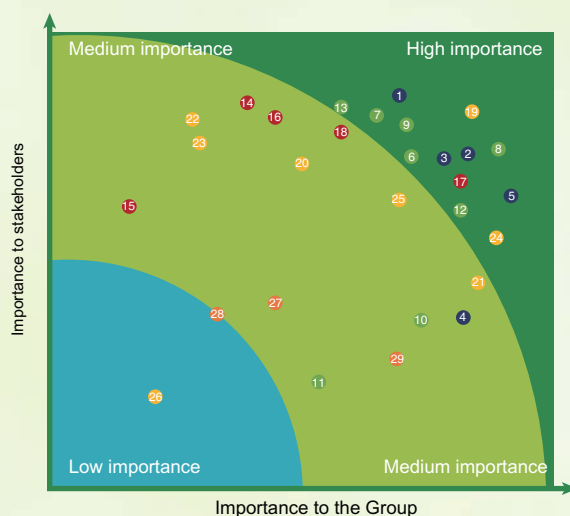
On 26 June 2019, the Group and other 41 listed companies participated in the 2019 Investors Group Reception Day for Listed Companies in Jiangxi held by the Jiangxi Regulatory Bureau of the China Securities Regulatory Commission and co-sponsored by Listed Companies Association of Jiangxi (江西省上市公司協會) and Shenzhen Panorama Network Co. Ltd. (深圳市全景網絡有限公司). The theme of the reception day is "Sincere Communications, Regulated Development, Mutual Benefit and Win-win" (真誠溝通、規範發展、互利共贏). Through the interactive platform of www.p5w.net, it practically safeguarded the legitimate interests of investors and promoted market fairness.

Materiality Analysis

During the Reporting Period, based on peer benchmarking, media opinions and requirements of regulatory authorities, we identified potential material issues with economic, environmental and social influence on the Group's business or stakeholders' assessment and decision-making on the Group. On such basis, we conducted over 20 in-depth interviews with stakeholders to understand their concerns and expectations on the ESG practice of the Group. Together with the strategic planning and development conditions of the Group, we prioritized the importance of potential issues based on two aspects, namely the scope of influence on the strategic operation of the Group and the scope of influence on stakeholders.

1. Establishing a Responsible Enterprise and Sharing an Economic Future

We finally identified 29 ESG issues, which provide strong basis for the formulation of long-term ESG strategies by the Group. Among such issues, 13 are issues with high importance, 15 are issues with medium importance and 1 is an issue with low importance. Issues with high importance are disclosed in this report as key contents and we will disclose relevant contents in details in this report.



Materiality Matrix of the Group

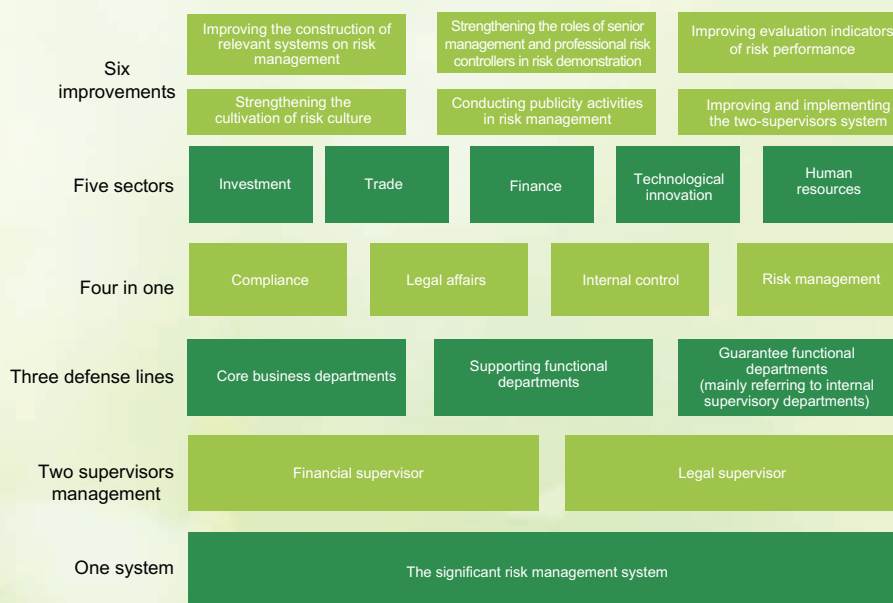
No.	Issue	No.	Issue	No.	Issue
1	Business performance	11	Water resources management	21	Intellectual property rights protection
2	Corporate governance	12	Ecological restoration and land reclamation	22	Customer services
3	Anti-corruption	13	Biodiversity protection	23	Customer privacy protection
4	Risk management	14	Employees' interests	24	Technological innovation
5	Compliance operation	15	Diversity and inclusiveness	25	Supply chain management
6	Management of waste water discharge and waste gas emission	16	Remuneration and welfare	26	Packaging materials management
7	Management of waste and tailings	17	Occupational health and safety	27	Charity
8	Energy management	18	Training and development	28	Community services
9	Greenhouse gas emission	19	Safe production management	29	Targeted poverty alleviation
10	Response to climate change	20	Product quality and safety		

1. Establishing a Responsible Enterprise and Sharing an Economic Future

1.3 RISK MANAGEMENT

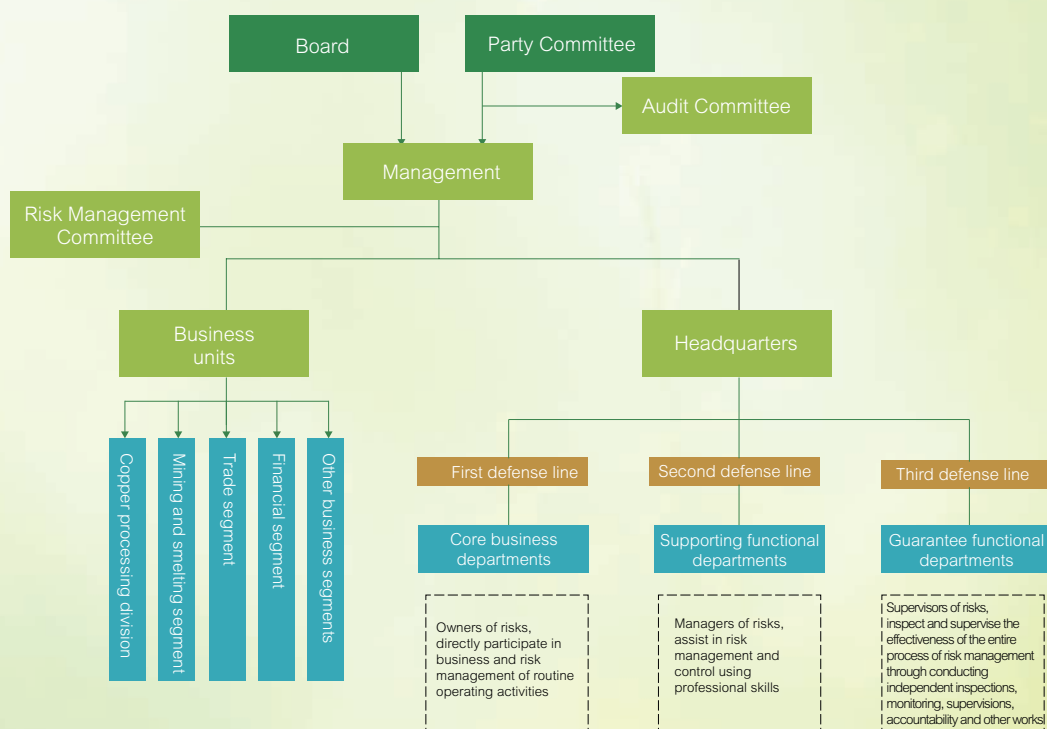
We vigorously conducted the construction of a significant risk management system to effectively manage and control business risks and facilitate the operation and development of the Group.

In accordance with the Basic Standards for Enterprise Internal Control (《企業內部控制基本規範》), the Guidelines for Enterprise Internal Control Evaluation (《企業內部控制評價指引》) and based on its own conditions, the Group formulated the Risk Management and Internal Control Management Measures (《風險管理與內部控制管理辦法》), the Internal Control Manual (《內控手冊》) and other systems on internal risks management. To better manage relevant risks effectively in the development and the process of realizing targets and ensure sustainable, stable and healthy development of the Group, we fully initiated the construction of a significant risk management system with the focus on the target of “one system, two supervisors management, three defense lines, four in one, five sectors and six improvements”. We established “two supervisors management” and “three defense lines” to enhance the management of internal risks of the Group. Meanwhile, based on the weak links in risk management, together with the “Doubling Innovation in Three Years” plan, we strengthened the response and prevention of key risks, enhanced response measures on “five sectors”, namely investment, trade, finance, technological innovation and human resources and established a significant risk management system with the coordinated operation of “compliance, legal affairs, internal control and risk management”.



1. Establishing a Responsible Enterprise and Sharing an Economic Future

During the Reporting Period and in accordance with the principle of “covering all functional departments and entities of all levels, and full participation”, the Group newly established an operation management department, a legal risk management department and an audit department to further optimize the organizational structure and the management control model. It established a top-down organizational system on risk management with different responsibilities on different levels consisting of the Board, the risk management committee, all functional departments and subsidiaries.



Structure of the Significant Risk Management System

In the significant risk management system of the Group, the Board and the party committee play the leading and regulatory roles being the final responsible person of risk management. The Audit Committee is responsible for the overall layout and development coordination in the auditing sector. The Risk Management Committee is responsible for reviewing the risk management strategies and solutions of the Group and approving risk management policies and risk evaluation standards and other matters. Meanwhile, the system strengthens the role of two supervisors (the financial supervisor and the legal supervisor) in risk control, determines the responsibilities of the two-tier risk management of the headquarters of the Group and business units as well as three defense lines, and establishes an information communication mechanism.

In addition, we have established a key risk indicators monitoring mechanism and promoted the management of the list of important risks and implemented risk prevention and control on investment, trade, finance, human resources, R&D and other key sectors. We have also improved the overall risk control and management standards through improving the establishment of the two-tier management system and the construction of the two-tier risk control performance assessment mechanism.

1. Establishing a Responsible Enterprise and Sharing an Economic Future

1.4 INTEGRITY AND HONESTY

We are committed to building a corporate culture on integrity and honesty, adhere to the concept of “honesty and trustworthiness”, and consider compliance operation as a key fundamental to the long-term development of the enterprise.

We strictly abide by the Anti-money Laundering Law of the People's Republic of China (《中華人民共和國反洗錢法》), the Interim Provisions on Prohibition of Commercial Bribery (《關於禁止商業賄賂行為的暫行規定》) and other relevant laws and regulations, formulate the Measures on the Responsibility Accountability on Party's Style of Work and Construction of Integrity (《黨風廉政建設責任追究辦法》), the Measures of Jiangxi Copper Corporation Limited on the Prevention Management Pre-warning and Accountability of Corruption Risks (Trial) (《江西銅業股份有限公司廉潔風險防範管理預警及責任追究辦法(試行)》) and other internal policies, which explicitly require our employees and suppliers and other external related parties abide by anti-corruption laws and regulations. We also formulate the personal information reporting system of management personnel and optimize their occupational integrity files through specifying measures on responsibility accountability to prevent any corruption and provide guarantees to the sustainable development of the enterprise.

During the Reporting Period, the Group had 2 corruption and bribery cases which had been concluded. The personnel involved in breach of discipline and laws were severely investigated and punished. The Group further improved the professional ethics of all employees with reference to the cases, continued to promote the construction of an integrity enterprise to create a good and righteous business environment.

Integrity Management

During the Reporting Period, the Group further promoted its reform of the disciplinary inspection and supervision systems, formulated and improved the management systems on four aspects, namely the reporting system, the internal management system, the communication and coordination system and the services guarantee system to vigorously advance integrity construction.

1. Establishing a Responsible Enterprise and Sharing an Economic Future

During the Reporting Period, the disciplinary committee of the Group fully punished and rectified corruptions through prohibiting business contacts with enterprises operated by relatives of leaders or their related individuals to create a healthy business environment. The Group released the Interim Measures on Prohibiting Business Contacts with Enterprises Operated by Relatives of Leaders or their Related Individuals (《禁止與領導人員親屬所辦企業或個人發生業務往來暫行規定》) and initiated special inspections. It established the list of enterprises (individuals) with prohibited transactions and implemented dynamic management to prevent leaders from seeking illegitimate interests through taking advantage of their positions.

To effectively monitor the integrity management mechanism of the Group, we encourage internal and external persons to report on any suspected activities through mails, telephone, emails and other channels. We strictly follow the handling of reporting and investigation procedures specified in the Working Rules on Handling Reporting and Accusations by the Disciplinary Inspection and Supervision Authorities (《紀檢監察機關處理檢舉控告工作規則》), ensure the protection of the personal privacy information of reporters during the investigation process and severely punish the disclosure of information of cases or crack down revenges on reporters.



Reporting through mails



Reporting through telephone



Reporting through emails

Integrity Reporting Channels

1. Establishing a Responsible Enterprise and Sharing an Economic Future

Promotion of Integrity Culture and Education

The Group always advocates a corporate culture of integrity and self-discipline and sets June of each year as the month for publicity and education of the integrity construction of the work of style of the party and anti-corruption theme to conduct routine and centralized promotion and education on integrity. During the Reporting Period, we vigorously carried out the promotion and education activity of the month with the theme of "refreshing, alarming and awakening" in the Group. Meanwhile, we hold the meeting on promoting the construction of the political ecosystem, specified 15 key works and refined and implemented 29 specific measures.



Sizhou Ore Dressing Plant of Dexing Copper Mine conducted the activity of signing the letter of commitment on integrity during the promotion and education month

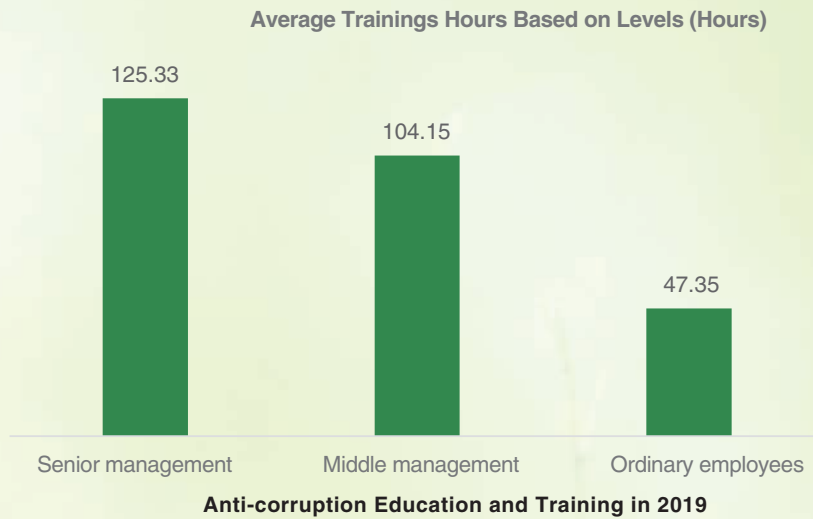


The meeting of the Group on promoting the construction of the political ecosystem

The Group attaches great importance to the fostering of employees' awareness on integrity. It specifies the punishment mechanism on various activities in violation of integrity and disciplines through the Measures on Staff Reward and Punishment (《員工獎懲辦法》) and continuously conducts anti-corruption education and trainings on employees at all levels. During the Reporting Period, we made alarming and educational videos on anti-corruption and organized exhibitions, prepared and circulated the Alarming Record 《警示錄》 with the theme of alarming and education. We also arranged 230 cadres above the division level to participate in the alarming and education meeting to learn from cases and to create and consolidate a cultural atmosphere with integrity.

1. Establishing a Responsible Enterprise and Sharing an Economic Future

During the Reporting Period, the anti-corruption education and training situation on employees of the Group at all levels is as follows:

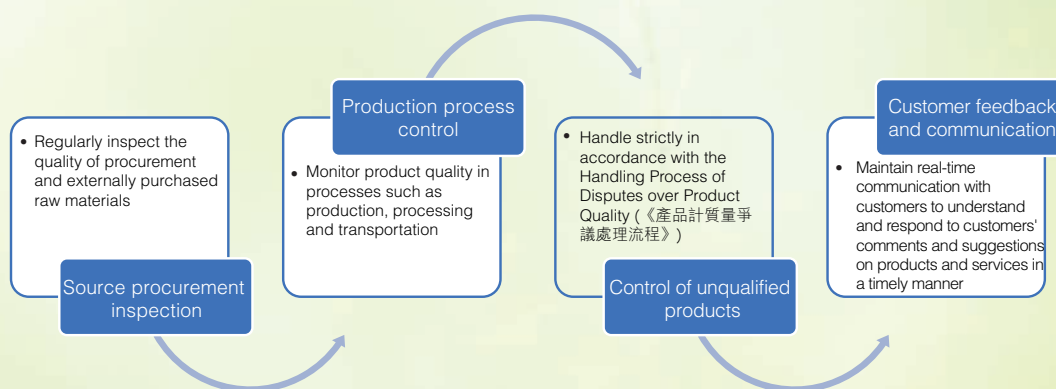


2. Flourishing the Enterprise with Quality and Building an Innovative Future

Enhancing Quality Management

We adhere to the quality concept of “quality comes from details” and insist on the implementation of quality responsibility system. The Group has established and improved nearly 10,000 documents on the operation of equipment and processes, specified the duties of the responsible department and person of each production process and implemented the node and responsibility control of the system to each process, position and employee, establishing an all-dimensional regulatory network.

We adopt various measures, such as inspection of source procurement, monitoring on the production process, control of disqualified products, customer feedback and communication, to fully ensure that the products meet relevant national or industry standards.



Management and Control Processes on Products Quality

During the monitoring of the production process, we strictly follow the control method of PDCA (Plan-Do-Check-Act) cyclic improvement, focus on key factors in products quality, set points for management and control on quality, find major factors affecting the quality of processed products and determine the method of and requirements on control. Take the inspection on the appearance and quality of copper cathode as an example, after conducting self-inspection and rectification at the electrolysis workshop, the quality measurement department will carry out inspections on products. Disqualified products will be returned to the electrolysis workshop for rectification until they pass the inspection. They will be labeled together with qualified products. The supply and marketing department and the smelting and chemical engineering company will be responsible for warehousing and packaging quality as well as the quality control, monitoring and inspection on the whole process from the production to the shipment of products respectively.

2. Flourishing the Enterprise with Quality and Building an Innovative Future

We always advance quality management and control and its continuous improvement. During the Reporting Period, the Group achieved the target of no significant accident on product quality and no significant measurement and quality complaints; control rate of 100% in significant measurement processes and 100% in weekly inspection (calibration) rate of Class-A measurement equipment. Meanwhile, our copper sulfate, copper foil and enameled wires were awarded products of “Famous Brands in Jiangxi”. As at 31 December 2019, 8 categories of products of the Company were awarded such title.



Copper Sulfate was awarded as products of “Famous Brands in Jiangxi”

Enhancement of Management Capabilities

The Group believes that high-quality products depend on the enhancement of the quality awareness of all employees. We conduct hierarchical quality education and trainings on management, technology and front-line operation employees, covering the integrated quality management system, benchmarking and breakthrough technologies and quality improvement methods etc. to consistently enhance the awareness of all employees on quality culture, quality benefits and legal system on quality.

To create an excellent atmosphere for quality management, we conduct the activity of “Quality Month” within the Group in September each year. During the Reporting Period, we carried out the 2019 quality month activity with the theme of “Creating Chinese Quality and Building a Quality Country”. We publicized quality knowledge through the local area network, closed-circuit television, bulletins, slogans, printing and other means as well as special lectures and newspaper columns to enhance the quality awareness of all employees.

2. Flourishing the Enterprise with Quality and Building an Innovative Future

Quality Open Day at Guixi Smelter

During the Reporting Period, Guixi Smelter conducted the activity of “Quality Open Day” within the whole plant with the theme of “advancing intelligent quality management and control and assisting the high-quality development of the factory”. During the activity, Guixi Smelter opened an exhibition hall with the theme of “Quality Open Day” and displayed the history of the quality development of the smelter to transmit the quality culture. It displayed the working results such as products registration, standards formulation and quality control (QC) through pictures, objects and comparison data on quality benchmarking and publicized quality management knowledge to all employees.

Local market authorities and nearly 40 enterprises were invited to conduct on-site communications at the “Quality Open Day” activity. It provided employees a platform to learn advanced quality management methods and technologies and facilitated the enhancement of quality management of the enterprise.

In addition, Guixi Smelter held the 11th Symposium on National Rapid Smelting Technologies and discussed the application of quality management models and methods as well as experiences on intelligent quality management and control, which promoted communications on scientific quality management methods.



Site of the “Quality Open Day” Activity



11th Symposium on National Rapid Smelting Technologies

2. Flourishing the Enterprise with Quality and Building an Innovative Future

The Foil Company Strengthens Quality Awareness of All Employees

To create a cultural atmosphere of "Quality Priority", the Foil Company, a subsidiary of the Group, posts various quality slogans, promotional posters and brochures at the bulletin board and process quality points of the company and distributed quality brochures. It encourages employees to make contributions and share experiences based on relevant quality matters through the bulletin and WeChat platform of the Foil Company. Meanwhile, it sorts out standard operation documents of all positions, improves the management of measurement and testing equipment, advances data statistics and applies the SPC (Statistical Process Control), the MSA (Measurement Systems Analysis), the 5M1E (man, machine, material, method, measurement and environment) and other quality management instruments, which effectively enhances the problem analysis and solving capabilities of product quality.

During the Reporting Period, the Foil Company actively responded to the advocate of the Group on "conducting quality month activity". It carried out innovation stars among all employees, labour competitions on key processes, quality demonstration positions of internal young employees, internal quality management and control and other activities to establish the quality responsibility concept of "quality hazards are disasters" in the company and enhance the quality awareness of all employees.

In addition, the Group actively initiated quality improvement activities and focused on improving the quality skills of employees. We guide employees to actively participate in QC groups and other quality improvement activities through strengthening cadres training, improving incentive mechanisms and innovating ways and methods to fully utilise the professional knowledge and skills of employees to assist the Group in improving our product quality, reducing the production cost and enhancing corporate benefits. During the Reporting Period, we were awarded 1 national outstanding QC group, 1 national team with reliable quality, 6 outstanding QC groups in the non-ferrous industry and 25 outstanding QC groups in Jiangxi Province. The quality management work of the Group was highly recognized by all walks of life.



QC Group of the Sulfuric Acid Workshop of Guixi Smelter was awarded a National Outstanding Quality Control Group

2. Flourishing the Enterprise with Quality and Building an Innovative Future

Labour Contests and Olympic Skills Competitions

In 2019, we organized the labor contest with the theme of "improving quality and efficiency, reducing cost and benchmarking with leading enterprises". Over 20,000 employees from 14 subsidiary units of the Group participated in the contest. In the contest, 26 of the 38 professional technological and economic indicators reached or surpassed the targets of the labour contest during the year, which effectively improved the technological and economic standards and promoted the completion of production and operation tasks. Meanwhile, all units conducted special labour contests in various forms based on their own emphasis and difficulties in their production and operation at different phases.

Besides, we also greatly promoted the conducting of skills competitions and provided technical workers with platforms to show their skills and opportunities to stand out. In 2019, the Group and its subsidiary units organized a total of over 40 skills competitions on over 20 types of work. Over 6,000 employees participated in skill trainings and exercises. 79 candidates participated in the finals of the Olympic Competition of Jiangxi Copper and 12 participants, including Wang Xiaohu, were awarded the title of "Technical Experts of Jiangxi Province". At the same time, we arranged employees to participate in the "China Aluminium Cup" skills competitions of the national non-ferrous industry and the "China Copper Cup" comprehensive management skills competitions for team leaders of the national non-ferrous industry. 1 employee was awarded the second prize, 4 employees ranked the third and fourth and 8 employees were awarded the titles of "National Technical Experts" and "Technical Experts in the National Non-ferrous Industry" in view of their outstanding results.



The 20th Olympic Skills Competition of Jiangxi Copper



"China Aluminium Cup", the 13th Professional Skills Competitions of the National Non-Ferrous Industry

2. Flourishing the Enterprise with Quality and Building an Innovative Future

2.2 TECHNOLOGICAL INNOVATION

We adhere to the spirit of innovation in leading the corporate development, vigorously achieve breakthroughs in special scientific research programs and actively transform towards “new and intelligent manufacturing”.

The Group formulates and continues to improve the Management Measures for Technology Development (《科技開發管理辦法》), the Management Measures for the Construction of Supporting Scientific Research Programs (Trial) (《科研配套項目建設管理辦法(試行)》), the Management Measures for Scientific Research Funds (《科研經費管理辦法》), the Management Measures for Incentives on Innovation and Efficiency Improvement (《創新創效獎勵管理辦法》), the Detailed Rules on the Implementation of the Selection of Science and Technology Progress Award (《科技進步獎評選實施細則》), the Management Measures for Promoting the Transformation of Scientific and Technological Results (Trial) (《促進科技成果轉化管理辦法(試行)》) and other internal policies. During the Reporting Period, the Group formulated the Strategic Plan on Technological Innovation (2019-2023) (《技術創新戰略規劃(2019年-2023年)》), provided strategic guidance on the transformation towards an enterprise driven by technological innovation. Meanwhile, we conducted dynamic checklist management of projects for key scientific research results transformation projects and key focused projects, actively advanced the introduction of high-end scientific research talents, established and improved the publication mechanism of scientific research problems and sped up the enhancement of technological innovation capabilities.

The Group has made continuous investment in R&D and innovation, focused on the difficulties and critical points surrounding the practice of production and operation, overcome key technologies such as copper processing and new materials, developed new products with market competitiveness and was awarded various provincial science and technology progress awards. The R&D investment of the Group reached RMB3.74 billion in 2019.



“Key Technology and Application of High-efficiency Flotation Selection of Sulfide Ore Based on Adjustment and Control Interface Hydration” won the Second Prize of the Jiangxi Province Science and Technology Progress Award



“Multi-position Adjustment and Control Technology of Sulfide Ore Flotation Selection” won the Third Prize of the Jiangxi Province Science and Technology Progress Award

2. Flourishing the Enterprise with Quality and Building an Innovative Future

During the Reporting Period, we sped up the R&D of carbon nanomaterials and completed the registration of key patents for water slurry of carbon nanotubes. We specifically established Jiangxi Jiangtong Carbon Nanomaterials Company Limited* (江西江銅碳納米材料有限公司) to conduct industrial operation. The copper-silver microfilament wire developed by specially-appointed scientists has reached the performance standard of world-leading wires and it is conducting further experiments on blank making. Meanwhile, key difficulties in the research of graphite-copper (aluminum) composite materials have been overcome. Sample products with stable quality have been developed and passed the performance tests of target customers. In addition, the Foil Company has made breakthroughs in the R&D of high-frequency and high-speed foil products for 5G applications, which will facilitate the 5G construction work of the Group.

R&D of Single-walled Carbon Nanotubes

With its outstanding electrical and thermal conductivity, mechanical and functional characteristics, single-walled carbon nanotubes have become the brightest focus in the composite and functional materials as well as electronic devices industry with a market prospects of RMB100 billion. Currently, the PRC has no technology on the industrialization of high-quality single-walled carbon nanotubes and it mainly relies on imports, which severely threatens the safe supply of core materials in the PRC. To solve this problem, Jiangxi Copper Technical Institution* (江西銅業技術研究院) independently developed the technology on single-walled carbon nanotubes, an ultra high-temperature chemical sedimentation equipment, overcoming the difficulties of insufficient driving force of traditional single-walled carbon nanotubes with chemical vapor deposition reaction and the agglomeration of high-temperature catalysts. The equipment manufactured enjoys obvious advantages of high productivity and low defects, showing its huge prospects for large-scale production. It is likely to make breakthroughs in large-scale production first in the PRC and is of significant economic and social benefits.



Pilot Line for Functional Masterbatch of Carbon Nanomaterials

2. Flourishing the Enterprise with Quality and Building an Innovative Future

As a traditional enterprise, the Group actively explores the transformation of becoming a “new intelligent manufacturing”. To improve the mining efficiency of mines, reduce the input and cost of labours and mines, the Group vigorously advocates the development of intelligent mines and promotes the upgrading of various information equipment. During the Reporting Period, we entered into a strategic cooperation agreement with Huawei Technologies Co.,Ltd.(“**Huawei**”) and China Telecom Corporation Limited (Jiangxi Branch) to officially deploy in large scale 5G construction and actively achieve intelligentization of mines and factories.



The Company and Huawei Technologies Co., Ltd. signed an cooperation agreement

2. Flourishing the Enterprise with Quality and Building an Innovative Future

Intelligent Mine at Chengmenshan Copper Mine

Chengmenshan Copper Mine has actively responded to the national “Internet +” campaign, implemented the Action Plan on High-quality and Leapfrog Development of “2+6+N” Industries in Jiangxi Province (《江西省“2+6+N”產業高質量跨越式發展行動計劃》) and took the lead in the construction of intelligent mines in the non-ferrous industry in the PRC. The program aims at establishing an information expressway consisting of the control network, the management network and the monitoring network and build a private cloud computing platform for resources sharing at Chengmenshan Copper Mine with high reliability, high utilization, high expansibility and standardization through “one cloud and three networks” and develop a big data pool on mines production. Through data integration and classification, it developed six sectors, namely resources, mining, ore dressing, energy, safety and sales measurement, and achieved business digitalization and business-based data.

During the Reporting Period, we continued to advance the construction of phase-I intelligent mines at Chengmenshan Copper Mine and develop an integrated production management and control system of intelligent mines consisting of production management and control, intelligent mining and intelligent ore dressing of the mines. We and the technical staff of China Mobile Communications Group Co., Ltd. and Huawei successfully achieved the target on the first point-to-point connection of 5G network in Jiangxi Province. We jointly developed the first remote control system of 520-horsepower bulldozers in the world with Shantui Construction Machinery Co. Ltd.. We joined Aerospace Heavy Industry Equipment Co., Ltd. and other enterprises on solving the difficulties of 10-tonnes self-driving trucks for mines. In October 2019, the “5G + VR Intelligent Mines Scene” debuted at the 2019 World VR Industry Conference, displaying our scientific research and innovation capabilities to all walks of life in society.



Scene of Intelligent Dispatching System



VR Technology on Mines



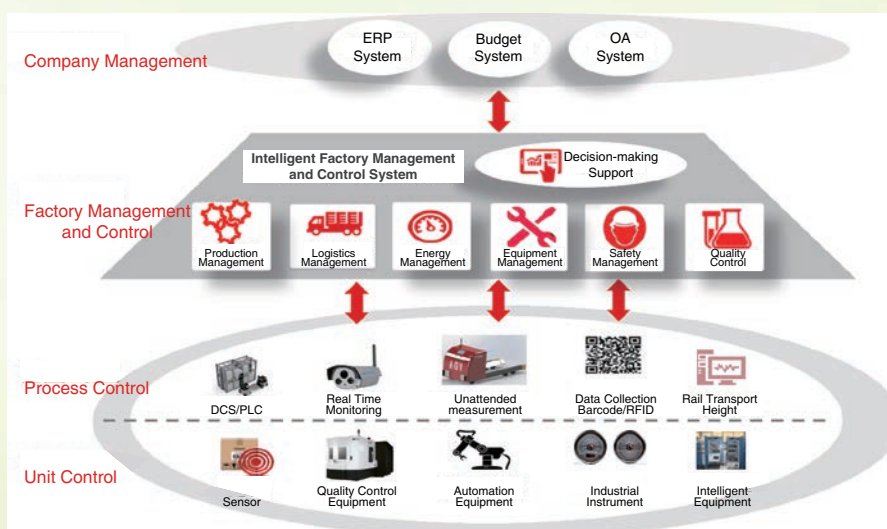
2019 World VR Industry Conference

2. Flourishing the Enterprise with Quality and Building an Innovative Future

Construction of Intelligent Plant at Guixi Smelter

Guixi Smelter has followed the future new development trend of “intelligent manufacturing” in modern industry, actively implemented the project of “intelligent plant pilot demonstration for copper smelting”, and has become the only intelligent plant pilot demonstration project in the copper smelting industry of the PRC. The project aims at achieving intelligent control of main-line processes, highly automated production processes, and digitization and networking of management decisions through the integration of “three elements” including information technology, industrial technology, and management technology.

The project is constructed in two phases: Phase I is mainly to complete the construction of the framework, base digitalization and network of the intelligent plant system, and pilot the construction of automation projects with industry characteristics. Phase II is planned to fully construct a big data center for materials, quality, energy, equipment, operations, and models for all production processes of the entire plant and build one to two representative digital workshops in the industry to promote the intelligent application of production equipment, establish the intelligent analysis and decision-making application based on the big data platform, and achieve the digital perception, network transmission, big data processing and intelligent analysis application of all elements of the plant.



Hierarchy Diagram of the Intelligent Plant System at Guixi Smelter

During the Reporting Period, the Group invested RMB250 million on phase I of the intelligent plant project of Guixi Smelter, covering 16 sub-projects, including application system, hardware equipment, production command center, upgrade and expansion of GIS and 3D, PI database, video surveillance network, intelligent transportation of railways, etc..

2. Flourishing the Enterprise with Quality and Building an Innovative Future

Fundamental Infrastructure

- A national B-level standard computer room is constructed
- With the expansion of video network, the upgrading and renovation of monitoring equipment and the command center, a network of intelligent security and a network including environmental protection and safe energy monitoring are formed
- Through the four-in-one integration of the management network, control network, video network and wireless network, the full coverage of plant network is achieved
- Through application of equipment and internet of things technology, automatic and intelligent data collection is achieved, which have consolidated the foundation of the industrial internet

Information Management

- Through the top-level design, the overall solution of the intelligent plant 1.0 is formed, and the main frame of the intelligent plant is initially constructed
- Through unified information system integrating an integration platform, system connection and platform cascading are achieved, and the isolated information island is eliminated
- Through the automatic data and intelligent collection system, the data channel is opened to realize data collection and fusion, laying a foundation for big data analysis and construction
- Through a unified production management business operation platform, various types of data such as real-time production data, production operation data, production management data are integrated to provide production management personnel with convenient and efficient business function processing tools, and gradually achieve the goal of building an integrated collaborative management and control platform
- A standard system of intelligent copper smelting factory 1.0 is initially formed. It is selected as the compilation unit of the “Guide to the Construction of Intelligent Smelting in the Non-ferrous Metals Industry” (《有色金屬行業智能冶煉建設指南》) to set a benchmark and achieve application pull



Informatization - production command center



Networking – control center



Automation – site operation of tailings driverless vehicles

2. Flourishing the Enterprise with Quality and Building an Innovative Future

In addition, the strengthening of the innovation awareness of our employees is an important link in enhancing the scientific innovation strength of the enterprise. During the Reporting Period, we conducted the month of technological activity with the theme of “Technological Innovation Facilitating the Doubling Innovation in Three Years Plan” and established labour models (craftsmen) innovation studios to improve the innovation capabilities of employees.

Establishment of Labour Models (Craftsmen) Innovation Studios

The Group strengthened the establishment, support and guidance of the labour models (craftsmen) innovation studios, gave full display to the technological innovation, invention and creation, skills inheritance, spirit fostering and other functions of the studios and led employees to participate in mass technological innovation and practice. In 2019, the labour union of the Company allocated special subsidy funds of RMB401,000 to labour models (craftsmen) innovation studios above the corporate level. Currently, the Group has 5 and 18 labour models (craftsmen) innovation studios at the provincial or ministerial level and the corporate level, respectively. In 2019, 118 innovative programs were approved and filed by the labour models (craftsmen) innovation studios. It vigorously conducted employee autonomous management (the “six ones” positions innovation for female employees”), reasonable suggestions, advanced operation methods and other public technical innovative activities and enhanced the communications and display, promotion and application of the innovative results. In 2019, it conducted communications on and displayed 31 outstanding programs, compiled 66 outstanding results and released 40 autonomous management results. It collected 2,788 pieces of reasonable suggestions, 1,401 of which have been adopted and 1,028 of which have been implemented.



On-site Promotion of Labour Models (Craftsmen) Innovation Studios



Group Photo of Outstanding Members of Labour Models (Craftsmen) Innovation Studios

2. Flourishing the Enterprise with Quality and Building an Innovative Future

Intellectual Property Rights Protection

While actively conducting innovative R&D, the Group consistently improves its own systems on intellectual property rights management. In accordance with the Patent Law of the People's Republic of China (《中華人民共和國專利法》), the Trademark Law of the People's Republic of China (《中華人民共和國商標法》), the Anti-unfair Competition Law of the People's Republic of China (《中華人民共和國反不正當競爭法》), the Standards for Intellectual Property Rights Management (《企業知識產權管理規範》), the Guideline on Intellectual Property Rights Management by Industrial Enterprises (《工業企業知識產權管理指南》) and other relevant laws and regulations and based on its actual conditions and development demands, the Group formulated the Measures for the Administration of Intellectual Property Rights (《知識產權管理辦法》), the Measures for the Administration of the Use of Trademarks (《商標使用管理辦法》) and the Guidelines for License Approval and Standard Use of Trademarks with the “Jiangxi Copper” Brand (《“江銅”牌商標許可及規範使用的指導意見》) to continuously standardize the systems of intellectual property rights management and continuously improve its comprehensive capabilities on the application, protection and utilization of intellectual property rights. While protecting its own intellectual property rights not to be infringed and avoiding infringing others' intellectual property rights, the Group speeds up the transformation of intellectual property rights to enhance its corporate benefits and practical productivity.

2019 is the “year of transformation of technological results”. We made applications for 113 patents in total during the year and were granted 75 patents, 18 of which are invention patents. As at 31 December 2019, we owned 262 effective patents, 82 of which are invention patents.

To consistently improve the trademark value of the “Jiangxi Copper” brand and expand into international markets, we initiated the Madrid Trademark International Registration for the “Jiangxi Copper” brand trademark and built the “Jiangxi Copper” brand trademark into the PRC famous brands. In addition, we actively conducted trainings and publicity on intellectual property rights protection and held training class on “Exploitation and Preparation of Patents” at Wushan Copper Mine, lectures, training classes on Patent Law and relevant knowledge at Dexing Copper Mine, lectures and technological activities to enhance the awareness of all employees on intellectual property rights protection.



Training Class on “Exploitation and Preparation of Patents” at Wushan Copper Mine

2. Flourishing the Enterprise with Quality and Building an Innovative Future

Promoting Industrial Development

As a large-scale manufacturer of copper cathode and a supplier of copper processing products in the PRC, we assume the glorious mission of “getting rid of the backwardness of the copper industry in the PRC and revitalizing the Chinese copper industry” granted by the state and shoulder the responsibility of promoting the continuous progress of the technologies in the industry.

During the Reporting Period, we carried out cooperative research with Beijing General Research Institute of Mining & Metallurgy, China ENFI Engineering Co., Ltd., Jiangxi University of Science and Technology, SinoSteel Maanshan General Institute of Mining Research Co., Ltd., Wuhan University of Technology and other universities and scientific research institutes in the PRC. We also actively held industrial forums and joined our partners in exploring high-quality development of the industry.



International Copper Industry Summit



8th Interactive Summit on Non-ferrous Metals Spot and Futures

In addition, we actively promoted the standardisation of industry standards. During the Reporting Period, we hosted, directed or took part in the revision and formulation of 22 industry standards, including 1 international standard, 1 national standard and 15 industry standards.

International standards	<ul style="list-style-type: none"> • ISO24018 Standards on 1kg Gold Ingot for Jewelry and Precious Metals 	Group standards	<ul style="list-style-type: none"> • T/CNIA 0033 Technical Standards on Evaluation of Products with Green Design Copper Cathode • T/CNIA 0034 Technical Standards on Evaluation of Products with Green Design Copper Wire Rods for Electric Engineering • T/CNIA 0035 Technical Standards on Evaluation of Products with Green Design Copper Concentrates • T/CNIA0010 Standards on Handling of Trade Disputes over Precious Metal Concentrates • T/CNIA0007 Standards on Handling of Trade Disputes over Precious Non-ferrous Metal Concentrates
National standards	<ul style="list-style-type: none"> • GB/T 37653 Platinum Ingot 		
Industry standards	<ul style="list-style-type: none"> • YS/T 464-2019 Analysis Method for Direct Reading Spectrometer of Copper Cathode • YS/T 445.1-2019 Chemical Analysis Method for Silver Concentrates Part 1: Measurement of Gold and Silver Fire Assaying • YS/T 445.2-2019 Chemical Analysis Method for Silver Concentrates Part 2: Measurement of Copper Flame Atomic Absorption Spectrometry and Iodometry • YS/T 445.3-2019 Chemical Analysis Method for Silver Concentrates Part 3: Measurement of Arsenic Generation of Hydrogenide-Atomic Fluorescence Spectrometry and Potassium Bromate Titration • YS/T 445.5-2019 Chemical Analysis Method for Silver Concentrates Part 5: Measurement of Sulphur Barium Sulfate Weight Method and Burning-PH Titration • YS/T 445.6-2019 Chemical Analysis Method for Silver Concentrates Part 6: Measurement of Magnesium Oxide Flame Atomic Absorption Spectrometry • YS/T 445.7-2019 Chemical Analysis Method for Silver Concentrates Part 7: Measurement of Lead Na2EDTA Titration • YS/T 445.8-2019 Chemical Analysis Method for Silver Concentrates Part 8: Measurement of Zinc Na2EDTA Titration • YS/T 445.9-2019 Chemical Analysis Method for Silver Concentrates Part 9: Measurement of Lead and Zinc Flame Atomic Absorption Spectrometry • YS/T 445.10-2019 Chemical Analysis Method for Silver Concentrates Part 10: Measurement of Antimony Generation of Hydrogenide-Atomic Fluorescence Spectrometry and Flame Atomic Absorption Spectrometry • YS/T 445.11-2019 Chemical Analysis Method for Silver Concentrates Part 11: Measurement of Bismuth Generation of Hydrogenide-Atomic Fluorescence Spectrometry, Flame Atomic Absorption Spectrometry and Na2EDTA Titration • YS/T 1314.1-2019 Chemical Analysis Method for Copper Smelting and Silver-Extracted Sediment Part 1: Measurement of Gold and Silver Fire Assaying • YS/T 1314.2-2019 Chemical Analysis Method for Copper Smelting and Silver-Extracted Sediment Part 2: Measurement of Platinum and Palladium Fire Assaying Enrichment-Inductively Coupled Plasma-Atomic Emission Spectrometry • YS/T 1314.3-2019 Chemical Analysis Method for Copper Smelting and Silver-Extracted Sediment Part 3: Measurement of Lead Na2EDTA Titration • YS/T 1314.4-2019 Chemical Analysis Method for Copper Smelting and Silver-Extracted Sediment Part 4: Measurement of Stannum Potassium Iodate Titration • YS/T 1314.5-2019 Chemical Analysis Method for Copper Smelting and Silver-Extracted Sediment Part 5: Measurement of Copper, Antimony, Bismuth, Selenium and Tellurium Inductively Coupled Plasma-Atomic Emission Spectrometry 		

Industry Standards Revised and Formulated as Hosted or Took Part in by the Group in 2019

2. Flourishing the Enterprise with Quality and Building an Innovative Future

2.3 CUSTOMER SERVICE

We adhere to the business philosophy of “creating value with customers”, always value the protection of customers’ interests, endeavor to protect the safety of customers’ privacy and respond to customers’ demands in a timely manner.

Information Safety and Protection

The Group establishes the information management mechanism in accordance with the Cyber Security Law of the People’s Republic of China (《中華人民共和國網絡安全法》) and other laws and regulations. During the Reporting Period, we further improved the information management system of the Group, covering informatization management, information safety management, genuine software management, the construction management of information system, the maintenance management of information system, the operation and maintenance management of hardware and network, the backup and recovery management of the information system as well as the management of outsourcing informatization services suppliers. We have formulated 10 operational rules on the maintenance, safety and backup for disasters of the information system and integrated information safety into various routine work.

In addition, to protect customers’ privacy and our own interests, we have formulated the Measures for the Administration of Confidentiality Work (Trial) (《保密工作管理辦法(試行)》), specifying the confidential obligations on customers’ information. We have also required all employees to sign the Confidentiality Agreement. We have attached great importance to the safety of information involving customers’ privacy and prohibited leakage of customers’ information and business materials of the Group not disclosed to the public.

Response to Customers’ Demands

We are committed to constantly optimizing the service quality of products and maintain smooth two-way communications with customers through telephone, questionnaires, forums, emails and other different channels to obtain information on the improvement of product quality.

2. Flourishing the Enterprise with Quality and Building an Innovative Future

To actively respond to customers' complaints and handle quality disputes in a timely manner, the Group establishes the Committee on Disputes Resolution of Materials and Product Quality and formulates and releases the Measures for the Administration of Complaints Resolution on Product Quality (《產品計量質量投訴處置管理辦法》), specifying the working responsibilities of all departments and further standardizing the procedures for the resolution of customer complaints.



Handling Processes of Product Complaints on Measurement and Quality of the Group

During the Reporting Period, we received 2 complaints on the product quality of copper cathode. Relevant departments accepted and reported the complaints in a timely manner. Responsible departments actively analyzed and inspected the reasons and proposed reasonable solutions, implemented rectification and preventive measures and conducted continuous tracking. As at 31 December 2019, both of the 2 complaints were closed, achieving a rate of 100% for closed complaints during the year.

2. Flourishing the Enterprise with Quality and Building an Innovative Future

We regularly conduct surveys on customer satisfaction through Jiangxi Association for Quality each year. Focusing on eight indicators, namely corporate/brand image, quality expectation, sense of product quality, sense of service quality, sense of value, customer satisfaction, customer complaints and customer loyalty, we actively understand customers' demands and endeavors to provide customers with quality services. During the Reporting Period, the Group achieved the target with a customer satisfaction of no less than 90 points and recorded a total customer satisfaction of 95.78 points. The survey covered 215 customers and our service quality, product quality and product reliability were highly recognized by customers.



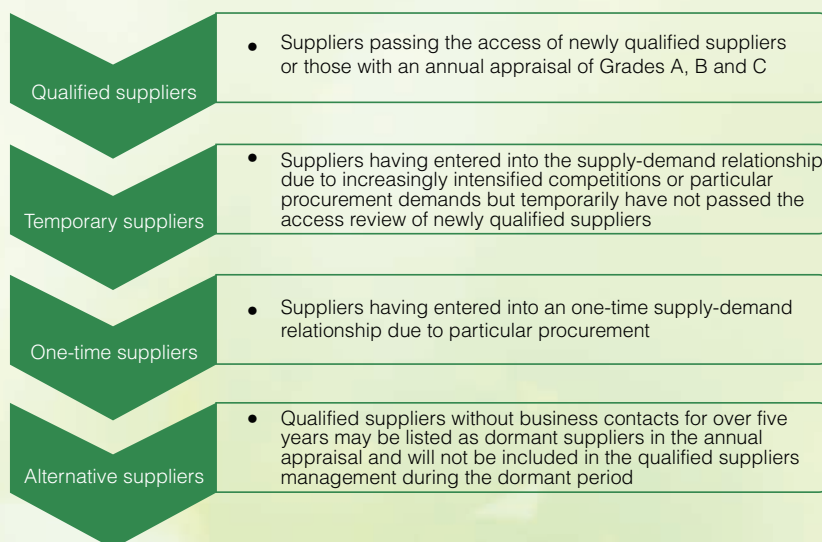
Dimensions of Surveys on Customer Satisfaction

2. Flourishing the Enterprise with Quality and Building an Innovative Future

2.4 RESPONSIBLE PROCUREMENT

We actively build a responsible supply chain, strengthen the supply chain management, strive to improve the environmental and social performance of suppliers and promote the sustainable development of supply chain.

In strict compliance with the Contract Law of the People's Republic of China (《中華人民共和國合同法》), the Law of the People's Republic of China on Tenders and Bids (《中華人民共和國招標投標法》), the Anti-unfair Competition Law of the People's Republic of China (《中華人民共和國反不正當競爭法》) and other national laws and regulations and based on the conditions of the Group's suppliers, we formulated the Tenders Management Measures of Jiangxi Copper Company Limited (《江西銅業股份有限公司招標管理辦法》), the Management Measures on the Procurement of Materials, Equipment and Spare Parts of Jiangxi Copper Company Limited (《江西銅業股份有限公司材料、設備、備件採購管理辦法》), the Management System on Suppliers of Materials, Equipment and Spare Parts of Jiangxi Copper Company Limited (《江西銅業股份有限公司材料、設備、備件供應商管理制度》) and other management systems and rules to consistently improve the supplier management system. Based on different access and appraisal methods, we regular reviews and conduct annual appraisals through classified management, assist suppliers in improving the management level, reducing the supply chain risks and achieving sustainable development with win-win results.



Suppliers Classified by Management Methods

2. Flourishing the Enterprise with Quality and Building an Innovative Future

Suppliers Access

The stable product quality of suppliers is an important foundation for us to provide quality products and services. We have established a strict supplier access mechanism. For new suppliers, they shall meet the following seven basic requirements:

- Legal compliance with legitimate production and operation qualification
- Intention for sincere cooperation
- Excellent capital conditions and credit appraisal
- Product quality meeting our usage requirements and continuous improvement and enhancement
- Excellent supply guarantee system and capability on guaranteeing emergency supply
- Excellent products and services
- Compliance with the Agreement on Joint Building of Integrity

Seven Basic Requirements of New Suppliers

2. Flourishing the Enterprise with Quality and Building an Innovative Future

New suppliers will become temporary suppliers after making applications and passing the classified review of suppliers by the expert review group on suppliers based on the review standards on the introduction of suppliers of different nature (manufacturers, integrators and traders). The contents of the review includes the qualification, technological R&D capability, production quality management, after-sales service capability and overall strengths of suppliers. Temporary suppliers will become qualified suppliers one year later after passing the appraisal of the expert review group based on their annual performance. In addition, we pay attention to labour health and safety of suppliers and require suppliers complying with the labour health and safety of the Group. Suppliers with comprehensive occupational health management systems will be prioritised in procurement.

Manufacturers

- They shall have the necessary equipment and capabilities for production, manufacturing and testing with strong capabilities in production technology and after-sales services guarantee capabilities.

Integrators

- They shall have outstanding product design and technological strengths and stable technological capabilities with the corresponding qualifications, testing capabilities and after-sales services guarantee capabilities.

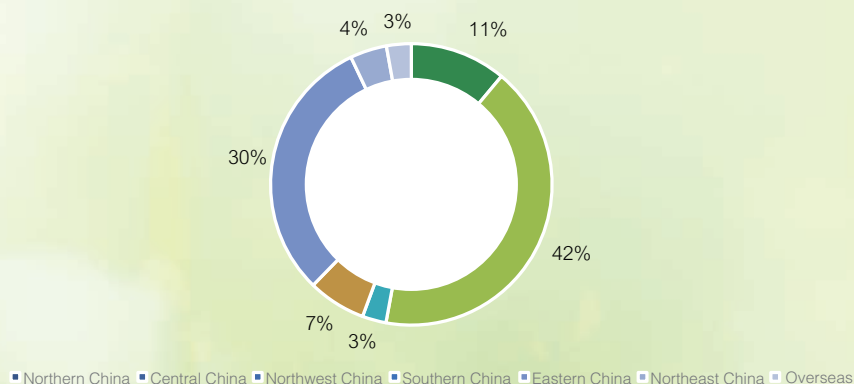
Traders

- They shall ensure the reliable source of products. For products under agency operation, they shall have the letter of authorization from regional agencies or industrial agencies with the corresponding after-sales services guarantee capabilities.

Required Conditions for Suppliers of Different Nature

During the Reporting Period, we have a total of 1,021 suppliers, 97% of which are from the PRC.

Geographical Layout of Suppliers



2. Flourishing the Enterprise with Quality and Building an Innovative Future

Evaluation and Elimination of Suppliers

Each year, we arrange the procurement business segment and using units to conduct annual evaluation of qualified suppliers led by the Supplier Management Department and give feedbacks based on the execution of contracts and formulate the annual evaluation report on suppliers. We established a special committee on annual evaluation of suppliers and held assessment and evaluation meetings to consider the results of the annual assessment and evaluation of suppliers. The contents of annual assessment include:

- overall strengths: technical level, scale and equipment, quality management, management capability and supply capability of suppliers etc.;
- business performance: competitiveness, product quality, services and timeliness in responding to bidding and delivery of products.

Based on the scores of suppliers in the annual evaluation, we classify qualified suppliers into Grades A, B, C and D. For Grade C suppliers, we will issue the Rectification Notice of Annual Evaluation of Suppliers (《供應商年度考核整改通知單》) and require them to complete rectification within the prescribed period. Grade D supplier will be disqualified as suppliers and no procurement will be made from them.

Grade-A Suppliers	Grade-B Suppliers	Grade-C Suppliers	Grade-D Suppliers
<ul style="list-style-type: none">• Top 5% in evaluation scores• An evaluation score of over 80 points	<ul style="list-style-type: none">• An evaluation score of over 70 points• Failing to meet conditions of Grade-A suppliers	<ul style="list-style-type: none">• An evaluation score of 60-69 points	<ul style="list-style-type: none">• An evaluation score of less than 60 points

2. Flourishing the Enterprise with Quality and Building an Innovative Future

Selection of Outstanding Suppliers

In order to encourage suppliers to consistently improve product quality and management level, we carry out the selection of outstanding suppliers every two years. Grade-A suppliers with outstanding performance in keeping promises, supply of products, technical support and service enthusiasm etc. will participate in the selection. Those passing the preliminary selection, the preliminary review, the review of the deputy general manager in charge and the determination of the general manager will finally become outstanding suppliers and will be awarded certificates. They will be invited to attend the fraternity for outstanding suppliers of materials. Outstanding suppliers will also become our major channels for materials procurement and priority will be given to procurement from them.



Awarded Certificates for Grade A Suppliers

Based on the results of the annual evaluation on suppliers, we established an elimination mechanism on suppliers. Suppliers with non-compliance, disqualified results in annual evaluation, vicious competition, fraud and other activities will be eliminated. Such suppliers are not allowed to have business contacts with us for at least three years from the date of disqualification as suppliers.



Elimination Mechanism of Suppliers

2. Flourishing the Enterprise with Quality and Building an Innovative Future

Sustainable Value Chain

To reduce the environmental and social risks in the supply chain and strengthen the supply chain risk management, we set out in the Detailed Rules on the Implementation of Bidding and Procurement Management by the Material and Equipment Department (《材料設備部招標採購管理實施細則》) that suppliers with outstanding performance in environmental protection, occupational health and safety and social responsibilities will be given priority in procurement. We require all suppliers to enter into the Mutual Agreement on Integrity (《廉潔共建協議書》), strictly prohibit any forms of bribes, seeking private gains through power and unfair competitions and equally and fairly conduct business activities. Suppliers failing to sign the Mutual Agreement on Integrity shall not participate in procurement business. In addition, we have established a key risk management control list for the major risk control system, identified potential risks in supply chain, formulated corresponding control measures, and assigned controlling responsibilities to relevant responsible departments and positions.

E-commerce Procurement Platform

In July 2019, as an important step in improving the efficiency of our supply chain management, enhancing the transparency of supply chain, promoting equal and fair business cooperation and achieving paperless office, the digital procurement platform of Jiangxi Copper has been officially introduced. With the ERP (Enterprise Resource Planning) as the basis, the digital procurement platform integrates the internet of things, big data, micro structure, cloud computing and other technologies and is a platform with the integration of functions such as procurement and operation management, intelligent warehouse management, suppliers management, the management of major data of materials, open resources, electronic bidding, online procurement and financial settlement. The platform empowers upstream and downstream enterprises in industrial chain and achieves coordination in multi-links and the whole process of supply chain. At the same time, our e-commerce procurement platform cooperates with the Tianyancha Enterprise Information Inquiry System* (天眼查企業信息查詢系統) to monitor all effective suppliers and provide early warnings and reminders of various potential risks of suppliers, including risk of dishonesty, legal disputes, administrative penalties, etc. and depending on the verification results, we suspend our cooperation with suppliers or cancel their qualifications etc..

To facilitate the implementation of the digital procurement platform in supply chain, we provide suppliers with trainings on the use of the digital procurement platform to jointly create a healthy, equal and transparent electronic business environment.

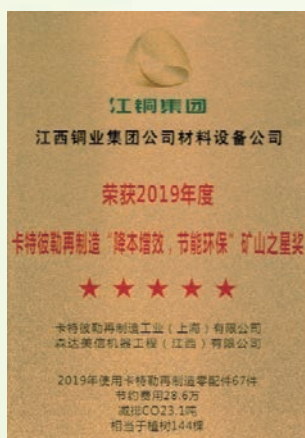


Training on the use of the E-commerce Procurement Platform

2. Flourishing the Enterprise with Quality and Building an Innovative Future

Procurement of Recycled Raw Materials

We give priority to environmental friendly products or services with low carbon footprint in the procurement process. In 2019, we gave priority to spare parts produced with recyclable raw materials in the procurement of spare parts. The 67 re-manufactured spare parts reduced a total carbon dioxide emission of 3.1 tonnes in the production process and saved RMB286,000, which reduced the carbon footprint in the life cycle of products. Such procurement was awarded the Star of Mines for "Cost Reduction, Efficiency Improvement, Energy Saving and Environmental Protection" in 2019 by Caterpillar Remanufacturing Services (Shanghai) Co., Ltd.



We respect the intellectual property rights of suppliers and enter into agreements on intellectual property rights protection with suppliers in procurement or add relevant intellectual property rights protection clauses in the procurement contracts. We strictly protect suppliers' privacy, agree on confidential clauses in the contract and prohibit the disclosure of the contents of the contract to third parties.

We commit not to procure minerals produced or obtained from regions or channels with disputes. We have completed the registration of copper products, gold and silver with the London Metal Exchange and the London Bullion Market Association (“**LBMA**”) since 1996. Our gold and silver products are qualified products registered with the Shanghai Gold Exchange and the Shanghai Futures Exchange.

2. Flourishing the Enterprise with Quality and Building an Innovative Future

Compliance Report of the LBMA Responsible Gold and Silver Guidance

Due to the emergence of conflict minerals in exploitation, refining, retailing and consumption, the mining industry witnessed significant changes. Therefore, the LBMA released the LBMA Responsible Gold Guidance and the LBMA Responsible Silver Guidance, requiring the refiner conducts strict due diligence on their suppliers to combat the widespread of human rights abuses, avoid acts of contributing to conflicts, supporting of anti-money laundering, terrorist financing practice, environmental damage and violation of sustainability.

Following the requirements of the LBMA guidance, we established and improved the gold and silver supply chain management systems, formulated and implemented the Measures on the Administration of Due Diligence (《盡職調查管理辦法》), collected information on due diligence of suppliers, identified and assessed supply chain risks, designed and implemented risk management strategies. During the Reporting Period, we appointed qualified third-party institutes to conduct independent audit on the Group's compliance with the LBMA Responsible Gold Guidance and the LBMA Responsible Silver Guidance. We coordinated relevant departments in conducting rectifications based on the results and continuously tracked the effects of rectifications.

3. Strengthening the Enterprise with Talents and Creating a Friendly Future

The Group advances high-quality human resources management, promotes the introduction of urgently-needed talents and graduates from prestigious institutions, focuses on the implementation of differentiated remuneration policies, vigorously explores and nurtures outstanding talents within the Group and optimizes the “selection, cultivation, use and retaining” systems and mechanisms on human resources. We insist on co-creation and sharing, so that the development results benefit all employees, and strive to improve the sense of gain and pride of employees.

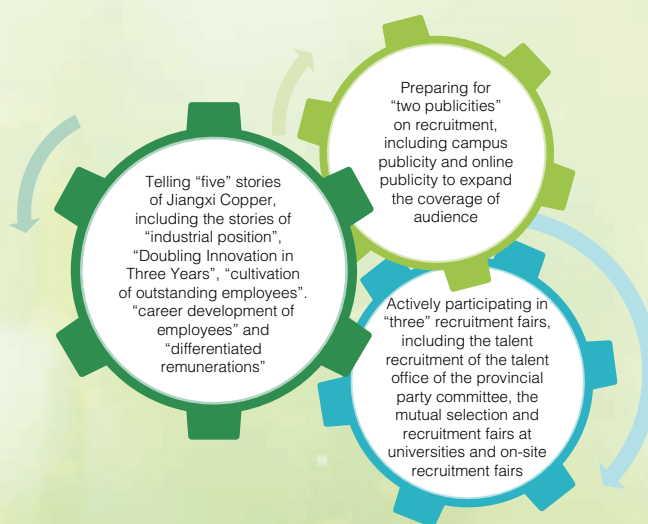
3.1 EMPLOYEES’ INTERESTS

We always adhere to reasonable labour in accordance with laws, promote the establishment of a harmonious labour relationship and protect the legitimate interests of employees of the Group.

Employment Overview

The Group has attracted people with visions to jointly change the industry and the world since its establishment. Such different types of employees from different regions not only contribute their excellent skills and advanced technologies, but also bring outstanding values to the industry and the community.

In 2019, the Group conducted beneficial explorations and improvement on human resources recruitment and management. The Group released the Interim Measures for the Management of Social Labours (《社會化用工管理暫行辦法》), the Human Resources Guarantee Plan on Doubling Innovation in Three Years (《三年創新倍增人力資源保障計劃》) and other management systems. To build a quality talent structure, the Group insists on putting “use” first. It vigorously introduces talents and pays more attention to their use to practically guarantee the full use of talents.



Measures for Talent Recruitment

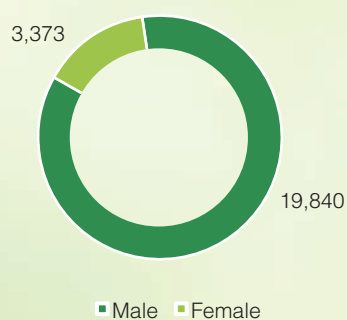
3. Strengthening the Enterprise with Talents and Creating a Friendly Future

To build a workplace of equal opportunity and diversity, the Group recruits its employees based on the following four principles:

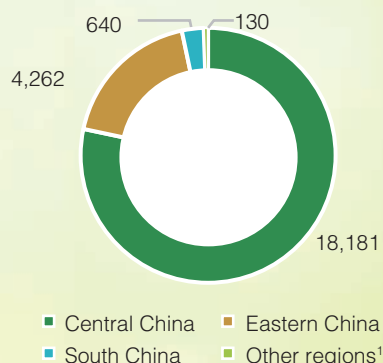
- the competency-based principle, with no preferential treatment on the grounds of education qualification or reputation of colleges of which the candidates are from;
- the quality-based principle, with no compromise on recruitment standards;
- the reasonable gender ratio principle, that female employees are recruited based on factors such as features of vacant positions and current gender ratio; and
- the even distribution principle, that locations of schools and birth places and the rational distribution of candidates are taken into consideration during the recruitment process.

As at 31 December 2019, the Group has a total of 23,213 employees. The employment details of the Group are as follows:

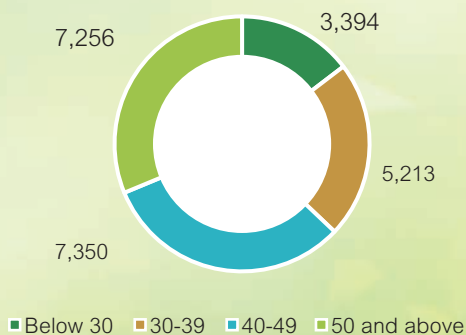
Number of Employees by Gender



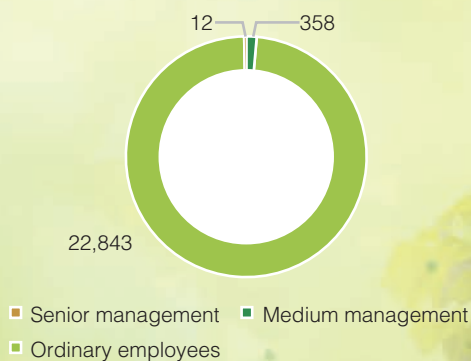
Number of Employees by Region



Number of Employees by Age



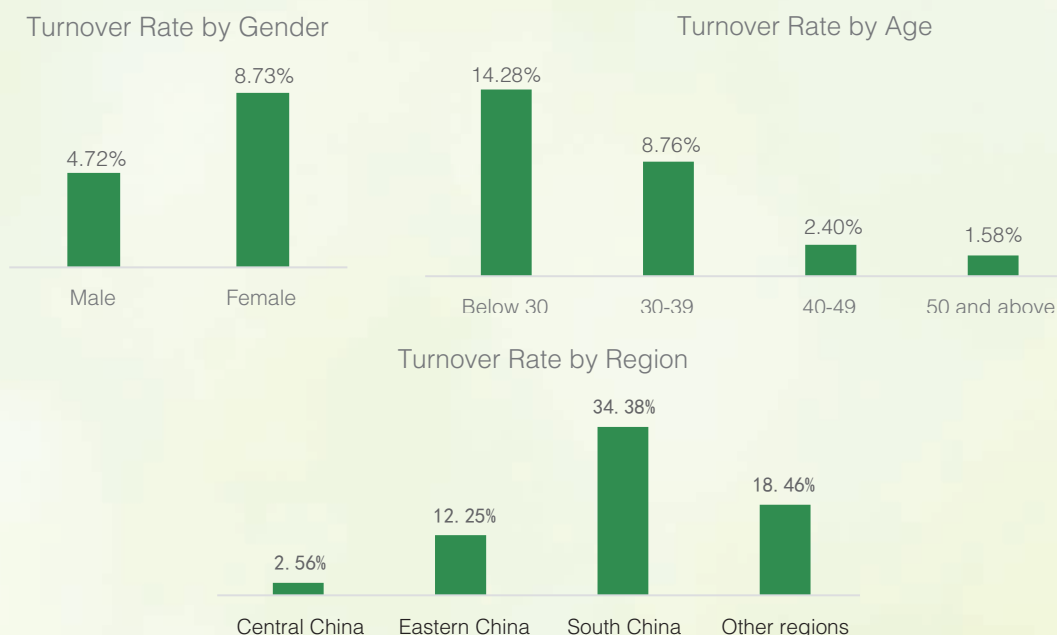
Number of Employees by Type



¹ Central China includes Henan Province, Hubei Province, Hunan Province, Jiangxi Province, Sichuan Province, Chongqing City. Eastern China includes Shanghai, Jiangsu Province, Zhejiang Province, Anhui Province, and Fujian Province. Southern Region includes Guangdong Province, Guangxi Autonomous Region, Yunnan Province, Guizhou Province and Hainan Province.

3. Strengthening the Enterprise with Talents and Creating a Friendly Future

During the Reporting Period, details of the turnover rate of the Group's employees are as follows:



Labour Interests

The Group strictly observes the laws and regulations in relation to labour standards, such as the Labour Law of the People's Republic of China (《中華人民共和國勞動法》), the Labour Contract Law of the People's Republic of China (《中華人民共和國勞動合同法》), the Employment Promotion Law of the People's Republic of China (《中華人民共和國就業促進法》), the Special Provisions on Labor Protection of Female Employees (《女職工勞動保護特別規定》), the Labour Union Law of the People's Republic of China (《中華人民共和國工會法》), the Law of the People's Republic of China on Protection of Minors (《中華人民共和國未成年人保護法》) and the Provisions on Prohibition of Child Labour (《禁止使用童工規定》) and continuously improves human resources management. We standardize the Group's management relating to remuneration and dismissal, recruitment and promotion, working hours, holidays, equal opportunities, anti-discrimination, and other benefits and welfare in accordance with the Administrative Measures for Employees of Jiangxi Copper Company Limited (《江西銅業股份有限公司員工管理辦法》), the Administrative Measures for Employment Contracts of Jiangxi Copper Company Limited (《江西銅業股份有限公司勞動合同管理辦法》) and the Social Security System of Jiangxi Copper Company Limited (《江西銅業股份有限公司社會保障制度》). At the same time, on behalf of all employees, the labour union negotiates with the Group on an equal footing, and reaches agreement on matters related to employees' vital interests, such as labour compensation, working hours, rests and leaves, labour safety and health, insurance and benefits, and signs a collective contract with the employee representative, strives to reflect the consistent and flexible concepts of human resources management with equality and reasonableness, high efficiency and incentives and respect of employees and guarantees all interests of employees.

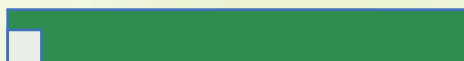
3. Strengthening the Enterprise with Talents and Creating a Friendly Future

The Group prohibits child labour or forced labour and other like behaviours. During the recruitment process, the human resources department shall inspect the original identification documents of the candidates. The Group will disqualify the qualification of any employee who have not reached the legal age of employment. During the Reporting Period, no violations of laws and regulations in relation to child labour or forced labour were found in the Group.

Remuneration and Incentives

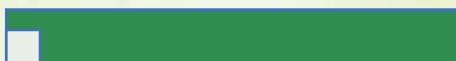
The Group establishes a performance payroll mechanism in accordance with the Management Measures of Salary and Welfare of Jiangxi Copper Company Limited (《江西銅業股份有限公司薪酬與福利管理辦法》) and makes remuneration distribution according to the value of position, work techniques and results. In 2019, the Company was approved to be a pilot unit of the “negative list management of total salaries” with more autonomous right on salary distribution. Meanwhile, we provided employees with competitive welfare and diversified care measures.

Welfare



- Performance-related salaries system
- Incentive bonus for medium and senior management
- Five insurances and two funds
- Regular health examination
- Allowances to employees under special work conditions: seniority allowance, skill allowance, allowance for underground mine employees, and allowance for afternoon and night shifts

Special Care



- Home leave (a maximum of 30 days a year to visit spouses or parents living in other provinces), marital leave, maternity leave and other additional annual leave are also available
- Assistance and visits to impoverished employees
- Visits to retired and outgoing employees

3. Strengthening the Enterprise with Talents and Creating a Friendly Future

Democratic Management

Safeguarding the rights of employees to be informed, participate, express and supervise are our original aspirations to conduct democratic management. During the Reporting Period, we continued to promote the implementation of the democratic management system with “one major channel, three open forms and five-level openness” as well as the system of employee representative directors, the system of employee representative supervisors, equal negotiation on collective contracts and the monitoring system on labour laws by the labour union. In addition, we successfully held the re-election of the fourth employee representatives meeting and the fourth meeting of members of the labour union and strived to build a harmonious and stable labour relationship. We initiated the collection of proposals at the employee representatives meeting and collected 31 proposals relating to the operation and management, reform and development, safe production, technological innovation and employees’ general concerns and conducted careful discussions on the proposals.



The Fourth Employee Representatives Meeting and the Fourth meeting of Members of the Labour Union of the Group

As at 31 December 2019, 100% of employees have entered into the collective contracts with the Group. The labour union covered 100% of employees. Employees generally made positive feedbacks on the performance and realization of the collective contracts and their satisfaction on the performance of the collective contracts reached 98.6%. During the inspection, we made active responses to employees’ comments and suggestions on remuneration and welfare, trainings on professional skills, labour safety and occupational health and strived to safeguard the legitimate interests of employees.

3. Strengthening the Enterprise with Talents and Creating a Friendly Future

Employees' Communications

We established an all-dimensional communication system for employees to listen to their aspirations, understand their demands and solve their problems in production and in life in a timely manner. We continuously expand communication channels for employees at different positions and levels through ways such as communication meetings with new employees, quarterly routine meetings, meetings with medium cadres, various trainings and questionnaires on the ideological trend of employees to stimulate the working enthusiasm of employees and improve their satisfaction.

In December 2019, we organized and conducted the 2019 Questionnaire on the Ideological Trend of Employees of Jiangxi Copper through the “Jiangxi Copper E Family” (江西銅業E家親) WeChat corporate account. We learnt about the ideological trend of employees and mastered their ideological conditions through the questionnaire on corporate strategies, key work, corporate reform, human resources management, party building and establishment of corporate culture. 4,334 employees at different positions and age group from 28 subsidiary units participated in the questionnaire. The results showed that employees have strong awareness on the general picture, growth demands and sense of belonging etc.. The issues mostly concerned by employees are remuneration, occupational development as well as corporate reform and development.

In addition, the Group conducted activities such as legal knowledge contests, legal publicity and consultancy, inspections on collective contracts, inspections on and solving risks on the stability of employee teams and guided employees to express their interests and demands in reasonable and legal manners. We have established channels for disputes and complaints, including employees' letters and visits and labour disputes mediation. For disputes and complaints of employees, our handling mechanisms include supervision of labour law by the labour union² and labour disputes mediation. The labour disputes mediation committees of the Group at all levels are responsible for properly handling labour disputes, coordinating labour relationship, safeguarding the legitimate interests of the enterprise and employees, maintaining the normal production and operation order and promoting corporate development.

Discussions on “What Can I Do for Doubling Innovation in Three Years” and Collection of Reasonable Suggestions

During the Reporting Period, JCC initiated the discussion on “what can I do for doubling innovation in three years” and the collection of reasonable suggestions and we actively encouraged employees to propose feasible suggestions on management improvement with the focus on key strategic development work of the Group, weakness in internal management and improvement of working styles as well as strengthening the construction of a harmonious enterprise. A total of 125 comments and suggestions were collected from employees in the activity and we have handled and made feedbacks to the comments and suggestions collected from the employees in a timely manner.

² The supervision of labour law by the labour union refers to the organized public supervision on the implementation of labour laws, regulations and rules by the unit in accordance with laws conducted by the labour union of the Group at all levels.

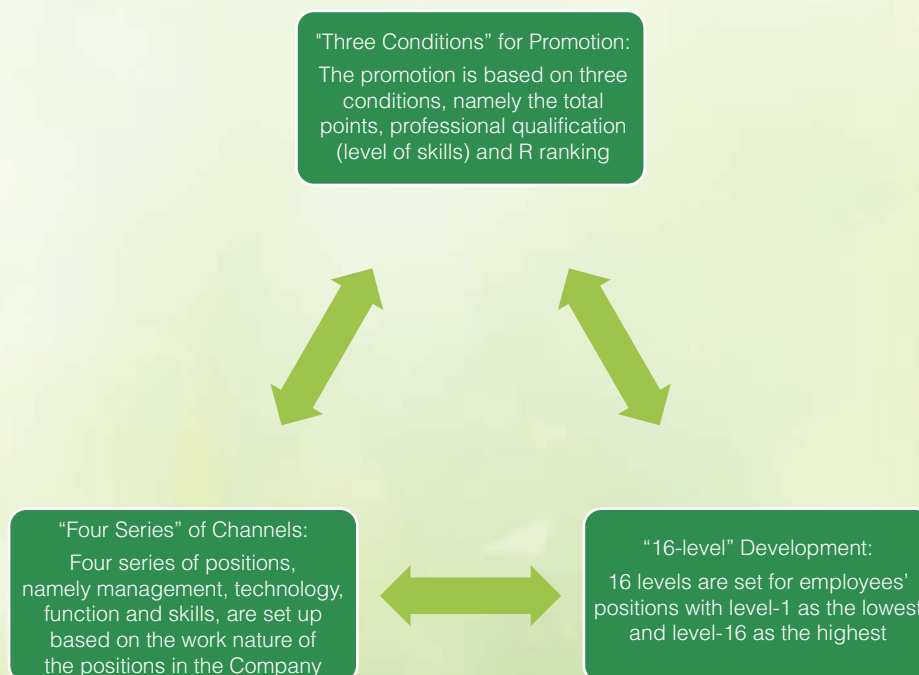
3. Strengthening the Enterprise with Talents and Creating a Friendly Future

3.2 TRAINING AND DEVELOPMENT

We highly respect the working results of employees and vigorously pave clear and smooth paths for the promotion and career development of employees.

Career Development

Career development is essential for the continuous improvement of the quality and potential of each employee. In 2019, the Group released the Measures for the Administration of Employees' Positions (《員工職位體系管理辦法》) to speed up the improvement of the systems on the selection, cultivation and appraisal management of talents with the orientation of quality, capabilities and performance and enhance the capability on talent guarantee for strategic development. During the Reporting Period, we established a “3416” plan on employees position system with “three conditions” for promotion, “four series” of channels and “16-level” development based on its own production and operation and management conditions after widely soliciting comments and suggestions at all levels. The plan has been implemented on a trial basis in Guixi Smelter, Chengmenshan Copper Mine and the material and equipment department of the Company and will be fully implemented after summarization and improvement.



“3416” Plan on Employees Position System

3. Strengthening the Enterprise with Talents and Creating a Friendly Future

In 2019, the Group released and implemented the Implementation Proposal for Talent Self-nurturing and Evaluation (《技能人才自主培養與評價實施方案》) with the purpose of promoting the strategy of “going with two-pronged approach to walk on two legs” on self-nurturing and talent recruitment in the market. The construction of occupational standards on 68 types of work achieved a completion rate of 100%. The preparation of teaching materials achieved a completion rate of 86% while the construction of the question database achieved a completion rate of 80%. We carried out pilot work on self appraisal in four companies, namely, Dexing Copper Mine, Yongping Copper Mine, Wushan Copper Mine and Guixi Smelter. We actively conducted self evaluation on technicians, senior technicians and other skilled talents on 13 occupations (types of work), including sulfuric acid production engineers.

Capability Nurturing

The Group advocates learning and training for all employees, devotes to building a learning enterprise and strives to help employees improve essential skills for their occupational development. The Group implemented the Administrative Measures for Staff Education and Training of Jiangxi Copper Company Limited (《江西銅業股份有限公司員工教育培訓管理辦法》) and set up a training system following the principles of “coordinated planning, hierarchical implementation, resources sharing and continuous improvement”. Employees training and education are conducted by the companies of the Group, the education and training center and the subsidiary units based on specific demands and different layers of trainings. In accordance with the Employees Training Plan in 2019 (《2019年度員工培訓計劃》) formulated at the beginning of the year, we organized and carried out various trainings at the corporate level, mine level, workshop level, section level and group levels. The trainings were conducted through offline centralized lectures, online training and study through e-learning network, “apprenticeship” face-to-face teaching and self-learning in spare time.



3. Strengthening the Enterprise with Talents and Creating a Friendly Future

“Walking into Huawei” Training Class on Enhancing Digitalization Leadership of Middle and Senior Management

On 24-29 September 2019, phase-I of “Walking into Huawei”, the training class on enhancing digitalization leadership of middle and senior management of Jiangxi Copper was launched in Bantian Base of Huawei in Shenzhen. Nearly 50 responsible persons of authorities, departments and divisions as well as chief leaders of the secondary units or above conducted learning in Huawei and felt the management philosophy, corporate culture and the way to success of Huawei at a close distance. On 14-19 October 2019, 46 middle and senior management and leaders of Jiangxi Copper wrapped up the six-day phase-II of “Walking into Huawei”, the training class on enhancing digitalization leadership of middle and senior management. They brought along the innovative thinking and operation methods of the leading enterprise in the PRC with them and respectively returned to the main battlefield of Jiangxi Copper for “Doubling Innovation in Three Years”.

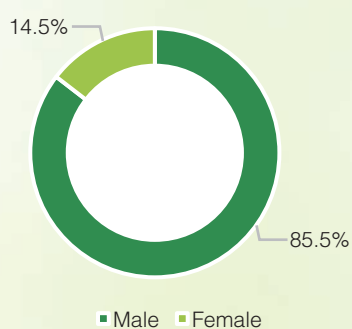


“Walking into Huawei”, the training class on enhancing digitalization leadership of middle and senior management

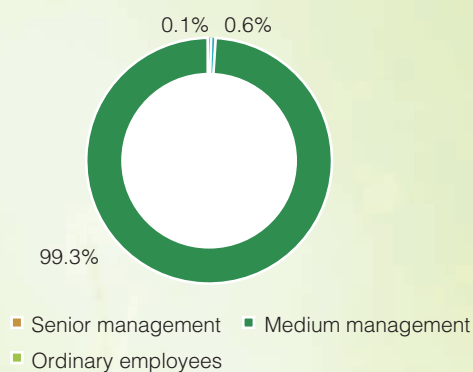
3. Strengthening the Enterprise with Talents and Creating a Friendly Future

In 2019, a total of 12,546 employees of the Group participated in various trainings and the total average training hours of employees was 10.0 hours. Details about the percentage and average training hours of employees trained are as follows:

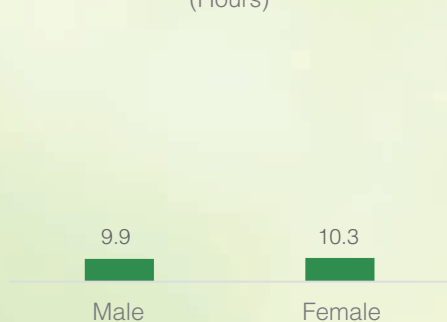
Percentage of Employees Trained by Gender



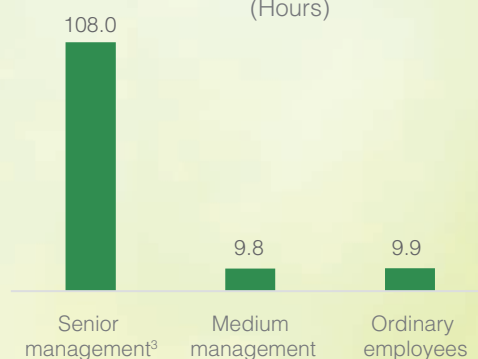
Percentage of Employees Trained by Type



Average Training Hours of Employees by Gender (Hours)



Average Training Hours of Employees by Type (Hours)



In addition, during the Reporting Period, the Group also held themed education and publicity activities in diversified forms. It also rewarded employees with outstanding performance, thus fully improving employees' quality, stimulating their potential and enhancing their joint thoughts.

³ During the Reporting Period, the average training hours of senior management were longer due to two executives participated in a three-month central training and all executives participated in the Huawei training courses.

3. Strengthening the Enterprise with Talents and Creating a Friendly Future

Themed Education Based on Actual Conditions

In 2019, firmly focusing the theme of “racing to innovation and benefits improvement and contributing to doubling in three years”, we organized group learning, themed lectures, board newspaper publicity, knowledge contests and discussions etc. to help employees get a timely understanding and profound knowledge of the new historical missions and the action plan of JCC on the campaign of “Doubling Innovation in Three Years” and guide employees to take initiatives and make brave innovations. Through organizing discussions on “Where Are our Contributions to Doubling Innovation in Three Years?”, over 60,000 employees were attracted to participate in the collection of videos, opinions and other themed education activities.



Outstanding Works of the Board Newspaper Contest on Themed Education in 2019



Discussions on “Where Are our Contributions to Doubling Innovation in Three Years?”

Leading and Demonstration of Advanced Models

In 2019, the Group actively conducted the selection and awarding of “advanced units and individuals” and the nurturing, selection and publicity of advanced labour models. 1 employee was awarded the national “May Day Labour Medal”, 4 employees were awarded the “May Day Labour Medal” of Jiangxi Province, 1 team was awarded the national “Pioneer Worker” and 1 team was awarded the “Pioneer Worker” of Jiangxi Province. We seized the 40th anniversary of the establishment of Jiangxi Copper Corporation Limited, our parent company, as an opportunity to hold the selection of “Top 10 Craftsmen of Jiangxi Copper”. Through awards and incentives, tour lectures, media reports and compiling of books and other forms, we stepped up the publicity of technological figures and craftsmen, carried forward the spirits of labour models, labours and craftsmen, created an atmosphere of respecting labour, knowledge, skills and innovation and led employees to learn from and catch up with advanced individuals and strive to be the best on their positions.



On-site Photos of the Seminar on Deeds of Advanced Individuals



Awarding Advanced Individuals

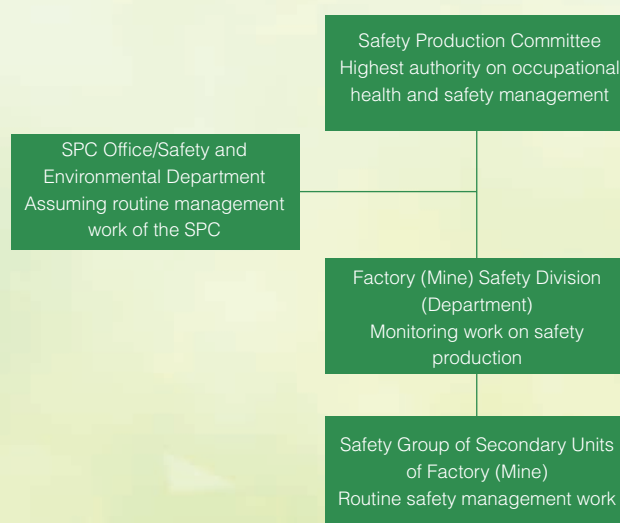
3. Strengthening the Enterprise with Talents and Creating a Friendly Future

3.3 HEALTH AND SAFETY

By adhering to the work safety policies of “placing safety first, preventing injuries as core, and managing comprehensively”, we continue to advance and implement the management of occupational health and safety production in the headquarters and subsidiaries of the Group and strived to create an excellent working environment for employees.

Establishment of Management System

The Group attaches importance to the establishment of an occupational health and safety production management system, established the Safety Production Committee (SPC) and set up a safety production responsibility system on all employees. We establish a three-level safety management structure and form a safety management network by covering all functional departments and entities of all levels with “chief and deputy leaders playing leading and supporting roles with full participation of all departments”. As the highest authority of occupational health and safety management of the Group, the SPC research and deploys, guides and coordinates the health and safety management work of the Group. The chairman of the SPC is the party secretary, chairman and the general manager of the Group. In accordance with the Rules on the Work of the Safety Production Committee of Jiangxi Copper Corporation Limited (《江西銅業集團有限公司安全生產委員會工作規則》), the SPC holds meeting every quarter to coordinate and adjust current work on occupational health, safety, environmental protection and fire prevention.



Three-level Safety Management Structure of the Group

3. Strengthening the Enterprise with Talents and Creating a Friendly Future



On-site Meeting of the Safety Production Committee

The Company and its subsidiaries, including Jiangxi Copper Yates Copper Foil Company Limited, Jiangxi Copper (Longchang) Precise Pipe Company Limited, Jiangxi Copper Taiyi Special Electrical Materials Company Limited, Jiangxi Copper Products Company Limited and JCC Copper Products Company Limited, passed the authentication on the occupational health and safety management systems (GB/28001-2011/OHSAS 18001:2007) in 2013. The external review of the system has successfully been passed in 2019.



Authentication Certificate on the Occupational Health and Safety Management Systems

3. Strengthening the Enterprise with Talents and Creating a Friendly Future

Safety Production Management

In strict compliance with the Law of the People's Republic of China on Safety Production (《中華人民共和國安全生產法》), the Measures for Emergency Management of Production Safety Accidents (《生產安全事故應急預案管理辦法》) and other national laws and regulations, we formulate and improve the Safety Production Responsibility System on All Employees (Trial) (《全員安全生產責任制(試行)》), the Measures for the Administration of Safety Production (《安全生產管理辦法》) and other management systems on safety production and focused on the establishment of a safety production work pattern with "equal responsibilities on the party and administration, dual responsibilities on one position, joint management and accountability on dereliction of duty" to continuously enhance the construction and promote the implementation of occupational health and safety.

To fully implement the responsibility system on safety production, the Group formulates an appraisal plan with targets on safety responsibilities and conducted target management on safety production. We enter into the Letter of Responsibility on Target Management of Safety and Environmental Protection (《安全環保目標管理責任狀》) with major production and operation units to specify their targets and responsibilities on safety production and conduct appraisal on completion. All units further enter into the Letter of Responsibility on Target Management of Safety and Environmental Protection with their corresponding workshops (factories/mines), departments and branches to implement the targets on safety production at grass-roots groups and promote the implementation of safety production responsibilities at all levels. In addition, we strengthen our award and punishment measures on safety work and provide incentives to units and individuals with outstanding performance such as improving conditions of safety production, preventing safety production accidents and participating in emergency rescue.

During the Reporting Period, we thoroughly advanced "special rectifications", "centralized rectifications" and advanced the "three simultaneous" safety on key construction projects in an orderly manner through strengthening the implementation of responsibilities of subjects, innovating safety production management and improving the dual prevention mechanisms. The Group maintained stable safety production on the whole with zero work-related death, 7 minor injuries and 1 serious injury. The average monthly injury rate per 1,000 persons was 0.029% and the hours of work injury loss was 928 hours. The target sets at the beginning of the year has been achieved, namely "zero work-related death, no more than 21 serious injuries and an average monthly injury rate per 1,000 persons of no more than 0.53%". In addition, we actively promoted the construction of safety standardization. As at the end of 2019, we obtained 42 certificates on standardization of safety production in total, including 39 for secondary units and 3 for tertiary units and lay a solid foundation for the management of safety production.

3. Strengthening the Enterprise with Talents and Creating a Friendly Future



Certain Certificates on Safety Production Standardization for Secondary Enterprises

Emergency Management of Safety Accidents

The severity of an incident can be classified into six levels, with designated emergency handling mechanisms according to the level of severity including accidents reporting, accidents handling, accidents investigation, handling and accountability.

Type of Accident	Accident Reporting	Accident investigation
Minor Injury	Responsible units shall report the accident with injury and death to the Group within 24 hours	Investigation to be organised and led by each subordinate workshop of the plant (mine)
Serious Injury	To be reported to the Group and local department of production safety within 1 hour. Other than the above, local health administrative management department should also be notified in case of acute intoxication.	Investigation to be organised and led by the plant (mine)
Moderate Accident		Investigation to be conducted by the people's local governments at provincial, city and county levels.
Severe Accident		Personnel of the Group will take part in accident investigation to understand the situation of the accident.
Critical Accident		
Extraordinary Serious Accident		

3. Strengthening the Enterprise with Talents and Creating a Friendly Future

For accidents that have been occurred, we immediately conduct strict investigations. In accordance with the Measures for Administration of Accidents with Injuries and Deaths of Jiangxi Copper Company Limited (《江西銅業股份有限公司傷亡事故管理辦法》), we identify the happening of the accident, casualty and reasons of the accidents, determine the nature, propose punishment opinions on responsible persons and preventive measures and suggestions etc.. We formulate detailed reports on the investigation and handling of the accidents after the completion of the investigation to prevent the reoccurrence of similar accidents.

To strictly prevent accidents caused by floods, high temperature, rains, snow and other extreme weather, the Group formulated and released the Notice on Conducting Safety and Environmental Work in Flood Season of 2019 (《關於做好2019年汛期安全環保工作的通知》), the Notice on Practically Conducting Safety Production under High Temperature (《關於切實做好高溫酷暑期間安全生產工作的通知》) and other documents in 2019. All secondary units also adopted preventive measures based on the requirements of the Group, formulated relevant special emergency proposals and conducted emergency exercises based on the requirements. Meanwhile, we entered into agreements on alarming services for disaster weather with local meteorological departments and established effective preventive mechanisms to achieve scientific deployment on safety production.

Special Rectifications

During the Reporting Period, some difficulties, such as the slope collapse hazards, the close of tailings ponds and the treatment of the "tailings with residents or facilities nearby", as well as the safety acceptance of the mining project at Yongping Copper Mine, were effectively solved through stepping up measures on projects, technology and management etc.. In terms of tailings improvement, we coordinated with the Ministry of Emergency Management, the Department of Emergency Management of Jiangxi Province and BGRIMM Technology Group in successfully holding the seminar on the revision of the national regulation of the Rules on Monitoring and Management of Tailings Safety (《尾礦庫安全監督管理規定》), which not only enhanced the influence of the enterprise in tailings management but also promoted the development of technologies on tailings safety.

Treatment of "Tailings With Residents or Facilities Nearby" in Dexing Copper Mine 4 # Tailings Pond Successfully Passed Acceptance on Completion

The Dexing Copper Mine 4 # tailings pond is the largest tailings built with the centerline method in the PRC and even in Asia. Currently, it is also an important safety and environmental facility of the Group and has been under normal operation for 28 years. To prevent the occurrence of extraordinarily serious accidents, the previous General Administration of Safety Supervision of the State and the Department of Safety Supervision of Jiangxi Province included it on the list of "tailings with residents or facilities nearby" for governance based on the special geographical location of the tailings. In order to further enhance the risk resistance and safety protection capability of the Dexing Copper Mine 4 # tailings pond, Dexing Copper Mine adopted measures on upgrading and enhancing management. In March 2019, it passed the comprehensive review on acceptance. The expert group believed that the stability of the Dexing Copper Mine 4 # tailings pond met relevant requirements on transformation. The flood carrying and drainage facilities of the tailings reached the flood carrying standards for first-class reservoirs (once-in-5,000-years) and it passed the acceptance on completion with unanimous approval by experts.

3. Strengthening the Enterprise with Talents and Creating a Friendly Future

Closure of Dexing Copper Mine 1 # Tailings Pond

The Dexing Copper Mine 1 # tailings pond was completed and put into use in 1965 and is the first tailings pond completed in the Dexing Copper Mine. Due to the environmental conditions and other factors, the slope of the dam was reclaimed as vegetable field with illegal structures. The area of the vegetable field reached 30,000 square meters based on the measurement by relevant employees. In 2019, through the efforts of the Dexing Copper Mine, the vegetable field on the slope of the dam was cleared and all illegal structures were basically dismantled. The projects designed on the closing of the tailings pond, such as drainage ditches on the dam abutment, the sampling holes on the saturation line and horizontal draining leakage pipes, were completed, which reduced safety hazards.



Occupational Health Management

The Group abides by laws and regulations on occupational safety and health, such as the Law of the PRC on the Prevention and Treatment of Occupational Diseases (《中華人民共和國職業病防治法》) and the Fire Control Law of the PRC (《中華人民共和國消防法》), and other applicable laws and regulations. It increases investments on occupational diseases prevention facilities and actively establishes the occupational diseases prevention systems to create an outstanding production and working environment for employees.

During the Reporting Period, we conducted monitoring and analysis on occupational diseases hazards to prevent occurrence of group occupational diseases from the source. We strictly implemented the “three simultaneous” systems on occupational diseases; introduced new technologies, new processes and new materials for safety production and provided corresponding protection equipment for employees conducting dangerous operation or working in harmful environment; organized occupational health examinations before, during and after the employment; improved archives on occupational health monitoring; eliminated disqualified occupational health technical services institutes and examination institutes; and enhanced regulatory work on occupational health in outsourced construction units.

3. Strengthening the Enterprise with Talents and Creating a Friendly Future

In 2019, the Group set the management target of occupational hazardous factor (dust) at above 85% and 98.14% of the targets were achieved during the year. It recorded no cases of occupational disease of employees.

Health and Safety Training and Publicity

To ensure employees have a clear understanding on safety production, the Group requires employees to participate in education and trainings on safety production and pass safety examinations in accordance with the Regulation on Safety Training of Production and Operation Units (《生產經營單位安全培訓規定》) before taking the position. Employees failing to pass the examinations cannot take the position for operation.



For the construction of safety culture, the Group coordinates with various departments and deeply conducts the activity of “the safety production month” with the theme of “preventing risks, eliminating hazards and curbing accidents”. Through publicity and education, safety tests, hazards inspection, exercises on proposals and other activities, we further enhance the awareness of employees on safety production, standardized the safety behaviours of all employees and enhance the capabilities to prevent and handle accidents. During the safety production month, the Group published over 1,000 articles and 100 video works. *My Father is a Miner* and *Live up to Lucid Waters and Lush Mountains* of the Dexing Copper Mine, *One Selection for Lifer Pursuit* of Guixi Smelter, *Love Goes with Safety* of Wushan Copper Mine and other works were widely recognized and transmitted by various news media.

3. Strengthening the Enterprise with Talents and Creating a Friendly Future


Meanwhile, we actively carried out the “Ankang Cup” contest, the activity of “What I Know on Position Safety” and other novel activities to build a safety culture with corporate characteristics. During the Reporting Period, Wushan Copper Mine passed the initial acceptance of the provincial demonstration unit on safety culture in Jiangxi Province in December 2019 with its solid work in the safety culture construction and the results achieved.

“Ankang Cup” Contest


To enhance the “redline awareness” of safety production, consolidate basis for safety management and consistently improve the occupational health and safety quality of all employees and team safety management, we carried out the following activities with team safety management as the core:

- During the “safety production month” in June, we organized online contests on safety, environmental and fire prevention knowledge. The examination was released through the “Jiangxi Copper E Family” WeChat corporate account with the purpose of publicizing knowledge on safety, environmental protection, occupational health, labour protection and fire prevention.
- We conducted management on standardized operation and anti-habitual violations of rules. We formulated preventive measures for emergency accidents of groups, positions and machines and conducted at least one emergency exercise each year to ensure that employees skillfully master emergency prevention measures.
- We arranged each group member to propose one reasonable suggestion on safety production, inspect one accident hazard or violation of rules, organize or participate in one emergency exercise, working as safety staff for one day and write one piece of experience on safety management to turn passive management into active participation for more employees.


Online contests on safety, environmental and fire prevention knowledge



Anti-habitual violations of rules





“Five ones” activity on safety



“What I Know on Position Safety”

During March to November 2019, the Group carried out the activity of “What I Know on Position Safety” to strengthen the faithful implementation of responsibilities of subjects on safety production, enhance the operability of “one diagram (the risk control distribution diagram), one billboard (the risk warning billboard) and three lists (the list of responsibilities on risk control, the list of control measures and the list of emergency disposal), improve the safety education and trainings of the enterprise, intensify the evaluation of the results of the trainings on position safety and regulate the operation and behaviors of operators, which would effectively prevent and reduce moderate accidents, resolutely curb severe accident and eliminate critical and extraordinary serious accidents to ensure safety production in all mines.

3. Strengthening the Enterprise with Talents and Creating a Friendly Future

3.4 ENHANCING HAPPINESS

We pay close attention to the living demands of employees and actively conduct corporate culture construction, assistance and visits to enhance employees' sense of happiness in the Group.

Corporate Culture Construction

The Group attaches great importance to corporate culture construction and establishes a strategic system on corporate culture with the integration of the code of conduct, strategic positioning, brand operation and image shaping. We explore a management model on corporate culture with the characteristics of Jiangxi Copper and practical use. While insisting on the subject culture of the Group, we widely conduct the construction of subcultures and cross-cultural management. For example, we widely conduct safety culture construction in mines, quality culture construction in smelters and processing enterprises as well as explore cross-cultural management in enterprises located in regions with ethnic minority culture. Meanwhile, we vigorously carry out multi-layered and multi-dimensional publicity, training, cultural and entertainment activities with the theme of "nurturing our shared values" to create a positive atmosphere of hard-work and progress.



Measures for Corporate Culture Construction

3. Strengthening the Enterprise with Talents and Creating a Friendly Future

Stories on Corporate Culture—An Effective Carrier for Nurturing Corporate Values

During the Reporting Period, the Group optimized the “Communication and Display of Cases on Corporate Culture” with a history of 10 years into a “Storytelling Session on Corporate Culture”. Stories are increasingly popular as a carrier with vivid narration and outstanding figures. On 21 November 2019, we organized and held the Storytelling Session on Corporate Culture with the theme of “Doubling Innovation in Three Years” at Wushan copper Mine. 19 subsidiary units of the Group, including Dexing Copper Mine and Guixi Smelter participated in the activity. 23 stories were displayed and shared in the form of narration, recitation and sitcoms to reflect the true stories on implementing the values of Jiangxi Copper. The Everyone Has His Stories of Guixi Smelter told a story of three generations who integrated into the trend of the times, stayed to their aspirations and contributed to Jiangxi Copper, which also placed deep hopes on young employees in the new times of intelligent smelting. The Unyielding Backbone by Yongping Copper Mine showed the touching events of its employees protecting the mine and homeland with their bodies at the outbreak of floods.

The “Storytelling Session on Corporate Culture” was echoed by all employees and received concerns and recognition from external parties through online broadcasting. It effectively promoted the corporate culture of Jiangxi Copper and was regarded a “cultural feast” of Jiangxi Copper.



In addition, the Group cares about employees' life and encourages employees to participate in various entertainment and sports activities. It holds various entertainment and sports activities each year to enrich the spare life of employees and meet their mental demands.

3. Strengthening the Enterprise with Talents and Creating a Friendly Future

The Fourth Workers Game of Jiangxi Province	Employees' Table Tennis Competition
<p>On 29 September 2019, the Fourth Workers Game of Jiangxi Province was successfully completed. Besides the prize for the best organization, over 100 employees of the Group participated in 9 events and we were awarded 1 gold medal, 2 silver medals and 4 bronze medals. 8 athletes and 2 teams won the Sports Morality Award.</p>	<p>On 8 November 2019, the 3-day employees' table tennis competition was completed. 89 players from 12 subsidiaries participated in the matches. After over 20 hours of fierce competition, the matches were successfully completed in the morning of 10 November.</p>
	

Care for Employees of Jiangxi Copper

The Group deeply knows that employees are the primary resources of the enterprise and the core for corporate development. We consistently care for employees and always care about their life to enhance the employees' sense of belonging and the team cohesiveness.

To further innovate the assistance mechanism and expand the assistance channels, the Group introduced the Measures for the Administration of Special Assistance Funds for Serious Diseases of Jiangxi Copper Company Limited (《江西銅業股份有限公司職工大病幫扶專項資金管理辦法》) and the Interim Regulation on Assistance for Serious Diseases of Retired Labour Models above the Provincial and Ministerial Level of Jiangxi Copper Company Limited (《江西銅業股份有限公司退休省部級以上勞模大病幫扶暫行規定》) in 2019. From meeting the diverse needs of employees in poverty and solving the most direct and most realistic problems about which our employees are most concerned with, we have enhanced "security", highlighted "precision", and by "medical assistance, education assistance and poverty alleviation", the employees' ability to resist risks has been enhanced substantially, and actively implemented the Company's care for employees.

3. Strengthening the Enterprise with Talents and Creating a Friendly Future



Visited 1,029 households of impoverished employees and labour models and distributed subsidies and relief allowances of RMB1,544,900



The employee mutual benefit association of medical treatment subsidized and visited 223 employees and distributed subsidies and relief allowances of RMB780,400



The "Autumn Education Aid" (金秋助學) raised its standard and expanded its coverage, benefiting the children of 113 impoverished employees



The employee mutual assistance and guarantee completed 451 compensations and visits with an amount of RMB1,657,800



Visiting Impoverished Employees during Holidays



Visiting Labour Models during Holidays

3. Strengthening the Enterprise with Talents and Creating a Friendly Future

During the Reporting Period, we carried out activities on caring for female employees. We arranged examinations on gynecological diseases for 2,321 female employees and held 22 lectures on laws popularization and health knowledge to build the health defense line for female employees. We also established a sound system of female cadres assisting impoverished and single female parent. We visited 26 female employees and distributed relief allowances of RMB24,400.



**Legal Knowledge Lecture on Protection of Female Employees' Interests
at Wushan Copper Mine**

4. Building a Green Enterprise and Creating a Harmonious Future

The Group assumes the mission of “devoting to continuously exploring the value of resources, pursuing the harmony and co-living between people and the nature” and integrates the concept of ecological civilization into the whole process of production and operation of the enterprise. During the transformation and development from traditional mining to R&D of new materials and from the introduction of whole sets of smelting equipment to the export of independently developed equipment, we always adhere to the commitments on sustainable development, strive to build green benchmarks, nurture green momentums, supply green products and the high-quality development with green concepts.

4.1 ENVIRONMENTAL MANAGEMENT

We adhere to green development, establish and consistently improve the environmental management system and integrate green management concepts into routine operation to build a green manufacturing enterprise.

The Group strictly abides by the Environmental Protection Law of the People's Republic of China (《中華人民共和國環境保護法》), the Law of the People's Republic of China on Evaluation of Environmental Effects (《中華人民共和國環境影響評價法》), the Regulations on the Administration of Environmental Protection on Construction Projects (《建設項目環境保護管理條例》) and other national laws, regulations, guidelines and policies on ecological and environmental protection. It establishes a sound environmental management system and obtains the ISO14001 authentication certificate on the environmental management system, covering the Company and its subsidiaries, including Jiangxi Copper Yates Copper Foil Company Limited, Jiangxi Copper (Longchang) Precise Pipe Company Limited, Jiangxi Jiangtong Taiyi Special Electrical Materials Co., Ltd., Jiangxi Copper Products Company Limited and JCC Copper Products Company Limited. During the Reporting Period, we has successfully passed the external review on such system.



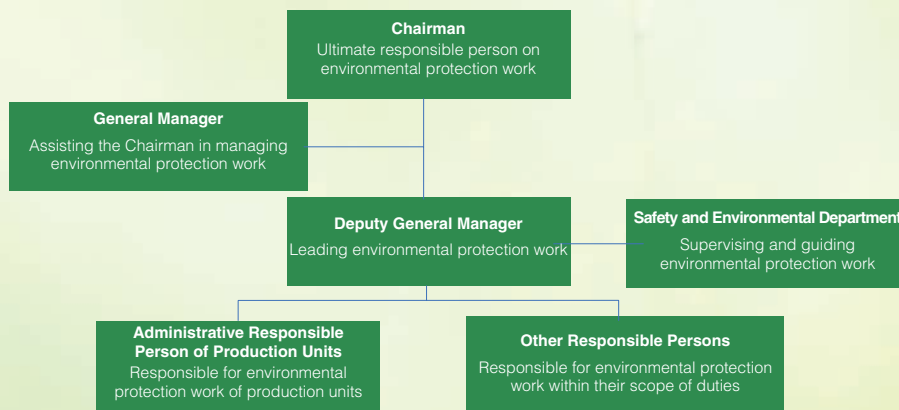
Authentication Certificate on the Environmental Management System

4. Building a Green Enterprise and Creating a Harmonious Future

We formulate the “Administrative Measures on the Ecological Environmental Protection” (《公司生態環境保護管理辦法》) and other policies on environmental management based on the system and set out the process on the management of ecological and environmental protection, the responsibilities of all functional departments and relevant targets on ecological and environmental protection to fully advance the stable improvement of environmental management of the Group.

Environmental Management Responsibility System

We always adhere to the principle of “prioritizing protection, focusing on prevention and comprehensive treatment” to effectively manage relevant environmental risks relating to operation and production. We adopt proactive and effective measures to prevent and reduce the environmental pollution and harms caused by production and operation. We specify the environmental management responsibilities of all responsible persons and conduct assessment on environmental management performance to ensure the effectiveness of environmental risk management.



Three-tier Environmental Management Structure

We have established a three-tier environmental management structure with the chairman as the primary responsible person. As the primary responsible person, the chairman is fully responsible for the environmental protection work. The deputy general manager assists the chairman and the general manager and is directly responsible for the environmental protection work. The administrative responsible person of each production unit is the primary responsible person of its unit on environmental protection and other responsible persons manage the environmental protection work within their scope of duties. The safety and environmental department of the Group is responsible for the supervision and management of the entire process and guiding the ecological and environmental protection work of all production units.

4. Building a Green Enterprise and Creating a Harmonious Future

Meanwhile, we establish a sound evaluation mechanism. The safety and environmental department of the Group leads the determination of the basis and scope of the evaluation and the organization department and the operation promotion department conduct evaluation on the management and all production units. The indicators of the evaluation mainly include:

- environmental pollution accidents of each subsidiary unit
- violation of national laws and regulations
- completion of tasks and targets on ecological and environmental protection set by local authorities or the Group

Environmental Risk Management

To pursue the harmony and co-living between people and the nature, build green mines and reduce potential risks on the environment, the Group strictly abides by the requirements of relevant laws, regulations, standards and rules in projects construction and production processes. When conducting operating or engineering activities in new areas, we conduct environmental impact assessment according to laws and carry out investigations, analysis and assessment on the surrounding ecological environment, biological diversity and communities. During the projects construction or production and operation, we conduct the construction of relevant facilities on pollution prevention and the maintenance of their operation in strict compliance with the requirements raised in the environmental impact assessment report. We arrange professional management staff and conduct regular environmental checks to reduce the possible risks and effects on the environment caused by new construction projects or the production and operation.

We have been conducting internal and external audits based on the requirements of the ISO 14001 environmental management system and relevant national laws and regulations each year since 2013. The audits cover the assessment on compliance with laws and regulations, on-site review on production and operation and reviews on management systems and operational procedures. For issues spotted in the audits, we conduct classification management based on observable items and non-compliance and require relevant units rectifying the issues and improving management according to the principle of continuous improvements.

4. Building a Green Enterprise and Creating a Harmonious Future

To deal with the risks of potential environmental accidents in the production and operation processes, all production and operation units of the Group establish environmental monitoring agencies to conduct regular monitoring on sources of pollution based on the national monitoring standards. The Group formulates the Emergency Rescue Plan on Accidents and Disasters (《事故災難應急救援預案》) and sets out relevant requirements in the Ecological and Environmental Protection Management Measures (《生態環境保護管理辦法》) to guide all production and operation units in formulating emergency management systems and emergency plans on environmental pollution and establish emergency rescue systems on environmental pollution. It strives to organize rapid and orderly rescue after the occurrence of accidents, protect employees, the environment and property safety to the greatest extent and reduce the impact of the accidents on environmental pollution.

Meanwhile, to deal with extreme weather disasters in flood seasons caused by climate change, we enter into agreements on alarming services for disaster weather with local meteorological departments to master information on extreme disaster weather and take preventive measures in advance. We formulate and release the Notice on Conducting Safety and Environmental Work in Flood Season (《汛期安全環保工作的通知》) and Notice on Practically Conducting Safety Production under High Temperature (《關於切實做好高溫酷暑期間安全生產工作的通知》) and require all production units inspecting hazards and the catchment and leakage of water system in the mines and the surrounding ground. For high and steep slopes of open mines and earth-disposing sites with risks of mine flooding, landslides and debris flows, preventive measures have been adopted and corresponding emergency proposals have been formulated.

For risks of water pollution in flood seasons, we consistently advance the construction progress of key governance projects on safety and environmental projects and enhance the management of acidic reservoirs, catchpits and regulating reservoirs to ensure no spillover of waste water. We strengthen the management of intermediate materials and harmful wastes and prohibit open stacking to prevent flows with rainwater. We collect preliminary rainwater for treatment and achieve the separation of clean and sewage water to prevent excessive discharge. We enhance the management and control over the discharge outlets of various pollutants to ensure the online monitoring data meets the standards and guarantees the compliance discharge in flood seasons.

4. Building a Green Enterprise and Creating a Harmonious Future

4.2 ENERGY SAVING AND CONSUMPTION REDUCTION

Through keen practice of our green development vision of ‘increase output, not consumption’ (“增產不增耗”), we continuously improve the management mechanism, reasonably use of resources, actively implement measures on energy saving and consumption reduction and reduce the consumption of resources in production and operation.

Energy and Greenhouse Gases Management

We believe that efficient energy management is an important step in achieving green development. The Group strictly abides by the Energy Law of the People's Republic of China (《中華人民共和國能源法》), the Energy Conservation Law of the People's Republic of China (《中華人民共和國能源節約法》) and other laws and regulations. The Group establishes a sound energy management system and obtains the ISO 50001 authentication certificate on the environmental management system, covering the Company and its subsidiaries, including Jiangxi Copper Yates Copper Foil Company Limited, Jiangxi Copper (Longchang) Precise Pipe Company Limited, Jiangxi Jiangtong Taiyi Special Electrical Materials Co., Ltd., Jiangxi Copper Products Company Limited and JCC Copper Products Company Limited. During the Reporting Period, we has successfully passed the external review on such system.



Authentication Certificate on the Energy Management System

4. Building a Green Enterprise and Creating a Harmonious Future

Under the energy management system, we formulate the Measures for Energy Administration (《能源管理办法》), the Measures on Implementation of Appraisal on Energy Consumption (《能源消耗考核实施办法》) and other internal management policies, set up annual targets on energy saving, guide and urge all production units to actively implement policies and measures on energy-saving production, formulate energy-saving plans and monitor energy consumption. We conduct analysis on energy saving, regularly held meetings on energy management and promote new technologies, new equipment, new materials and new process etc. in energy management to consistently enhance the energy management capabilities of the Group.

During the Reporting Period, we approved various projects on equipment upgrading and technology transformation, including the transformation of the flash direct discharge and slow cooling of furnace slag, the transformation of sulfur dioxide fans and the expansion and transformation of transformer substations, and significantly improved the energy use efficiency. In 2019, we exceeded the target of energy saving by 22,000 tonnes of standard coals as set by the Jiangxi provincial government.

Transformation of Flash Direct Discharge and Slow Cooling of Furnace Slag at Guixi Smelter

During the Reporting Period, the Group conducted the transformation of the flash direct discharge and slow cooling of furnace slag at Guixi Smelter. It eliminated smelting lean electric furnaces and transformed the fuel supply system of flash furnaces and the subject of flash furnaces, which improved the efficiency of flash furnaces and reduced energy consumption. Meanwhile, the workload on the maintenance and repairing of flash furnaces reduced after the transformation, which significantly reduced the production cost. In 2019, the comprehensive energy consumption intensity of copper smelting at Guixi Smelter was 155.18 kilograms of standard coals per tonne, reaching the world-leading level.



Comparison before and after the Elimination of Smelting Lean Electric Furnaces

4. Building a Green Enterprise and Creating a Harmonious Future

Transformation of Sulfur Dioxide Fans at Guixi Smelter

During the Reporting Period, the Group conducted the transformation of sulfur dioxide fans in the sulphuric acid system at Guixi Smelter. It eliminated the 1# fan and newly added a variable frequency fan, which changed the alternative operation of the two previous fans and the speed control model of the fluid coupler, improved the transmission efficiency and reduced energy consumption. The completion of the project can save electricity by 8 million kWh each year.



Sulfur Dioxide Fans after Transformation

We highlight the implementation of energy-saving measures in practical operation and pay close attention to energy consumption. We arrange trainings on energy management to ensure that employees have sufficient management knowledge and apply energy-saving measures in production and operation.

4. Building a Green Enterprise and Creating a Harmonious Future

Training Class on Energy Management

To enhance employees' understanding of energy management and energy-saving technologies, the Group arranged a two-day training on energy management in September 2019, covering employees at relevant working positions in all production and operation units. The training on energy management provided employees with systematic knowledge on energy management and guidance on energy saving and emission reduction action in production and operation, which was highly recognized by employees.



Contents of Training on Energy Management

In addition, to actively advance the transformation of the energy structure, we formulate management policies at the group level and require all production units to effectively implement them in production and operation. Based on the characteristics of our own business, we construct solar power generation projects at waste rock yards of copper mines to make full use of the land resources and reduce the cost in mine restoration, realizing the concept of green development.

4. Building a Green Enterprise and Creating a Harmonious Future

Solar Power Generation Project at Waste Rock Yard of Yongping Copper Mine

To adapt to the development of the times and make use of abundant natural resources, Yongping Copper Mine establishes Jiangxi Copper (Qianshan) Photovoltaic Power Co., Ltd. (江西銅業(鉛山)光伏發電有限公司) and newly construct a 20MWp photovoltaic power generation project at the waste rock yard of Yongping Copper Mine in Qianshan County. The construction of the project significantly promotes the development of photovoltaic power generation in Qianshan County and provides excellent engineering experience and trial platforms for regional large-scale development of solar energy power generation projects. The actual installed capacity of the project is 20.03MWp with an annual average on-grid power generation of 17,941,800 kWh. The total on-grid power generation in its life of 25 years is expected to reach 448,545,300 kWh, equivalent to reducing the emission of 235,800.26 tonnes of carbon dioxide.



4. Building a Green Enterprise and Creating a Harmonious Future

In 2019, the energy consumption of the Group is listed in the table below:

Energy Consumption		Unit	2019
Direct energy consumption	Gasoline	Tonnes	635
	Diesel oil	Tonnes	59,780
	Fuel oil	Tonnes	12,734
	Natural gas	Cubic meters	53,474,166
	Coal	Tonnes	5,622
Indirect energy consumption	Electric power	MWh	4,717,572
	Vapour	Tonnes	219,069
Comprehensive energy consumption		Tonnes of standard coal	822,571
Comprehensive energy consumption intensity		Tonnes of standard coal/ ten thousand	0.034

We reduce our greenhouse gas emissions and respond to the effects of climate change through refined energy-saving management. During the Reporting Period, the greenhouse gas emissions of the Group is set out in the table below:

Greenhouse Gas Emissions ⁴	Unit	2019
Scope I greenhouse gas emissions	Tonnes of CO ₂ equivalent	427,239
Scope II greenhouse gas emissions	Tonnes of CO ₂ equivalent	2,548,658
Total greenhouse gas emissions	Tonnes of CO ₂ equivalent	2,975,897
Greenhouse gas emissions density	Tonnes of CO ₂ equivalent/ten thousand	0.12

Water Resources Management

We attach great importance to water resources management and no problems in sourcing water was spotted during the Reporting Period. Our industrial water for ore dressing and smelting are from rivers and other domestic water are from the municipal water pipeline. We continuously advance the water-saving of the Group and enhance the water-saving awareness of employees in daily life through adjusting the use of water structure, strengthening the use of water statistics, improving the recycling of industrial water, publicizing water saving and other effective measures. As the recycling of industrial

⁴ The emissions of CO₂ equivalent of the Group are calculated with reference to the Reference Guideline on Third-party Inspection on National Carbon Emissions Permit Trading (《全國碳排放權交易第三方核查參考指南》), the Guideline on the Calculation and Report of Greenhouse Gases Emissions by Other Nonferrous Smelting and Rolling Processing Enterprises (Trial) (《其他有色金屬冶煉和壓延加工企業溫室氣體排放核算方法與報告指南(試行)》) and the Guideline on the Calculation and Report of Greenhouse Gases Emissions by Mine Enterprises (《礦山企業溫室氣體排放核算方法與報告指南》).

4. Building a Green Enterprise and Creating a Harmonious Future

water can significantly improve the efficiency of use of water and reduce the operating cost, we attach great importance to the recycling of industrial water. We adopt technologies on the recycling and maintenance of cooling water and reuse cooling water in production. We set targets on the recycling of industrial water for all production units and adopt them in the evaluation of annual performance. Under our strict control, the recycling rate of industrial water reached 95.44% this year.

During the Reporting Period, the use of water resources by the Group is as follows:

Water Resources Consumption	Unit	2019
Use of water resources ⁵	Tonnes	797,128,278
Water consumption intensity	Tonnes/ten thousand	33.16

Packaging Materials Management

Packaging materials used in the production of the Group mainly include packaging boxes, wooden pallets, woven bags and corrugated paper. We actively recycle reusable packaging materials. For example, we recycle wooden pallets and other packaging materials to reduce the use of packaging materials.

4.3 COMPLIANCE EMISSIONS

By adhering to the concept of “prioritizing prevention, integrating prevention and treatment and conducting clean production”, we actively adopt measures on preventing pollution in all processes to fully meet the requirements on the standard discharge of pollutants.

In strict compliance with the Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution (《中華人民共和國大氣污染防治法》), the Law of the People's Republic of China on Prevention and Control of Water Pollution (《中華人民共和國水污染防治法》), the Law of the People's Republic of China on the Prevention and Control of Environmental Pollution Caused by Solid Waste (《中華人民共和國固體廢棄物污染環境防治法》) and other laws, regulations and standards on the emission of pollutants, we formulated and improved the Administrative Measures on Ecological Environmental Protection (《生態環境保護管理辦法》), the Plan on the Implementation of “Eight Iconic Battles in Winning the Fight against Pollution Prevention” (《“打贏污染防治攻堅戰八大標誌性戰役”工作實施方案》) and other management systems during the Reporting Period. We regularly conduct monitoring on pollutants to ensure standard discharge.

⁵ The statistics on the use of water resources cover the use of industrial water in ore dressing and smelting by seven subsidiaries, including Guixi Smelter, Dexing Copper Mine, Yinshan Mining, Yongping Copper Mine, Chengmenshan Copper Mine, Wushan Copper Mine and Dongtong Mining.

4. Building a Green Enterprise and Creating a Harmonious Future

In addition, the Group formulates special planning on environmental protection every five years based on the five-year strategic plan of the state and specifies targets in reducing the emissions of sulfur dioxide, chemical oxygen demand (COD), ammonia nitrogen, heavy metals and other pollutants. To achieve the targets, the Group invested approximately RMB300 million in the development of technologies on pollution treatment in 2019. We also introduced overseas advanced technologies, promoted the transformation of production technologies, enhanced the improvement of engineering, management and technical measures and enhanced the capabilities of pollutants disposal.

In addition to continuously enhance our pollution improvement capabilities, the Group participated in the 2019 National Conference on Ecological and Environmental Protection in Non-ferrous Metals Industry. The conference interpreted the revision of the discharge standards of pollutants in non-ferrous industry and relevant topics on the utilization of solid waste in the non-ferrous and metallurgy industry, explained the trend of policies on the ecological and environmental protection in non-ferrous metals industry, making us fully understand the changing trend of national policies and industry development, and adopt corresponding measures to facilitate the high-quality development of the enterprise.



2019 National Conference on Ecological and Environmental Protection in Non-ferrous Metals Industry

During the Reporting Period, the Group recorded no pollution accidents with severe responsibilities.

4. Building a Green Enterprise and Creating a Harmonious Future

Waste Gas Emissions

Waste gas emissions of the Group are mainly sulphur oxides and dust generated from open-pitting and smelting. During the Reporting Period and to reduce the impact on the environment caused by the emission of waste gas, we adopted various measures, including technological transformation for alternative fuels and the introduction of advanced environmental treatment technologies. We adopted desulfurization on organic amine and other measures to consistently reduce the emission of waste gas and optimize the environment and air of factories and surrounding areas.

Technology Transformation at Guixi Smelter

During the Reporting Period and to reduce the emissions of sulfur dioxide, Guixi Smelter conducted the Technology Transformation Project for Alternative Fuels of Natural Gas (《天然氣替代燃料技術改造項目》) to control the emissions of sulfur dioxide from the source. Total investment of the project reached RMB84.09 million and the target was mainly to replace all fuel oil with high sulphur content in the production with natural gas with low sulphur content. It has reduced the emissions of sulfur dioxide and particles by 329 tonnes and 132 tonnes from the source each year, respectively.



Gas Furnaces after Transformation

4. Building a Green Enterprise and Creating a Harmonious Future

Guixi Smelter invested RMB159 million in 2019 in upgrading the flash drying in the production of copper concentrate into steam drying. The technology can reduce the use of fuel oil and thus reduce the emissions of waste gas. Compared with those before the transformation, Guixi Smelter has reduced the emissions of sulfur dioxide, dust, lead dust and arsenic dust by 827 tonnes, 85 tonnes, 211 kilograms and 143 kilograms, respectively.



To meet the increasingly strict environmental requirements, Guixi Smelter initiates the environmental transformation project on dust desulfurization in the two systems of the smelting workshop. It eliminates the original active coke desulfurization devices, adopts the more advanced ionic liquid desulfurization technology and newly established devices such as dust collection with bags, purification of dust portfolio, negative micro-pressure recyclable ionic liquid desulfurization technology, which significantly improves the desulfurization efficiency, operating cost, safety, on-site environment, operability, the utilization rate of sulphur resources and other indicators. During the Reporting Period, the exhaust desulfurization efficiency could reach over 90%. The total emissions of sulfur dioxide reduced by over 1,000 tonnes each year and the indicators on the emissions of various waste gases were over 50% higher than the national emissions standards.

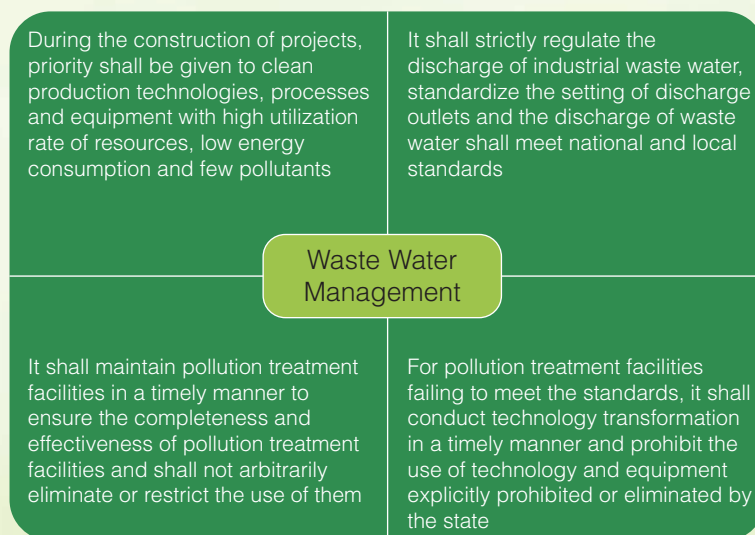
4. Building a Green Enterprise and Creating a Harmonious Future

During the Reporting Period, the waste gas emissions of the Group is set out in the table below:

Emissions		Unit	2019
Waste gas	Nitrogen oxide	Tonnes	181
	Sulfur dioxide	Tonnes	1,732
	Dust	Tonnes	1,184

Waste Water Discharge

Our waste water emissions mainly include acid waste water from mining and alkaline waste water from ore dressing. To standardize waste water discharge, the Group strictly requires all production units adopting effective preventive measures in projects construction, resources development as well as production and operation activities to ensure standard discharge and reduce the effects on the surrounding water resources and soil.



Requirements of the Group on Waste Water Management

4. Building a Green Enterprise and Creating a Harmonious Future

In addition, to reduce the environmental pollution caused by waste water discharge, we actively conduct process transformation and technological upgrading on waste water treatment and constructed clean water and sewage diversion projects to divert surface runoffs and industrial waste water. Meanwhile, we install online monitoring systems on PH value, COD, ammonia nitrogen and other monitoring factors at the main outlets to conduct real-time monitoring on the discharge of waste water. Based on the online monitoring data on sources of pollutants in 2019, the waste water discharge of the Group met the discharge standards.

Clean Water and Sewage Diversion Project

The Fujiawu access road in the Dexing Copper Mine is a major road connecting the copper factory mining area and the Fujiawu mining area. As acidic water from the long-term pyritic oxidization converge with surface runoffs and spread along Fujiawu Access Road, it not only damaged the road but also polluted surface runoffs and increased the generation of waste water. During the Reporting Period, the Group conducted the clean water and sewage diversion project on Fujiawu Access Road and constructed ditches to divert hill runoffs from waste water on slopes. The unpolluted hill runoffs were discharged nearby in an orderly way while waste water on slopes were discharged into the Yangtaowu Waste Rock Yards for centralized treatment, achieving the diversion of clean water and sewage. The total investment in the project reached RMB6,574,700 and it is expected to reduce the generation of waste water by 350,000 tonnes each year.



Comparison before and after the Clean Water and Sewage Diversion Project on Fujiawu Access Road

4. Building a Green Enterprise and Creating a Harmonious Future

Recycling of Copper Metal

To remove the copper content in the acid waste water from copper mines and effectively recycle heavy metal copper, Dexing Copper Mine adopts the chemical sulfuration technology, which can remove other heavy metals and pollutants in waste water and recycle heavy metal copper at the same time. The technology is mainly for acid waste water with high content of copper metal. For acid waste water with low content of copper metal, it is directly treated through the treatment station for industrial waste water. Currently, we recycle over 1,350 tonnes of copper metal with the chemical sulfuration technology each year.

During the Reporting Period, the waste water discharge of the Group is set out in the table below:

Emissions		Unit	2019
Waste water	COD	Tonnes	1,400.7
	Ammonia nitrogen	Tonnes	132.6
	Copper	Tonnes	2.6
	Zinc	Tonnes	2.4
	Lead	Tonnes	3.3

Waste Management

The non-hazardous waste of the Group mainly includes tailings from mines. We actively conduct the comprehensive utilization of non-hazardous waste, explore the production model with “zero emissions” and continuously promote the development of new uses of tailings to reduce the emission of non-hazardous waste. For non-hazardous waste not available for comprehensive utilization, we deliver them to the waste dump and tailings for landfill after sorting.

4. Building a Green Enterprise and Creating a Harmonious Future

Comprehensive Utilization of Tailings

In Wushan Copper Mine, we adopt cemented filling for the comprehensive utilization of tailings at the stopes. When the intensity of the infill with tailings reaches about 4MPa, it can significantly improve the intensity of the roof at the stopes, which can also reduce the emissions of tailings and the use of river sand (by approximately 3.35 million tonnes) and protect the surrounding ecosystem and environment. The production capacity of stopes filled with cemented fillings can be significantly enhanced and they can produce another 4,985 tonnes of copper each year. In 2019, 32 stopes achieved cemented filling with graded tailings in all mines, accounting for 70% of all mines. 502,700 cubic meters of tailings were used in filling and the ores mined in mines with cemented filling accounted for 80% of the total ores mined in all mines.



Cemented Filling Station at Wushan Copper Mine

4. Building a Green Enterprise and Creating a Harmonious Future

Comprehensive Utilization of Tailings

In Chengmenshan Copper Mine, we initiate the resource utilization project on waste and tailings are mixed with concrete as construction materials. Its main production lines can consume 2.5 million tonnes of tailings each year after completion.



In Chengmenshan Copper Mine, we newly construct sulfur dressing workshop for tailings and relevant ancillary facilities to conduct sulfur dressing on tailings generated from ore dressing. It obtains standard sulphuric concentrate and low-sulfur tailings with a sulfur content of less than 0.5%. Standard sulphuric concentrate can generate final standard sulphuric concentrate products ($S \geq 35\%$) after two dehydration processes of thickening and filter pressing. Low-sulfur tailings will enter thickeners for tailings and tailings after thickening ($S < 0.5\%$) are transported to the tailings or supplied to other projects with the current pumping system.



Tailings Desulphuration Project

4. Building a Green Enterprise and Creating a Harmonious Future

Comprehensive Utilization of Tailings

Guixi Smelter adopts the hydrometallurgy arsenic trioxide production technology in the recycling of intermediate materials with copper and arsenic from the smelting and production processes. The daily capacity of the production line for handling arsenic sulfide filter cakes can reach 50 tonnes and the production of arsenic trioxide products reached 2,190 tonnes in 2019. The project effectively solves the problem with rising inventory of arsenic filter cakes affecting the normal production of the main production in factories, eliminates the potential environmental pollution caused by the warehousing of arsenic filter cakes and guarantees the normal operation of the major technology production lines.



Arsenic Trioxide Production Facilities

4. Building a Green Enterprise and Creating a Harmonious Future

The hazardous waste of the Group is mainly from used mineral oil from machinery in the mining and dressing processes and used oil, dust, purifying residues, arsenic filter cakes, lead filter cakes and hydrometallurgy copper sludge from the smelting process. Adhering to the principle of maximizing the comprehensive utilization of hazardous waste, we achieved a comprehensive utilization rate of 97.8% on hazardous waste in 2019. For parts that cannot be used by ourselves, we appointed qualified third-party institutes to dispose and use. We generally achieved 100% comprehensive utilization of hazardous waste.

Emissions		Unit	2019
Non-hazardous waste	Amount of tailings disposed	Tonnes	49,220,146
	Amount of tailings comprehensively used	Tonnes	5,488,049
Hazardous waste	Used oil from mines	Tonnes	497
	Hazardous waste from smelting	Tonnes	44,758

Green Production

Through measures on upgrading the above technology and process transformation, we maintained the impact of production units on the surrounding ecosystem and environment within controllable range in 2019. The treatment of waste water, waste gas and residues from the production and operation processes met national or local standards. 10 units were newly awarded provincial green mines (factories). 2 units, namely, Wushan Copper Mine and Guixi Smelter were selected as national green mines and green factories. The Group has 14 green mines (factories) above the provincial level so far, including 3 national green mines and 3 national green factories. Dexing Copper Mine was awarded the outstanding contribution prize for national green mines in 2019 and Mr. Wu Qiming was awarded the outstanding contribution prize for individuals.



4. Building a Green Enterprise and Creating a Harmonious Future

4.4 ECOLOGICAL RECLAMATION

We adhere to the concept of ecological civilization with the environmental concept of “Creating Evergreen” and continuously advance ecological reclamation work surrounding our projects to reduce the impact and damage to the ecological environment in surrounding areas and improve the quality of regional ecological environment.

The Group strictly abides by the Law of the People’s Republic of China on Water and Soil Conservation (《中華人民共和國水土保持法》) and other laws and regulations and requires restoring the surrounding environment damaged after the completion of all projects in a timely manner. For construction projects damaging natural vegetation and water and soil conservation, they shall formulate corresponding plans on water and soil conservation and measures on ecological restoration, submit them to relevant administrative authorities for approval and implement within the prescribed period. During the production process, the Group requires all production units to minimize the impact and damage to the surrounding ecological environment caused by resources development and emissions and continuously improve the quality of local ecological environment to the greatest extent.

In addition, we set the target with a vegetation restoration rate of over 85% on reclaimable lands of mines in the five-year plan on environmental protection. To achieve this target, we carried out land reclamation and ecological restoration work on various tailings and waste rock yards.

Land Reclamation and Ecological Restoration Projects

Yangtaowu Waste Rock Yards is located on the southwest of Dexing Copper Mine and is a valley surrounded by highlands on three sides. Due to the washout by overland runoffs converged from the slopes, the slope of Yangtaowu Waste Rock Yards was eroded with shallow sliding. To prevent further acidification and washout of the slope by overland runoffs and further slope damage and water and soil erosion, the Group adopted reasonable plans on ecological restoration to treat the slope, such as the stability improvement of the slope, ground grading, vegetation restoration, PH value regulation on soil and the construction of drainage system during the Reporting Period. The land reclamation project on the waste rock yard improved the overall stability of the slope, controlled water and soil erosion and eliminated landslides, mudslides and other potential geological disasters. It achieved a vegetation coverage of over 90% and significantly improved the biological diversity, thus effectively improved the regional ecological environment.



Comparison before and after Land Reclamation

4. Building a Green Enterprise and Creating a Harmonious Future

Land Reclamation and Ecological Restoration Projects

Chengmenshan Copper Mine has been following the environmental concept of “developing and reclaiming at the same time” and conducted ecological restoration on slopes and tailings which have reached their service life. Since 2018, Chengmenshan Copper Mine seized the opportunity of building a green mine and implemented various projects, including the ecological restoration on the southeast permanent slopes of the waste dump on the south, the project on the construction of green mines-ecological restoration and the ecological restoration on the slopes in areas surrounding the lake on the north of the mining area of Chengmenshan Copper Mine. As at the end of 2019, Chengmenshan Copper Mine has invested a total of RMB48,336,000 in ecological restoration projects in the mine and the total restored areas reached 783,819.51 square meters.



Slope of Waste Dump on South Slope of Chengmenshan



Ecological Restoration Project on Open Areas Surrounding the Lake on the West of the Mining Area

During the Reporting Period, Wushan Copper Mine conducted soil restoration on certain areas and on high and steep slopes which no longer for use in the waste rock yards and constructed drainage ditches and planted vegetation. It has invested RMB5.66 million in total with 72,127.38 square meters restored. Through the ecological restoration technology of “improvement of original base quality + direct vegetation”, it directly planted vegetation after improving the rock-soil of the original slope of the waste rock yards without replacing the soil. After the ecological restoration, we effectively improved the soil structure of the waste rock yards, reduced water and soil erosion and the generation of acid waste water from slope leaching and improved the ecological environment of the mine.



Comparison before and after Land Restoration in Waste Rock Yards

5. Devoting to Charitable Endeavours and Caring about the Future of Our Community

The Group adheres to the philosophy of “bearing social responsibility and becoming an outstanding corporate citizen” (“履行社會責任·做優秀企業公民”), by taking JCC, its controlling shareholder as the platform, the Group proactively devotes itself to charitable endeavours and participates in targeted poverty alleviation and other public welfare activities to assume social responsibilities. While consistently enhancing its own economic benefits, the Group fully plays the core role of a leading enterprise, continuously facilitates the sustainable development of local economy and promotes the development of local relevant industries. (Note: the following welfare funds are provided by JCC)

5.1 TARGETED POVERTY ALLEVIATION

We actively respond to government advocates and conduct the construction of targeted poverty alleviation projects to bring economic assistance to impoverished families, solve the employment issue of poverty-stricken villages and perform the responsibilities and undertakings of state-owned enterprises.

Since 2015, we have been actively responding to the advocates of the provincial government of Jiangxi Province and devoted to the battle on targeted poverty alleviation. We have invested about RMB10.44 million in poverty alleviation and provided targeted assistance to Qujiang Village in Dongshang Township, Jinggangshan City, Shuanghong Village in Tonggu County, Yichun City and Zongru Village in Lizhai Township, Dexing City through industrial supporting, bridges and roads building and improving amenities etc..

In 2019, we invested about RMB5,780,800 in total in carrying out village renovations and infrastructure construction in Qujiang Village, Zongru Village and Shuanghong Village and assisting villagers in industrial construction based on the characteristics of each poverty-stricken village. We purchased specialties from the poverty-stricken villages through group purchasing on holidays and achieved poverty alleviation through consumption of RMB2,566,300.

5. Devoting to Charitable Endeavours and Caring about the Future of Our Community

Targeted Poverty Alleviation

Qujiang Village of Dongshang Township is in the west of Jinggangshan City, which is a registered poverty-stricken village in Jinggangshan City. It has a total of 215 households with 1,050 villagers, including 34 impoverished households with 141 villagers. Through the Company's targeted poverty alleviation, Qujiang Village has successfully passed third-party assessment from Ji'an City, Jiangxi Province and the State respectively in 2016 and achieved poverty alleviation, for which we made an initial positive contribution to poverty alleviation of Jinggangshan in Jiangxi.

In 2019, we dispatched 3 cadres to the village and invested RMB500,000 in Qujiang Village to support the bee-keeping cooperative in Dongshang Township with over 300 beehives, expanded the lotus seed plantation scale to over 400 mu, invested RMB680,000 in hardening roads of 1,200 meters, constructed a small leisure venue in Gaobuli and crossing and small leisure venues in Shang'aotou and a small leisure venue in Xiaaotou. We also improved the cultural and entertainment square, cultural corridor and rainproof facilities of the village.



Activity Center Constructed with the Support of Jiangxi Copper

5. Devoting to Charitable Endeavours and Caring about the Future of Our Community

Targeted Poverty Alleviation

During the Reporting Period, the cooperative of white lotus produced a total of over 7,500 kilograms of white lotus through self-plantation and cooperative plantation with an output value of RMB750,000. The bee-keeping industry harvested honey of 930 kilograms with an output value of RMB93,000. The agricultural cooperative and flower-plant industry achieved revenue of about RMB30,000 and RMB10,000, respectively.

In addition, we visited all poverty-stricken households and offered materials and allowances during the Lunar New Year.



Visiting Poverty-stricken Households in Qujiang Village

Shuanghong Village is located to the east of Tonggu County. It has 21 villager groups with 649 households and 2,286 villagers, including 139 registered poverty-stricken households with 429 villagers. It is an extremely impoverished village at the provincial level. To assist Shuanghong Village, the Group established a leading group on targeted poverty alleviation and dispatched the working team to the village to carry out poverty alleviation.

Shuanghong Village is located in mountainous areas with abundant natural resources, wild bamboo shoots in particular. The working team determined the poverty alleviation plan with the focus on assisting the bamboo shoots processing industry with the support of infrastructure construction after careful investigations and visits. We invested a total of RMB4,057,200 and constructed a bamboo shoots processing factory with 2,400 square meters, hardened a 2.4 kilometer road connecting Shanmulong and Shizhuang villager groups and the road to the bamboo shoots processing factory and constructed a square for cultural activities with an area of 1,050 square meters. Among which, the bamboo shoots processing factory was completed in April 2019. In 2019, the factory received about 250,000 kilograms of bamboo shoots and produced about 12,500 kilograms of dried bamboo shoots. Rentals of RMB60,000 received were distributed to impoverished households with stakes in the factory as bonus at the end of the year. We successfully assisted Shuanghong Village in reducing the poverty rate from 9.1% in 2018 to 1.4% in 2019.

5. Devoting to Charitable Endeavours and Caring about the Future of Our Community

Targeted Poverty Alleviation



Dried Bamboo Shoots Processing Factory Constructed with Assistance



Dried Bamboo Shoots



Leaders of the Group Inspected Dried Bamboo Shoots

5. Devoting to Charitable Endeavours and Caring about the Future of Our Community

Targeted Poverty Alleviation

Zongru Village is located to the east of Lizhai Township with a total area of 11 square kilometers and 70 kilometers from Dexing City. It has 6 natural villages with 428 households and 1,453 villagers. In 2019, we assisted engineering works such as the construction of Yanwutou Bridge, the extension of tap water pipelines, the restoration of Yuantou Embankment with a total investment of RMB906,000, which effectively solved difficulties in production and life. The white lotus base of Zongru Village Cooperative distributed bonus to all impoverished households and village collectively and the amount of the bonus ranged from RMB700 to RMB1,400.



Leaders of the Group Inspected Zongru Village

Through our years of efforts, the collective economy and appearance of the poverty-stricken villages have significantly improved. The per capita income and quality of life of the impoverished households have significantly enhanced. Our measures on targeted poverty alleviation have been highly recognized by local governments and villagers.

5. Devoting to Charitable Endeavours and Caring about the Future of Our Community

5.2 GIVING BACK TO THE COMMUNITY

We deeply understand that the development of an enterprise is inseparable from the strong support of the local government and the public. We keep the commitment and make contributions to environmental protection, taxation, employment, community construction, charity input and other aspects with practical actions.

Community Contributions

The Group has invested RMB645 million back and forth in the renovation of communities to promote the overall upgrading of the road system, security system, property facilities and fire prevention facilities. It has donated to high-standard medical and educational institutes to promote the medical and educational development and the improvement of infrastructure in communities and build harmonious communities. To promote the construction of a safe, friendly and harmonious environment and community, we vigorously initiated land reclamation, afforestation on slopes, trees planting and other environmental campaigns.

In 2019, the Group promoted the sustainable and healthy economic development in communities with its own advantages, assisted employment in communities and promoted the development of relevant industries in the region.

Education and Charity

We care about children in poverty-stricken areas and have donated over RMB100 million in charitable causes such as education assistance, medical treatment, helping the impoverished and the disabled, cultural assistance, disaster rescue and the construction of new villages during the year. We also donated to the construction of 22 hope primary schools in places such as Jiangxi and Sichuan.

Meanwhile, we vigorously participated in the donation for the Xinjiang Aketedu Cultural Palace organized by the Jiangxi Federation of Trade Unions and donated RMB500,000 to Aketedu Cultural Palace, which facilitated the communications between Jiangxi and Xinjiang and contributed to the cultural construction in Xinjiang.

5. Devoting to Charitable Endeavours and Caring about the Future of Our Community

Fight Against COVID-19

The outbreak of the novel coronavirus epidemic (COVID-19) in early 2020 has caused significant impact to the whole world. After the outbreak of the COVID-19, we actively adopted preventive measures. While conducting self-protection, we actively performed social responsibilities. We donated over RMB10 million, including RMB2.1 million from employees, and fully advanced the construction of a production line with a daily production capacity of 300,000 masks, making outstanding contributions to fight against the epidemic. During the epidemic, the Group registered 14 online volunteer teams and injected impetus to the prevention of the epidemic through releasing information, online volunteer services and initiating voluntary donations. Yongping Copper Mine Hospital also urgently established a youth team on fighting the epidemic and committed to the frontline battle of confronting the epidemic.

6. Appendix

6.1 APPLICABLE LAWS, REGULATIONS AND RELEVANT STANDARDS

NO.	Name of Legal Document
I. List of Applicable Laws, Regulations and Relevant Standards for Energy Conservation and Environmental Protection	
1	Environmental Protection Law of the People's Republic of China
2	Law of the People's Republic of China on Assessment of Environmental Impacts
3	Regulations of Environment Protection in Construction Projects
4	Energy Law of the People's Republic of China
5	Law of the People's Republic of China on Conserving Energy
6	Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution
7	Law of the People's Republic of China on Prevention and Control of Water Pollution
8	Law of the People's Republic of China on the Prevention and Control of Environmental Pollution from Solid Waste
9	Standards on Pollution Control over Storage of Dangerous Waste
10	Law of the People's Republic of China on Soil and Water Conservation

6. Appendix

NO.	Name of Legal Document
II. List of Applicable Laws, Regulations and Relevant Standards for Occupational Health and Safety	
1	Law of People's Republic of China on Work Safety
2	Measures for the Administration of Contingency Plans for Work Safety Incidents
3	Law of the People's Republic of China on Occupational Disease Prevention
4	Fire Protection Law of the People's Republic of China
III. List of Applicable Laws, Regulations and Relevant Standards for Human Resources	
1	Labor Law of the People's Republic of China
2	Labour Contract Law of the People's Republic of China
3	Employment Promotion Law of the People's Republic of China
4	Special Rules on the Labor Protection of Female Employees
5	Trade Union Law of the People's Republic of China
6	Law of the PRC on the Protection of Minors
7	Regulations on Prohibiting Use of Child Labor

6. Appendix

NO.	Name of Legal Document
IV. List of Other Laws, Regulations and Relevant Standards	
1	Company Law of the People's Republic of China
2	Securities Law of the People's Republic of China
3	Standards on Corporate Governance of Listed Companies
4	Fundamental Norms on Corporate Internal Control
5	Guidance on Corporate Internal Control and Assessment
6	Anti-money Laundering Law of the People's Republic of China
7	Interim Provisions on Banning Commercial Bribery
8	Product Quality Law of the People's Republic of China
9	Patent Law of the People's Republic of China
10	Trademark Law of the People's Republic of China
11	Anti-Unfair Competition Law of the People's Republic of China
12	Enterprise Intellectual Property Rights Management Regulations
13	Guide to Intellectual Property Management of Industrial Enterprises
14	Cybersecurity Law of the People's Republic of China
15	Contract Law of the People's Republic of China
16	Law of the People's Republic of China on Tendering Invitation and Bidding

6. Appendix

6.2 CONTENT INDEX OF THE ENVIRONMENTAL, SOCIAL AND GOVERNANCE REPORTING GUIDE

Main Scope, Aspect, General Disclosure and Key Performance Indicators		Index
A. Environmental		
Aspect A1: Emissions		
General Disclosure	<p>Information on:</p> <p>(a) the policies; and</p> <p>(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.</p> <p>Note: Air emissions include NO_x, SO_x, and other pollutants regulated under national laws and regulations.</p> <p>Greenhouse gases include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride. Hazardous wastes are those defined by national regulations.</p>	<p>4.2 Energy Saving and Consumption Reduction</p> <p>4.3 Compliance Emissions</p>
KPI A1.1	The types of emissions and respective emissions data.	4.3 Compliance Emissions
KPI A1.2	Greenhouse gas emissions in total (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	4.2 Energy Saving and Consumption Reduction
KPI A1.3	Total hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	4.3 Compliance Emissions
KPI A1.4	Total non-hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	4.3 Compliance Emissions
KPI A1.5	Description of measures to mitigate emissions and results achieved.	<p>4.2 Energy Saving and Consumption Reduction</p> <p>4.3 Compliance Emissions</p>
KPI A1.6	Description of how hazardous and non-hazardous wastes are handled, reduction initiatives and results achieved.	4.3 Compliance Emissions

6. Appendix

Main Scope, Aspect, General Disclosure and Key Performance Indicators		Index
Aspect A2: Use of Resources		
General Disclosure	Policies on the efficient use of resources, including energy, water and other raw materials. Note: Resources may be used in production, in storage, transportation, in buildings, electronic equipment, etc.	4.2 Energy Saving and Consumption Reduction
KPI A2.1	Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total (kWh in '000s) and intensity (e.g. per unit of production volume, per facility).	4.2 Energy Saving and Consumption Reduction
KPI A2.2	Water consumption in total and intensity (e.g. per unit of production volume, per facility).	4.2 Energy Saving and Consumption Reduction
KPI A2.3	Description of energy use efficiency initiatives and results achieved.	4.2 Energy Saving and Consumption Reduction
KPI A2.4	Description of whether there is any issue in sourcing water that is fit for purpose, water efficiency initiatives and results achieved.	4.2 Energy Saving and Consumption Reduction
KPI A2.5	Total packaging material used for finished products (in tonnes) and, if applicable, with reference to per unit produced.	Packaging materials are not currently a material issue for the Group, and they were not disclosed during the Reporting Period due to many categories involved. The Group plans to further refine statistics and disclosures in the future.

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Main Scope, Aspect, General Disclosure and Key Performance Indicators		Index
Aspect A3: The Environment and Natural Resources		
General Disclosure	Policies on minimising the issuer's significant impact on the environment and natural resources.	4.1 Environmental Management 4.4 Ecological Reclamation
KPI A3.1	Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them.	4.4 Ecological Reclamation
B. Social		
Employment and Labour Practices		
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, anti-discrimination, and other benefits and welfare.	3.1 Employees' Interests
KPI B1.1	Total workforce by gender, employment type, age group and geographical region.	3.1 Employees' Interests
KPI B1.2	Employee turnover rate by gender, age group and geographical region.	3.1 Employees' Interests

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Main Scope, Aspect, General Disclosure and Key Performance Indicators		Index
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.	3.3 Health and Safety
KPIB2.1	Number and rate of work-related fatalities.	3.3 Health and Safety
KPIB2.2	Lost days due to work injury.	3.3 Health and Safety
KPIB2.3	Description of occupational health and safety measures adopted, how they are implemented and monitored.	3.3 Health and Safety
Aspect B3: Development and Training		
General Disclosure	Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities. Note: Training refers to vocational training. It may include internal and external courses paid by the employer.	3.2 Training and Development
KPI B3.1	The percentage of employees trained by gender and employee category (e.g. senior management, middle management).	3.2 Training and Development
KPI B3.2	The average training hours completed per employee by gender and employee category.	3.2 Training and Development

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Main Scope, Aspect, General Disclosure and Key Performance Indicators		Index
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.	3.1 Employees' Interests
KPI B4.1	Description of measures to review employment practices to avoid child and forced labour.	3.1 Employees' Interests
KPI B4.2	Description of steps taken to eliminate such practices when discovered.	3.1 Employees' Interests
Operating Practices		
Aspect B5: Supply Chain Management		
General Disclosure	Policies on managing environmental and social risks of the supply chain.	2.4 Responsible Procurement
KPI B5.1	Number of suppliers by geographical region.	2.4 Responsible Procurement
KPI B5.2	Description of practices relating to engaging suppliers, number of suppliers where the practices are being implemented, how they are implemented and monitored.	2.4 Responsible Procurement

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Main Scope, Aspect, General Disclosure and Key Performance Indicators		Index
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.	2.1 Quality Guarantee 2.3 Customer Service
KPI B6.1	Percentage of total products sold or shipped subject to recalls for safety and health reasons.	The Group's operations do not involve product recycling
KPI B6.2	Number of products and service related complaints received and how they are dealt with.	2.3 Customer Service
KPI B6.3	Description of practices relating to observing and protecting intellectual property rights.	2.2 Technological Innovation
KPI B6.4	Description of quality assurance process and recall procedures.	Refer to 2.1 Quality Guarantee for quality verification process; the Group's operations do not involve product recycling
KPI B6.5	Description of consumer data protection and privacy policies, how they are implemented and monitored.	2.3 Customer Service

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Main Scope, Aspect, General Disclosure and Key Performance Indicators		Index
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.	1.4 Integrity and Honesty
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.	1.4 Integrity and Honesty
KPI B7.2	Description of preventive measures and whistle-blowing procedures, how they are implemented and monitored.	1.4 Integrity and Honesty
Community		
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.	5. Devoting to Charitable Endeavours and Caring about the Future of Our Community
KPI B8.1	Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport).	5. Devoting to Charitable Endeavours and Caring about the Future of Our Community
KPI B8.2	Resources contributed (e.g. money or time) to the focus area.	5. Devoting to Charitable Endeavours and Caring about the Future of Our Community