



**CMOC**  
China Molybdenum Co.,Ltd

# Environmental, Social and Governance Report

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This photo was taken in Tenke Fungurume Mining's concession in the Democratic Republic of the Congo

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## About this Report

The Environmental, Social and Governance Report (hereinafter "this report" or "ESG report") provides an account of the performance of China Molybdenum Co., Ltd. (hereinafter "CMOC", "we", or "the company") in terms of fulfilling environmental, social and governance responsibilities from January 1, 2018 to December 31, 2018. For more information about the company, please refer to the 2018 Annual Report issued by the company on the Shanghai Stock Exchange and the Hong Kong Stock Exchange.

The development of the report is based on the Environmental Information Disclosure Guide issued by Shanghai Stock Exchange (SSE) in August 2008 and the Environmental, Social and Governance Reporting Guide (HK-Ex Reporting Guide), including conformance with the latter's "comply or explain" provisions, as published by Hong Kong Exchanges and Clearing Limited (HK-Ex) in December 2015. Information and data in the report come from official documents and statistics reports of China Molybdenum Co., Ltd. as well as summaries and statistics provided by its affiliates.

Data and information in this report reflect a reporting period of January 1, 2018 to December 31, 2018. Additional information that is relevant to the subject matter of this report and derived from events in 2019 prior to the publication date may also be disclosed to assure that investors have full access to material information. Any disclosures from 2019 are identified as they occur in the text. Please note that as a result of methodology changes or corrections, prior year data may be updated. We

encourage users of this report to contact our Sustainable Development Department for enquiries (603993@cmoc.com). This report can be downloaded from the official websites of the company (www.cmoc.com), Shanghai Stock Exchange (www.sse.com.cn), and HK-Ex (www.hkexnews.hk).

The boundaries for this ESG report represent a snapshot in the evolution of our company and its sustainability governance structure. Sustainability policies referenced in this report are applicable to the 3 international sites (including Tenke Fungurume Mining in the Democratic Republic of the Congo, Copebras and Niobras in Brazil, and Northparkes in Australia), as was the case presented in the 2017 ESG report. In the 2017 reporting period only our operation in the Democratic Republic of the Congo (DRC) was subject to external assurance review. In 2018 we extended external assurance review to cover all our 3 international operating sites. We also prepared a roadmap in 2018 for the development of our sustainability governance system, in which time-bound objectives were identified that are applicable to all levels of the company. These objectives include the development of sustainability policies applicable both to the China and international operations (Group), and the integration of sustainability management functions at the Group level. Progress on these roadmap objectives will be disclosed in subsequent year reports. At the time of report preparation key sustainability policies in force apply to international operations, and include Human Rights, Environment, Community, Anticorruption, Code of Business Conduct, Equal Employment, Supplier Code of Conduct and Tailings Management.



### Global Reporting Initiative (GRI)

In addition to addressing disclosure requirements of the SSE and HK-Ex Reporting Guide, this report also provides disclosures on material sustainability matters in accordance with the Global Reporting Initiative (GRI) Standards (core) framework. The GRI disclosures were reported according to a harmonized data reporting process that included international as well as the China operations. Indexes to the HK-Ex ESG and the GRI content of this report are appended.

Equivalency between certain disclosures under the HK-EX Reporting Guide and the GRI Standards were derived from the document "Linking the GRI Standards and HKEX ESG Reporting Guide". The use of GRI disclosures is consistent with policy commitments applicable to the international operations to align with the Sustainable Development (SD) principles of the International Council on Mining and Metals (ICMM). A comprehensive policy framework that will apply to the entire CMOC Group is an objective identified in our current governance roadmap.

Pending implementation of the Group policy framework, China operation is committed to meeting local laws and regulations, which we believe provides alignment with the broad policy goals of the international operations in terms of environmental stewardship and community relations.

### Cautionary Statement

This report includes forward-looking statements. All statements, other than disclosures of historical facts, that address business activities, events or developments that the company expects or anticipates may or will occur in the future (including but not limited to projections, targets, estimates and business plans) are forward-looking statements. The company's actual results or developments may differ materially from those indicated by these forward-looking statements because of various factors and uncertainties. The company makes forward-looking statements in this report dated 28 March 2019 and undertakes no obligation or responsibility to update these statements, and do not constitute the company's substantive undertakings to investors. Investors are advised to pay attention to investment risks.

## About CMOC



China Molybdenum Co., Ltd., with headquarters in People's Republic of China, engages in nonferrous metal mining, mainly the beneficiation, smelting, and refining of copper, molybdenum, tungsten, cobalt, niobium and phosphate. CMOC is globally one of the top five molybdenum manufacturers, one of the largest tungsten manufacturers, the second largest cobalt manufacturer and niobium manufacturer, and a leading copper manufacturer; as well as the second largest phosphate fertilizer manufacturer in Brazil. It is listed on Shanghai Stock Exchange (SHA: 603993) and

HKEx (HKEX: 03993). Our vision is to build a respected international resources company. While consolidating and maintaining our advantage of current low-cost business, we are also committed to investing in and integrating high-quality resources all over the world, relying on international management practices with the flexibility to raise funding via multi-channel financing platforms. As of December 31, 2018, the main businesses of the company are located in the Democratic Republic of the Congo, China, Brazil and Australia.

### Tenke Fungurume Mining (TFM) in the Democratic Republic of the Congo.

As of the first quarter of 2019 CMOC began to execute its exclusive rights to purchase an additional 24% equity of this mine, bringing the aggregate equity ownership by the company to 80%. TFM engages in exploration, mining, processing, refining, and selling copper and cobalt in a mining concession that covers nearly 1,600 sq km. Its products are copper cathode and cobalt hydroxide. TFM operates a large, high grade copper deposit that also hosts one of the largest, high-grade cobalt deposits in the world.

### Sandaozhuang Molybdenum and Tungsten mine in China.

CMOC has the highest molybdenum-iron and molybdenum oxide production capacity in China. The Sandaozhuang Molybdenum and Tungsten Mine, wholly owned and operated by the company, has very large primary deposits of molybdenum and tungsten. CMOC is a very competitive, low cost producer of these metals.

### Copebras Indústria Ltda. ("CIL") and Niobras Mineração Ltda ("NML") in Brazil.

CMOC indirectly holds 100% equity of the phosphate business of CIL. CIL is the second largest producer of phosphate fertilizer in Brazil. CMOC indirectly holds 100% equity of the niobium business of NML. NML is the world's second largest niobium manufacturer and engages in exploiting and processing niobium minerals. Its main product is ferroniobium.

### Northparkes Copper and Gold Mine ("NPM") in Australia.

The company also holds 80% equity of NPM, which utilizes advanced, fully automated extraction processes associated with the active block cave to produce copper concentrate and gold as by-product.

## About CMOC

Production data from each of the operating sites as summarized below is provided in the CMOC annual report, which also contains consolidated financial statements of the company.

Product	Production Volume
Copper metal of TFM (tonnes)	168,309
Copper metal of NPM (based on 80% equity interest) (tonnes)	31,931
Molybdenum metal (tonnes)	15,380
Tungsten metal (tonnes)	11,697
Cobalt metal (tonnes)	18,747
Niobium metal (tonnes)	8,957
Phosphate fertilizers (HA+LA) (tonnes)	1,116,342
Gold of NPM(based on 80% equity interest) (ounces)	25,324

A summary of key economic contributions is presented in the following table.

Summary Of Key Economic Contributions By Operating Region						
FOR THE YEAR ENDED DECEMBER 31, 2018 (RMB MILLIONS)	CHINA	AFRICA	BRAZIL	AUSTRALIA	OTHER COUNTRIES	TOTAL
Payment to suppliers	2,017.7	6,723.0	4,144.9	608.0	128.4	13,850.0
Employee wages and benefits	515.3	739.8	384.1	147.6	271.1	2,057.9
Payment to providers of capital:	2,553.8	7.0	-	85.0	-	2,645.8
Dividends	1,650.7	-	-	-	-	1,650.7
Interest	903.1	7.0	-	85.0	-	995.1
(Refunds from) payments to governments	1,236.9	3,832.9	701.2	53.0	-	5,824.0
Community investments	45.2	259.1	3.7	0.4	-	308.4
Direct economic contributions	6,536.9	11,561.8	5,233.9	954.0	399.5	24,686.1

CMOC applies the PRC Generally Accepted Accounting Principles when consolidating information into its annual report. At the close of the reporting period there were 10,900 employees at our operations and corporate management sites, as well as 7,686 contractors at those same sites. Of this total of 18,586 personnel, 15,615 are male and 2,971 are female (approximately 16% female).

### External Initiatives

CMOC is a member of the Chairing Bureau of the China Mining Association and a member of the China Nonferrous Metals Industry Association. CMOC is also member of the Cobalt Institute, a non-profit trade association that is active in promoting the sustainable sourcing and use of cobalt products.

## About CMOC

### Message from the Chairman of the Board of Directors

In 2018, China Molybdenum Co., Ltd. (CMOC) established the management principle of “meritocracy, cost control, continuous improvement, and achievement sharing” under the vision of “becoming a respected international resources company”. Based on this principle, we have comprehensively developed and implemented our blueprint of sustainable development towards more ambitious goals in the future.

As a mining company, our core competitiveness is not only derived from the cost advantage brought by high-quality resources, but also based on the scientific concept of sustainable development that we have adhered to for years. 2018 is key to our sustainability governance as we have laid the foundation and set the goals. At the board level, we have established the Strategic and Sustainability Committee to organise and integrate the company’s overall sustainability strategies and systems and strengthen management and supervision of relevant risks. We have also set up an environment and sustainable development team, which is made up of experienced mining professionals from both China and overseas countries. We have formulated a roadmap for development in the following years and clarified goals and timelines at all levels. Based on what we now have, we will push forward with optimisation and strive to build and implement a complete and integrated framework for sustainable development management.



Over the past year, the company has been striving to make continuous improvements in the field of sustainable development while coordinating production operations. We have achieved progress in community investment and greenhouse gas emissions compared with 2017. In terms of risk management, we have expanded the scope of external assurance for the Environmental, Social and Governance Report from Tenke Fungurume Mining (TFM) to all three international operations, and set clear targets for the assurance coverage of entire CMOC group. In addition, we are fully aware of the significant impact of tailings management on public safety. We started preparing the CMOC’s Corporate Governance Standard for Tailings and Mineral Residue Management in 2018 and officially launched it in early 2019. By doing so, we have clarified that responsibility management is our tailings management strategy in all our mining operations across the world.

We also advocate the action of sharing our development results with our shareholders, employees, communities, governments, and all other stakeholders. In 2018, our direct economic contribution across the world totalled RMB 24.7 billion. In particular, we continue to implement the active community investment (aid) policy in places across the world where we have business operations, covering livelihoods, health care, education, agriculture, infrastructure and resettlement, with a total investment of RMB 300 million, an increase of RMB 140 million compared with 2017.

In 2019, we will continue to unswervingly assume our corporate social responsibility and make continuous improvements in sustainability fields such as safety, environmental protection and employee development, and share development results with investors, employees, communities, governments and all other stakeholders.

Finally, I would like to extend my sincere appreciation to all the employees of the company for their hard work, and our shareholders, local governments and communities for their great support. I also want to express my thanks to our clients and partners for their trust. I would like to invite all stakeholders to join us and witness the future development of the company.



Chairman of CMOC

Beijing, China

27 March 2019

## Management Approach

In addition to the ICMM sustainable development principles, the policy framework for the international operations also include reference to the United Nations Guiding Principles on Business and Human Rights (UNGPs) and the Voluntary Principles on Security and Human Rights (VPSHR). Our Tenke Fungurume Mining (TFM) operation in the DRC is governed by a Mining Convention based on a legal framework that predates current environmental legislation. This site has voluntarily adopted provisions of existing mining legislation, and also applies the guidelines and performance standards of the International Finance Corporation (IFC) in the management of relevant sustainability matters at that site. The TFM operation participates at the country level in the Extractive Industries Transparency Initiative (EITI). The status of adoption of these guidelines by CMOC operations is displayed below, reflecting the risk climates of our respective operations as well as the status of our evolving governance framework at the close of the reporting period. Extension of an appropriate set of these frameworks to additional operating units is an objective of our governance roadmap for subsequent years.

Site	Sustainability Governance Frameworks					
	ICMM	UNGP	VPSHR	SD Policies	IFC	EITI
Australia	✓	✓	✓	✓		
Brazil	✓	✓	✓	✓		
DRC	✓	✓	✓	✓	✓	✓
China	✓					

## External Assurance

In 2018 we extended external assurance review on implementation of the 10 sustainable development principles of the ICMM to all of our 3 international operating sites, as well as to progress on alignment with these principles by the Group management entity. CMOC has retained the services of Corporate Integrity, Ltd. for this purpose. Their findings can be found annexed to this report.

## Governance

The CMOC Board of Directors (Board) is responsible for risk oversight, a responsibility that is shared among subcommittees renamed and updated in 2018 to include a Strategic and Sustainability committee. The Detailed Working Rules of this committee, also developed in 2018, include review of non-financial material risks and reporting on these matters to the full board, and discussing with management the adequacy of measures in the identification and management of material risks. Altogether there are four standing committees on the CMOC Board, including Strategic and Sustainability, Audit and Risk, Nomination and Governance, and Remuneration Committee.

The Executive Chairman and the CMOC Group Senior Executives are located in the company headquarters in China. Material sustainability matters are addressed at the senior executive level through the Board Secretary function.

A corporate Environment and Sustainable Development (ESD) team was established in 2017, which as of 2018, now includes participants in both the China and Phoenix (USA) offices. The ESD team works to assure that a sustainability framework is created, implemented and ultimately applied to all operating sites. Their efforts in 2018 focused on organizational development and institutional strengthening to support the company's sustainability governance framework; as well as on key policy development, the identification and management of sustainability risks, and the external reporting and assurance function. The ongoing development and rollout of this sustainability framework continues to be a priority activity for CMOC.

## About CMOC

### CMOC Values

Our Code of Business Conduct (CBC) and the Anti-Corruption Policy applicable to the international operations address inter alia CMOC positions on business ethics, including anti-corruption and conflicts of interest, as well as the promotion of safe and healthy workplaces. CMOC executives, managers and other employees in potentially sensitive positions are required to take annual training on the CBC and the Anti-Corruption policies. The CBC document also communicates the responsibility of individual employees to report violations of the CBC, other company policies or the law; and provides guidance for acting on that obligation, including use of the company's ethics hotline.

### Management of Sustainability Risks

All our international sites maintain risk registers that address material business risks for their operations, including sustainability matters. These risks are incorporated into operational management processes through the development and implementation of action plans for the highest ranked risks. Risk registers undergo regular review by site management leadership, driving any corresponding updates to risk ranking and accompanying action plans and procedures. In 2018 the Group ESD function also presented risk management training to the CMOC board of directors and senior executives, a key initial step in developing sustainability governance capacity at the leadership level.

Our materiality assessments, stakeholder engagement, grievance mechanisms and risk registers are processes that inform us on the effectiveness of our management systems.



The CMOC board of directors and senior executives participating in the training on sustainability governance



### Materiality

Materiality assessment is the process through which an organization determines the most important issues that reflect its impacts on stakeholders, the economy, the environment and society; as well as material risks to CMOC’s business in terms of assuring access to capital, finance, markets and resources. In accordance with the HK-Ex Reporting Guidelines and the Global Reporting Initiative (GRI) reporting principles, CMOC has conducted a Group level assessment to identify material issues at our operations for inclusion in our ESG report. These issues help shape risk management interventions at the site level, while ensuring we address the material concerns of stakeholders.

Using the guidance referenced above on materiality, our assessment was conducted by considering stakeholder feedback on priority issues according to the current understanding of the CMOC management and ESD teams, site-based risk registers and feedback from internal and external stakeholders associated with individual operating sites. Notable stakeholder groups providing feedback on sustainability matters include employees, regulatory agencies, investors and financial institutions, communities, human rights-focused NGO associations and customers, as further identified in the table below. Material issues resulting from this information were then prioritized in a materiality matrix and vetted with senior leadership, with the following results



### Stakeholders

CMOC regards stakeholder engagement as a critical tool in the management of risk and the creation of value for businesses under our management. Strategies for engagement with our neighbors at the operating sites are described in the Community section of this report. Information on relations with stakeholders in the wider sense is presented below.

Stakeholder Group	Areas of Interest	Engagement Methods
Employees	<ul style="list-style-type: none"> <li>Competitive compensation and benefits</li> <li>Workplace health and safety</li> <li>Training and capacity building</li> </ul>	<ul style="list-style-type: none"> <li>Meetings with union representation</li> <li>Collective bargaining agreements</li> <li>Safety and compliance meetings</li> <li>Training and career development</li> <li>Internal communications channels</li> <li>Grievance procedures</li> </ul>
Government and regulatory agencies	<ul style="list-style-type: none"> <li>Compliance with applicable laws and regulations</li> <li>Workplace health and safety</li> <li>Benefits to stakeholder communities</li> </ul>	<ul style="list-style-type: none"> <li>Compliance reports</li> <li>Site visits and inspections</li> <li>Permit applications</li> <li>Meetings on compliance matters</li> </ul>
Investors and Financial Institutions	<ul style="list-style-type: none"> <li>Protect the rights and interests of shareholders</li> <li>Timely disclosures of relevant and accurate information</li> <li>Improve corporate governance</li> <li>Conduct business in compliance with laws and regulations</li> </ul>	<ul style="list-style-type: none"> <li>Shareholders' meetings</li> <li>Press releases and announcements</li> <li>External reporting</li> <li>Company website</li> <li>Investor meetings</li> </ul>
Communities	<ul style="list-style-type: none"> <li>Local development</li> <li>Environmental stewardship</li> <li>Employment</li> <li>Opportunities to furnish goods and services</li> </ul>	<ul style="list-style-type: none"> <li>Scheduled community meetings</li> <li>Focus group meetings</li> <li>Notices of procurement opportunities</li> <li>Employment notices</li> <li>Grievance procedures</li> </ul>
NGOs	<ul style="list-style-type: none"> <li>Local development investments</li> <li>Participation in local community programs</li> <li>Environmental stewardship</li> <li>Human rights performance</li> <li>Equity in sharing benefits</li> </ul>	<ul style="list-style-type: none"> <li>Annual sustainability reporting</li> <li>Direct meetings</li> <li>Contacts through industry groups</li> </ul>
Customers	<ul style="list-style-type: none"> <li>Customer service</li> <li>Quality assurance</li> <li>Product stewardship</li> </ul>	<ul style="list-style-type: none"> <li>Key account meetings</li> <li>Systematic communications</li> <li>Customer visits to operating sites</li> <li>Participation in trade associations</li> <li>Sustainability reporting</li> </ul>

## About CMOC

### Grievance Procedures

An important aspect in maintaining effective stakeholder relations is our system for logging and responding to community concerns, such as environmental, social investment, human rights, land acquisition and recruitment of employees. All sites maintain grievance systems that can receive and register individual community concerns, which are then tracked through the stages of being addressed and resolved. In Australia, for example, the Northparkes mine publishes a hotline on its website and encourages local residents to provide feedback through the hotline or through an SMS messaging line managed by its community outreach officer. The TFM operation manages a community grievance system operated by members of the Community Liaison group. All community members, including TFM employees may present grievances as related to the impacts of our operations in the DRC. At our operations in Brazil employee and community grievances are received and

addressed through a system that includes a toll-free number, an email address and a dedicated internet site. Community grievances at our Sandaozhuang mining and processing site in China are managed through a "letters and visits" program through which local people or organizations can provide information, make comments or suggestions or lodge complaints to the company through correspondence, emails, faxes, phone calls and visits.

In 2018 our sites received a combined 642 reported grievances and closed a combined total of 262. Of these totals approximately 95% were associated with the grievance management process at the TFM operation. Of the TFM reported grievances approximately 97% were in the environment and resettlement category, which are further linked to the site's land acquisition and compensation process. Land acquisition, including incidental damages associated with the mine operations, may result in both legitimate as well as many opportunistic grievances.

Reported Grievances										
Sites	Resettlement	Environment	Employment	Damages	Social/Community	Health/Safety	Human Rights	Security	Land	Other
China	0	0	0	0	0	0	0	0	0	6
NPM	0	0	0	0	0	0	0	0	0	0
Brazil	0	22	0	0	0	0	0	0	1	0
TFM	440	152	1	17	2	0	0	0	1	0
<b>Total</b>	<b>440</b>	<b>174</b>	<b>1</b>	<b>17</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>6</b>

### Audits

All our sites undergo recurrent third-party audits to verify their alignment with applicable certification and compliance schemes in environmental, health and safety management. As part of our broader social and environmental mitigation plan for TFM, resettlement action plans are an activity with inherent risk, and so are also subject to annual third-party audit regarding alignment with the applicable IFC performance standards.



Environmental aspects figure prominently among issues of material importance to CMOC, including tailings management, closure planning and reclamation, water management, biological diversity, energy, greenhouse gas (GHG) emissions and air quality. As a global mining company, CMOC must manage these issues while meeting the challenges of the different climatic, physical, biological and human environments where we operate. CMOC is committed to complying with environmental laws and regulations applicable to our operations. In addition, we manage the extent of our environmental impacts through risk-based approaches to material issues, regulatory compliance and meeting standards. Every year, we invest in initiatives to improve production efficiencies and manage environmental risks. As a leading international mining company, we undertake our activities with a focus on our environmental obligations.

All of our operations maintain mature Environmental Management Systems (EMS) that are certified to the ISO 14001 standard. These management systems are independently audited at each operating site for recertification and include required training of all employees and contractors on environmental objectives and procedures.

## Tailings

From the mine operations, mineralized rock (i.e. ore) is processed and reduced in size to recover the economic mineral. The remnant material from the process, known as tailings, is composed primarily of reduced rock with process reagents and water. Tailings storage facilities (TSFs) are designed to safely contain tailings. TSFs are a necessary component of a successful mining operation. Construction and expansion of a TSF is typically an ongoing process over the life of the mine.

CMOC is aware of the history of failures of tailings storage facilities, and of the catastrophic consequences for the public and the mining businesses involved. We understand the importance of responsible tailings management, and that standards will continue to evolve towards reducing the risks associated with these facilities. Our engineering, safety and environmental programs work to ensure that the risks associated with tailings management are minimized for our communities and our operations.



2018 Tailings & Dams Stewardship Teams (TDSTs) for our International Operations (from top left: Northparkes; TFM; Copebralic and Niobras).



CMOC China operations have invested in the reclamation of waste rock facilities at the Sanshaozhuang Mine. Up to now the area of restored vegetation has reached 143 hectares.

In 2018, CMOC prepared a set of governance documents that incorporate the initiatives identified above, distributed to site staff as 'CMOC's Corporate Governance Standard for Tailings and Mineral Residue Management', supported by the 'Tailings & Dams Quantitative Performance Objective (QPO) Reporting Procedure' and the 'Tailings & Dams Stewardship Team (TDST) Program'. This Governance Standard was approved by the senior management and came into force after being signed by the CMOC Chairman in February 2019.

CMOC's corporate standards for tailings management address the six key elements of governance outlined by the ICMM, including (i) accountability, responsibility and competency; (ii) planning and resourcing; (iii) risk management; (iv) change management; (v) emergency preparedness and response; and (vi) review and assurance. CMOC implements management strategies that include having professionals on staff who are qualified in tailings management at both the operations and corporate levels; retaining qualified consultants as the Engineer of Record (EoR) for our facilities; designing in accordance with international guidelines; implementing surveillance and monitoring programs; and performing systematic third-party reviews.

CMOC implements systematic monthly Quantitative Performance Objective (QPO) reporting protocols for our TSFs, whereby QPOs are metrics that define the means to measure performance against various project objectives, primarily associated with safety and risk management. Further, CMOC has a formal Tailings & Dams Stewardship Team (TDST) program at each of our International sites. The TDST is comprised of operations and corporate personnel, one or more third-party reviewers, and the EoR, and involves annual review and inspection of our TSFs. Stewardship is a management strategy employed throughout the life cycle of a TSF to identify and mitigate risks, while striving for continuous improvement and the implementation of recognized good practices to properly design, construct, operate, maintain, monitor, and ultimately close the facility.

## Reclamation

In 2018 CMOC continued its practice of applying sustainability principles to the design, development, operation and closure of our mining operations. Identifying strategies and planning for the closure of a mining or processing facility is of highly material importance for CMOC and the communities in which we operate, to assure public safety, protection of environmental quality and optimal land uses in the post-operations phase. Where practicable, we pursue progressive reclamation during the operational phase to reduce environmental impacts. Actions to progressively revegetate disturbed surfaces at our operations help to reduce erosion and dust emissions.

## Environment

### Biological Diversity

As stated in the Environmental Policy governing our international operations, CMOC is committed to developing internationally recognized practice strategies for managing areas of potential environmental sensitivity and high biodiversity value determined to be impacted by our operations. The environmental impact assessment process is key to assuring that the effects of our activities on biological diversity are appropriately recognized and mitigated. These programs are founded on baseline assessments of biological resources in the areas of planned operations, which are described in terms of species composition and species of concern, as well as supporting habitats at the local, regional, and if appropriate, global scales. Baseline descriptions allow accurate identification of impacts anticipated from greenfield or brownfield project development. Accurate impact definition in turn drives application of the mitigation hierarchy in such typical stages as 'avoid, reduce, mitigate and offset' and the subsequent development of biodiversity management plans if needed.

The actions described above, associated with project environmental impact, are a common requirement under the regulatory systems that govern our operations in various countries. At our TFM mine in the DRC, the company also aligns with internationally recognized practice frameworks, including the guidelines and standards of the International Finance Corporation (IFC), notably IFC Performance Standard 6 on Biodiversity Conservation and Living Natural Resources. CMOC's international operations are also governed by individual site environmental policies and procedures that recognize biodiversity risk.

At TFM the leading biodiversity conservation issue continues to be associated with a floral community adapted to habitat soil conditions with naturally occurring high concentrations of metals. These 'metalphyte' plants are of high interest to the scientific community due to their ability to tolerate concentrations of metals, chiefly copper and cobalt, that would be toxic to most

plants. Furthermore, these plants occupy a highly restricted and heavily exploited habitat type; surface expressions of underlying high-grade ore deposits, leading to limited distribution (i.e. endemism) as well as direct threat from historic and active mining in the region. The conservation efforts of TFM with regard to metallophyte studies and preservation have been pioneering and have greatly advanced the scientific knowledge about this unique flora. In 2018 TFM continued its biodiversity programs, including the metallophyte plant conservation program. In addition, TFM led collaboration in 2018 on sharing data and conservation strategies with public and private sector entities across the regional extent of the DRC and Zambian copperbelt metallophyte habitat.



In 2018, Tenke Fungurume Mining in coordination with faculty from Gembloux Agro-Bio Tech University in Belgium and the University of Lubumbashi organized a two-day regional workshop to share TFM's copper-cobalt flora conservation experiences and to initiate the establishment of a network for collaboration with stakeholders on this unique floral conservation challenge. The workshop was well attended by 57 participants including government officials, regional mining companies, provincial ministers and regional university professors.

In 2018, Northparkes executed its Kokoda Offset Voluntary Conservation Agreement (VCA) with the Biodiversity Conservation Trust of New South Wales, Australia. The VCA satisfies a commitment made by Northparkes to secure biodiversity offset relating to the construction of the Rosedale Tailings Storage Facility (TSF). The Rosedale TSF will result in the removal of 37 hectares of native woodland, 15 hectares of derived native grassland, 112 hectares of cultivated and 11 hectares of disturbed land. Revegetation works will commence in 2019 to satisfy the obligations to provide the Kokoda Biodiversity Offset in accordance with the stringent conditions of approval for the Northparkes Project.

At our Brazil operations biodiversity conservation actions are embedded within an active reforestation program linked to the use of biomass at its Catalao site in Goias state. In addition to plantations of commercial species the Catalao program also incorporates reforestation of species native to the local savannah formations, contributing to the recovery of this important biome.



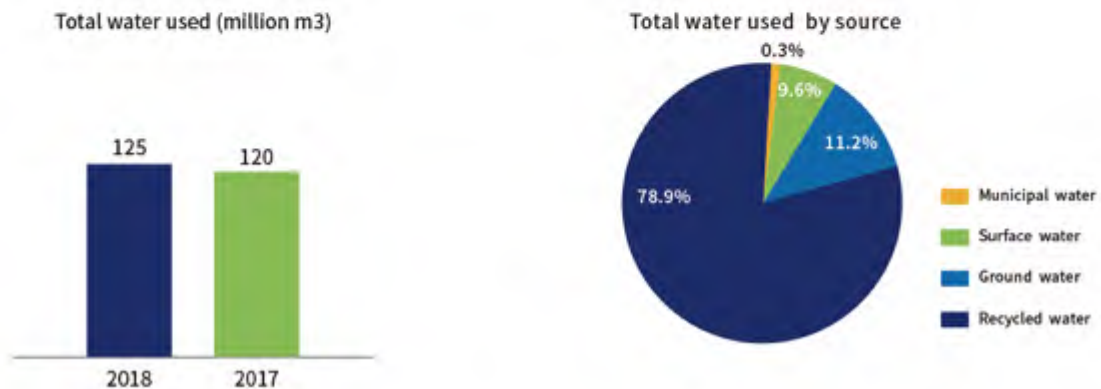
During the year 2018, the reforestation sector at our operations in Brazil carried out activities to recover degraded areas with the planting of native seedlings. About 30,000 seedlings were planted in an area of approximately 10 ha. This activity contributes to the revegetation of areas of permanent preservation and its surroundings, as well as to the conservation of plant and animal species.

## Resource Management

CMOC is committed to responsible stewardship of the resources we use and the minimization of waste generation. We recognize the value of responsible stewardship of these elements to our business and the communities in which we operate.

### Water

We recognize water as an essential resource for mining and processing of ores, and sustainable water sourcing is a basic strategic need common for our businesses and surrounding communities. We use water for processing ores, dust control and potable use. The efficient management of water resources is key to our operations. A significant amount of our sourced water is in the form of recycled water from our own operations. In addition, our water is supplied from surface water, groundwater and municipal sources. In 2018, we consumed 125 million cubic meters water, among which almost 80% of the water used by our operations was recycled water.



Sourcing of water for each operation will vary dependent on regional availability and climatic conditions. The highest volume source collectively for our operations is recycled water with an additional even balance of surface and ground water sourcing. All CMOC operations utilize recycled water. At all of our mining operations, process water is used to transport the tailing from processing areas to the tailing storage facility. The sandy solids of the tailing material settle, and the clarified water is recovered. The recycled water can then be reused in the production process.



In 2018, China operations have invested in and transformed their wastewater system in the molybdenum-tungsten recovery facility. We built a condensation recuperation system in order to send the condensed water for storage pending reuse in production. Capable of recovering 80% of the condensed water, the system allows us to reduce the use of fresh water by 40 000 m<sup>3</sup> per year.

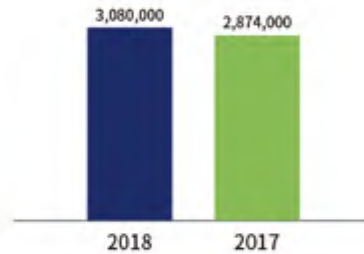
The company is committed to the protection of local surface and groundwater systems. Each of our operations employ a variety of techniques and strategies for water management with the primary objective of complying with applicable laws and regulations and the minimization of impacts. These strategies may include the use of water monitoring programs, lined surface impoundments, stormwater controls and other physical or procedural systems for the protection of surface and/or ground water resources. Our Tenke Fungurume Mining operation in the Democratic Republic of the Congo has permitted and is constructing a new tailing storage facility to be built using HDPE liner installed over compacted subgrade. These designs protect local groundwater resources. The design of this new facility is consistent with the design of the existing tailing storage facility, representing good international practice for the mining industry.

# Environment

## Energy

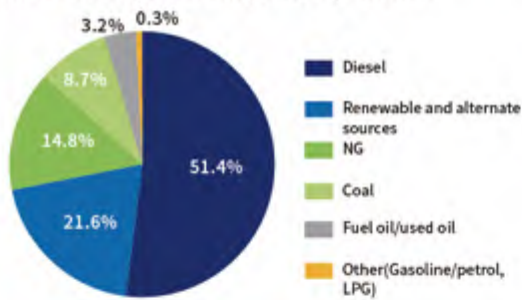
Today's large-scale mining and processing operations require significant amounts of energy. Our operations consume energy both directly by the combustion of diesel, natural gas and biofuels, as well as indirectly from purchased power sources such as hydropower, coal, natural gas and renewable sources. In addition, our operations examine any practicable opportunities to improve energy efficiency and to make further use of renewable and low carbon energy sources. Our total energy consumption increased by 6.2% from 2,874,000 MWh in 2017 to 3,080,000 MWh in 2018 due to the expansion of our business. Of our direct energy consumption, 51.4% was from diesel. Of our indirect energy consumption, 49.9% was from renewable energy sources like hydro, wind and biomass.

Total energy consumption (MWh)

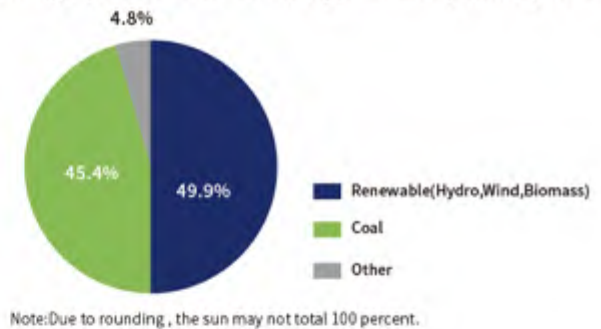


Our Scope I direct greenhouse gas emissions are mainly generated from the combustion of diesel and natural gas. Diesel fuel is primarily used to power the haulage fleets at each of our operations, and natural gas is primarily used in the drying of our product in Brazil. Our total GHG emissions measured as carbon dioxide equivalent emissions in 2018 were approximately 980,000 t CO<sub>2</sub>-e. Not reflected in this direct energy value, is that over 21% of our direct energy consumption is generated on site from cogeneration and renewable energy sources reducing dependence on fossil fuels.

Direct energy consumption by source



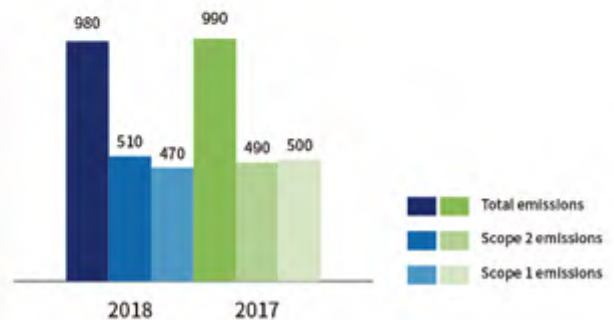
Indirect energy (purchased electricity) consumption by source



Our Scope II indirect greenhouse gas emissions associated with the use of purchased electricity in 2018 were approximately 510,000 t CO<sub>2</sub>-e. Nearly half of the purchased electricity for our worldwide operations comes from renewable sources in the DRC and Brazil.



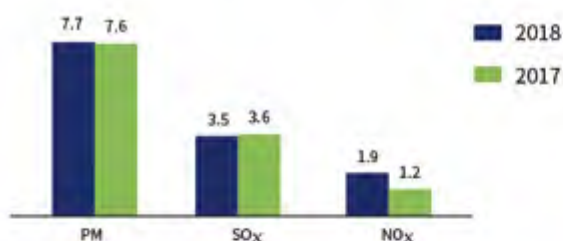
Total greenhouse gas emissions (thousand tonnes)



## Emissions Management

CMOC operations are committed to the process of continuous improvement through our environmental management systems and pursue new opportunities to reduce pollution and minimize environmental impacts associated with air and waste emissions. We implement appropriate control measures for managing air and waste emissions to ensure compliance with applicable environmental standards. Our systems are designed to comply with the relevant laws and regulations that apply to our facilities in the countries where we operate. Environmental fines or notices received in 2018 by our operations are generally associated with permit or administrative variances. At our Brazilian operation two notices were received related to community complaints regarding odor and insects originating from our tailings facilities. We have worked with local municipal environmental authorities and the community to address and mitigate both situations. At our operations in China there were two notices of violation related to dust emissions from our facilities. Total fines received for all CMOC operations in 2018 were less than RMB 350,000.

Total air emissions (thousand tonnes)



## Waste Management

Tailing and waste rock produced from our processing and mining activities are the largest volume wastes associated with our operations. In 2018, approximately 33 million tonnes of tailing and 69 million tonnes of waste rock were produced by our global operations; these figures represent a minor decrease from 2017 reporting for each category, due to variability in mine plans year-on-year. These materials are managed according to applicable laws and standards. Storage facilities are engineered and designed to minimize risks associated with slope stability, geochemistry, safety and environmental impacts.

Other wastes generated by our operations include non-hazardous and hazardous waste streams. We manage wastes generated by our activities to minimize the volumes of waste to be disposed. Waste may be managed onsite in approved facilities or shipped to offsite recycling, treatment, storage or disposal facilities. Recycled wastes may be managed onsite or offsite dependent on the specific character and reuse of the waste.

Waste	2018 Volume (thousand tonnes)	Percent Recycled	Type of Waste
Non-Hazardous Waste	11.4	31%	Scrap metal, light industrial wastes, wood and general refuse
Hazardous Waste	4.0	26%	Used oil and grease, mixed industrial waste, effluents, reagents, chemical containers or coolants

## Air Quality

The primary sources for air emissions including nitrogen oxides, sulfur oxides and particulates are associated with vehicle use and industrial production.

Particulates associated with dust emissions are a primary concern for any mining operation. Potential sources for dust emissions include mine hauling activity, ore transfer, blasting, crushing, fugitive dust and other industrial process sources. On our roadways, we use management controls such as treatment of road surfaces, regular road maintenance and speed limits to minimize the generation of dust. The use of progressive reclamation at our China and Australian operations has been effective to reduce potential for wind-blown dust from tailing storage facilities. In more industrial plant settings, we utilize engineered dust collection systems to control potential particulate emissions. CMOC has invested in anti-dust machines, bag houses, dust collection and water spray systems at our operations to reduce the particulate matter produced during processing.

With a similar approach, we continue to invest in the management of emission control systems to minimize other air emissions from our facilities. At our Chinese operation, we continue to replace coal-fired boilers with capacity below 20 tons with natural gas boilers, that have resulted in a 38% reduction of sulfur dioxide emissions as compared to the 2017 reporting period.

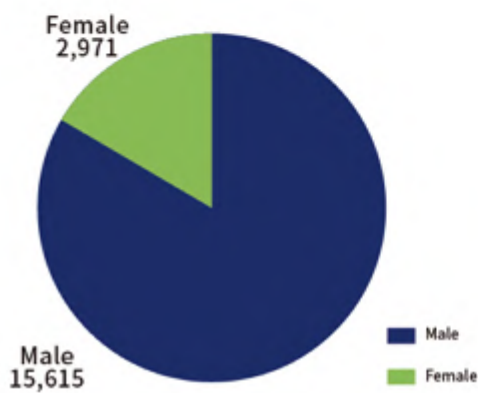


The enclosure of the crushing system of Boa Vista Mine was carried out in order to minimize the noise of the operation and minimize the emission of particulates to the atmosphere.

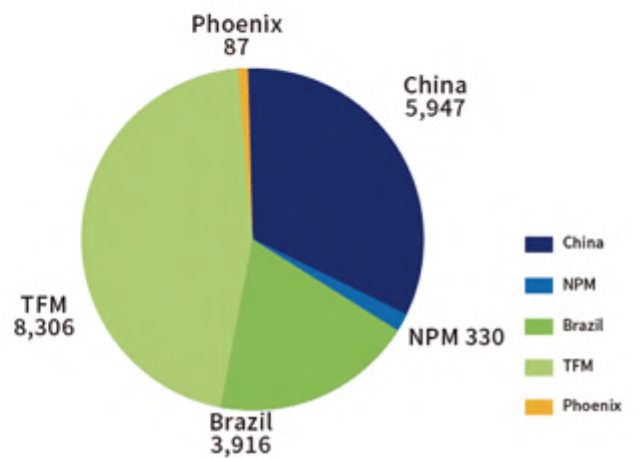
# Employees

At the close of the 2018 reporting period, CMOC had 10,900 employees at our operating sites and management offices, as well as 7,686 contractors at those same locations. In aggregate this workforce contains approximately 84% male and 16% female staff.

Number of permanent employees and contractors by gender



Number of permanent employees and contractors by regions



As with all other aspects of our business, in our labor relations CMOC aims to comply with requirements of local labor laws and regulations and establishes fair employment mechanisms. Though not all sites operate under collective bargaining agreements, all 10,900 employees in our worldwide operations have the right to freedom of association and collective bargaining. In 2018 there were 5,157 employees of our global workforce covered by collective bargaining agreements (48%). Collective bargaining agreements are developed in consultation with union leadership and include provisions which require further consultation regarding modifications to operating schedules that impact employees. At our remaining sites we provide employees with market-based wages and benefits and we value communication with, participation of and feedback from our employees.





## Safety

Reflecting our commitment to safe operations, CMOC's health and safety management systems integrate risk-based processes and regulatory compliance measures designed to prevent personal safety and occupational hazard events.

At the Sandaozhuang operation in China we uphold the concept of zero harm operations, a systematically complete safety management regime, and carry out regular training to raise safety awareness at work for all employees. At the China site we have also developed Ten Safety Principles, which cover safety standards for high-risk tasks such as work at heights, hoisting and fire-related operations; and includes preventative measures such as risk identification, standard operation processes, and proper use of instruments and equipment. The safety management system in China is certified annually under the certification requirements for OHSAS 18001.

Health and safety practices at our Tenke Fungurume mine site are certified annually under the OHSAS 18001 management system; the site has procedures and programs to ensure compliance with the international safety standard. Compliance is monitored by internal audits, work place inspections, manager inspections and other types of reviews, as well as an annual mandated external audit conducted by an independent third party.

At our Brazil operations HSE systems are also certified annually under the OHSAS 18001 safety standard. Employees are also encouraged to self-monitor using a program called "See & Act," which is designed to identify and report any deviation related to substandard behavior or conditions. All health and safety processes and performance rates are benchmarked against Brazilian Chemical Industrial Association standards and use external and internal audits to verify the effectiveness of controls related to health and safety certifications.



Professional, qualified safety personnel carry out day-to-day safety programs at our Northparkes Mine, assessing potential safety hazards in the production and work areas of the mine.

In the second fatal incident in Brazil, during the loading of a mixer with chemicals there was an accidental release of fine powder which ignited, resulting in fatal burns to this employee.

Our Australia copper and gold mine has an integrated HSE system, a core aspect of the Zero Harm operations that have been underway since 2012; focusing on the safety of employees, equipment, environment and community. Through regular employee training safety awareness is enhanced; and every piece of equipment, every process point, and each specific job undergoes safety assessment. Furthermore, Northparkes brings in external professional safety institutions for safety coaching. The Northparkes HSE Management System is subject to recurring regulatory oversight.

Safety performance at CMOC is measured according to established benchmarks such as our Total Recordable Incident Rate (TRIR). In 2018 CMOC's TRIR per 1,000,000 hours worked was 1.39, based on 43,321,382 hours worked and 60 recordable incidents.



In 2018, we have successfully developed electric driverless mine truck operations, which have passed the inspection of the National Mining Machinery Quality Supervision and Inspection Center. Radar, camera, and sensors provide multiple omnidirectional sensing, vision-based target detection and recognition and moving target trajectory. Under this system the truck can plan a route and give feedback in real time so that automatic driving can be realized, driving safety can be improved and the occurrence of casualties can be reduced.

In 2018, we unfortunately experienced three fatalities in CMOC's worldwide operations, including a contractor at the TFM operation in the DRC and a contractor and an employee at the Niobras operations in Brazil. We view any loss of life at our operations, whether employee or contractor, as unacceptable. All incidents were subject to full investigation, including root cause analysis, leading to appropriate remedial actions.

At the TFM site the fatality occurred at night when a contract operator lost control of his articulated dump truck, which subsequently struck the highwall and rolled over. The employee sustained injuries which resulted in the fatality.

At the Brazil site, during a repair (pipe decoupling) at the groundwater supply system for the tailings plant an employee was struck due to a release of stored energy from the pipe, resulting in injuries and related complications leading to the fatality.

# Employees

## Health

The complex and unique working environment of the mining industry can potentially put employees at risk for occupational illness. Therefore, we strive to help employees stay healthy both physically and mentally by creating a safe working environment, carrying out health promotion and disease prevention programs, organizing various after-work activities, and enriching employees' lives in other aspects. At all sites we also pay for employees' basic medical insurance.

## Occupational Health

Health management specialists at our operations identify, manage and control potential causes of occupational illness, emerging health problems and critical risks that threaten occupational health. At the China site we have developed the Regulations on Occupational Health Management of China Molybdenum Co., Ltd. based on our business, working environments and employees' health conditions, and established the Leading Group for Occupational Health Management. By finding out where employees are exposed to health risks, we have developed control measures based on the causes of occupational diseases. We manage occupational health risks mainly by periodic physical examination and job rotation, as well as by enhancing education on occupational diseases. In 2018, more than 100 employees received training on occupational health at the China operation.



A Chinese employee was taking a periodic physical examination.

Dust, a leading threat to employee health, can be produced by blasting, ore loading and transport, crushing and other handling in the production process. Unprotected, chronic exposure to dust may lead to the development of health issues. To reduce employees' exposure to harmful dust, some of our mitigation efforts include wetting or sealing of roads, containment of dust-producing equipment, technical controls like increasing automation in ore transportation, crushing and packaging to reduce employees' exposure to dust, and procedural controls such as requiring employees to wear protective equipment such as dust respirators in appropriate circumstances.

Chronic exposure to noise from conveyance, crushing and milling of ores is another threat to employee health. To reduce employees' exposure to harmful noise we take preventive measures such as performing vibration reduction treatments on major noise sources, building plants with noise absorption materials, setting up sound-proof rooms for employees, performing regular noise monitoring, and requiring the use of hearing protection.

## Disease prevention for employees

With a focus on improving employees' physical and mental health, besides providing medical help for sick employees, we also invest in measures towards employee illness prevention, aiming to identify and address health problems at the early stage of disease development and to eliminate causes of disease.

Our workplaces may be far from cities and lack adequate medical resources. To provide convenient medical services for our China employees, we have set up medical diagnosis rooms in cooperation with Luoyang Central Hospital. Medical experts in different fields provide weekly health consulting and diagnosis services. Employees also receive physical examinations every year to identify health problems as soon as possible. At the TFM operations in the DRC we have established medical facilities that are supported by referral relationships with hospitals and specialists in the region.

## Work Life Balance

In terms of overall wellness at our Chinese operations, we are committed to creating a cheerful and comfortable work environment for employees. We provide various activities related to work-life balance to enhance employees' teamwork skills, such as organized sports teams, to help enhance employees' wellness both at work and in daily life. Moreover, we have yoga classes and regular sports meetings designed for employees to help them relieve work stress and achieve work-life balance. These efforts have enriched employees' after-work life and improved communication among employees.



In 2018, some employees in China participated in an excursion to the Tianhe Valley.

## Employment

We place a strong emphasis on all aspects of employment, including fair labor relations, equal employment, and career development. We develop our employment policies such as working hours and holidays in accordance with local labor laws.

## Labor relations

Based on our core values and the human rights policy of our international operations, CMOC recognizes the rights of all our employees, and works to provide an environment that ensures fair treatment and working conditions. Employees have access to internal grievance mechanisms through which they can report and resolve any workplace complaint or concern. Our Human Rights Policy for our international operations recognizes our employees' rights to freedom of association as well as collective bargaining. In the 2018 reporting period there were no labor actions within the CMOC workforce that produced business interruptions or lost production.

## Career Development

We have an approach to career development that provides opportunities for internal training, posting at other CMOC sites and incentive-based development programs.



Chinese employees were participating in a job skill training competition.

At our TFM operations employees receive new hire safety induction, are trained and certified on jobs that involve high risks, and annual safety refresher courses are mandatory, in which over 99% of employees participated in 2018. Additional skills improvement programs include skill development in maintenance, process plant operation, mobile equipment operation and language competency; reaching another 7,268 attendees. The Training and Development sector at our Brazil sites provides training in safety, regulatory compliance, technical competency, behavioral skills and professional development; assuring that skill development is in alignment with company strategy. Training at Northparkes in 2018 continued to follow the site Training Management Plan, which offered 45 structured programs and reached 426 attendees.

## Equal employment

In keeping with the principle of fair employment, CMOC recruits and hires professionals through various channels such as open recruitment and competitive employment and provides diversified and equal career development opportunities for employees. As stated in the Equal Employment Opportunity policy for international operations and procedures at our operating sites, we do not allow any employment discrimination based on race, ethnicity, religion, gender, age and other factors. We also implement the principle of basing employment decisions, including compensation, training and promotion, only on valid job requirements.



## Training

At our China operations we have a well-developed training system to help employees improve their career development. Through the training, it is our goal to improve our employees' management level and operational skills. This is intended to lead to greater competency and efficiency in their work. In terms of training methods and teachers, we try to combine internal and external resources for better results. In China, we continue to organize training program for medium and high-level management personnel in cooperation with several universities. In 2018, approximately 200 executives completed the "Effective Managers" and "Goal Management and Self-Control" courses and conducted self-learning through the E-learning platform. These programs were designed to enrich their theoretical and management knowledge.

The China operation also offered professional skill training for technicians and employees are encouraged to obtain certifications and broaden their career path. In addition, we organized foreign languages training with an earmarked fund, in which 61 outstanding employees participated, which would help them have an international career development.

## Community

In 2018 CMOC continued its engagement with and investment in communities affected by our mining operations. Our community relations approach continues to recognize the strong business case in assuring that impacts are appropriately mitigated and that communities feel benefits from our operations in ways that are important to them. Stakeholder relations across the international portfolio are guided by a risk-based approach to evaluating community expectations and needs, which informs community development plans. At our NPM and Brazil sites stakeholder communications management and community investment plans guide our external engagement efforts. At our China and Brazil sites the national priorities of the host governments also play a role in driving community relations and associated investments. In all cases, stakeholder engagement is based on mutual trust, communications based on transparent dialogue, and the effective mitigation of impacts and enhancement of positive effects of mine operations. CMOC understands that these aspects are material to the success of our mining business.

Our engagement with and investment in our local and regional communities at our international operations are guided by site specific policies and programs that align with the company's policy commitments, including the ICMM sustainable development principles. Social engagement and community investment activities may also be governed by commitments made through the process of Environmental and Social Impact Assessment or their equivalents under national regulations.

Our operation in China closely aligns community spending with government development priorities and makes pertinent community investments to enhance performance in achieving those priorities. The China operation is located in Luanchuan, a

small mountain county in Henan province rich in minerals but with scarce agricultural resources, plus frequent public emergencies due to floods and landslides. Some local residents suffer from long-term poverty. As an important company in Luanchuan County, we have long contributed to local development. As of 2018 CMOC multi-year investment programs have contributed to the host county a total of RMB 200 million in donations to the social development, poverty alleviation, education, health and other domains. Our efforts have been widely recognized by society, and we have been awarded the "Advanced Organization for Poverty Alleviation in the Province" by the Henan Provincial Government.

In the DRC our operation is near rural villages, agriculture and two towns that in 2018 continued to experience significant population influx and urbanization. In 2018 the sustainability programs at this site continued to address acute development priorities while also building local capacity and needed infrastructure in the communities adjacent to our operations. With a focus on long-term planning to promote sustainable futures, many TFM community investment programs align with the UN Sustainable Development Goals. In recognition of TFM's responsibility to maximize local opportunities, 98% of employees at the TFM mine are DRC nationals.

Our mines in Australia and Brazil are sited in areas that are largely rural, with surrounding land uses dominated by agriculture. Arid climates continue to drive concerns from stakeholders related to water use and potential impacts from mine operations that are addressed by the community relations programs at those sites. Good neighbor relations in those countries are enabled by transparent identification of impacts, communication through stakeholder forums and the maintenance of systems to register and respond to key community concerns.



## Community Liaison

CMOC mines are located in diverse settings with respect to cultural and economic conditions. As such, active engagement with stakeholders near our mines is a common element in successful community relations and in managing related risk to our operations. Community relations are managed at appropriate levels of engagement that may include local government agencies, non-governmental organizations (NGOs), the media, traditional leadership, community groups and individuals that may have a broad array of interests in our operations.

An important aspect in maintaining effective community relations are our systems for logging and responding to community concerns, such as environmental, social investment, human rights, land acquisition or recruitment of employees. All of our sites maintain systems that can receive and register individual community concerns, which are then tracked through the stages of being addressed and resolved.

At our China operation we have a community grievance mechanism. The staff is regularly trained to ensure that the mechanism operates effectively. We encourage local stakeholders to make full use of this mechanism to communicate with the company. When local residents have concerns, our community relations staff have the responsibility to verify and address them in a timely manner and report the results to local people.

At our TFM site the company engages with stakeholders on a regular basis in order to better understand their interests, concerns and goals. The Community Development Forum continues to serve as a primary means of obtaining input on the community's priority development needs, with particular regard to the Social Community Fund (SCF). This forum is comprised of representative stakeholders from nearby communities. The SCF was created through contributions from the TFM operation and directly responds to community priorities in the areas of education, health and income generation. Since inception in 2009 through December of 2018 this fund has received contributions of US\$38.7M to support these programs, of which \$5.8M was contributed in 2018. TFM also maintains a Community Liaison department, which staffs permanent liaison offices in the community, holds routine meetings with key stakeholders, receives community input on company actions, including grievances, and serves as the primary point of contact between local residents and TFM.



TFM's Community Development Forum serves as a primary means of obtaining input from stakeholders from communities of the concession.

At our Northparkes mine in Australia, community relations staff continued engagement in 2018 with our stakeholders as identified in the site Stakeholder Communications Management Plan. Plan elements include a Community Consultative Committee and scheduled, periodic meetings with key stakeholders, including the Neighbors Committee; Wiradjuri Executive Committee, Mayors & councilors at Parkes & Forbes Council, the Parkes Chamber of Commerce as well as federal, state and local political actors. NPM also participates in the Forbes, Peak Hill & Parkes Domestic Violence Committee, the Police Citizen Youth Centre Committee, the Parkes Aboriginal Elders Advisory Committee, the Parkes Sporting Committee and the Rural Fire Service. In 2018 the NPM operation achieved zero community complaints in no small part due to an ongoing focus on effective stakeholder engagement.



Employees of our NPM in Australia continued their engagement in 2018 with local stakeholders as part of the site Stakeholder Communications Management Plan.

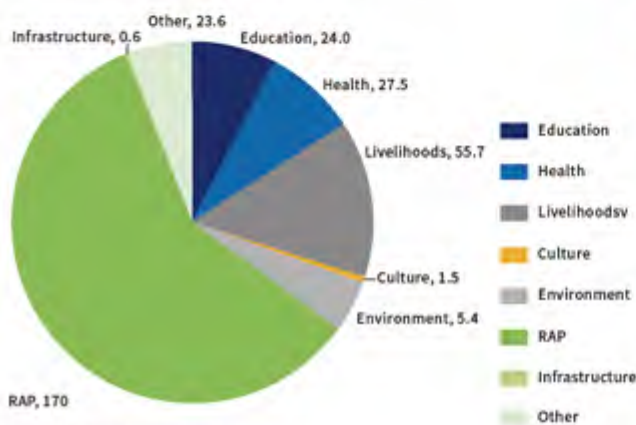
At our operations in Brazil the three primary elements of the company's social management strategy are stakeholder engagement, management of impacts and risks and community development investments. Many of the community initiatives of our Brazil site are carried out in close collaboration with existing local government and private initiatives, enabled by the maintenance of close relations with the staff of government agencies and private foundations. External stakeholders in Brazil have access to communication channels through the company's external web page, links to which are also posted on social media pages maintained by the company. The external web page provides a standard contact page with phone numbers and an email portal for submitting general information requests, as well as a dedicated grievance portal 'Hello CMOC' that is managed by an external third party. All submittals are reviewed for content and priority according to site policies that provide procedures for timely response.

# Community

## Community Development

The CMOC investment approach is based on priority community needs and includes both direct investment, contributions to community foundations and participation in government-led initiatives. Investments are typically made in the broad categories of education, health, livelihoods, resettlement, environment and infrastructure, with additional investments in cultural activities. In aggregate CMOC invested 308.4 million RMB in community projects in 2018, as compared to the aggregate of approximately 166.2 million RMB invested in 2017.

Social investments by area (million RMB)



Note: The numbers have been rounded.

## Education

Support for education, from primary school through university, is a high priority for stakeholder communities. Across all operations the company has donated over 24.0 million RMB to educational programs.

In China the company believes that educational problems should be first addressed to promote regional development, and we continue to provide 2 million RMB every year through grants to help university students living in poverty receive better education. In 2018, we funded 73 students. Up to now, nearly 5,000 students in the surrounding neighborhood have benefited from our educational grants.



One of the students we funded has been enrolled in university.

At TFM the local community has a longstanding concern with the lack of access to and the quality of basic education available to young children in our mining concession area. TFM investments continued their focus in 2018 on enhancing access to primary schools with construction projects, direct support to school operations, and on improvements to teacher capacity to provide quality education; all with the goal of assuring access to quality primary school education for 80% of the concession's children. In 2018, the TFM education program invested in the renovation and repair of 6 schools in the mining concession. The Social Community Fund continued support of vocational education in 2018, with students completing courses in cosmetology, sewing, welding, culinary arts and woodworking. The 2018-2019 cycle for the village literacy program launched in October 2018 in 22 villages has an objective of increasing participation to 900 students in total. In all TFM invested approximately 20 million RMB in education programs in 2018.



In 2018, the second year of the Fund's village literacy program ended after successfully reaching approximately 530 women and 150 men.

Our Northparkes mine provides scholarships annually for indigenous students who are interested in a career in mining, and those who wish to pursue a technical degree. Both technical and non-technical scholarship holders receive stipends from Northparkes, who also offer work placements both onsite and throughout Australia.

## Health

CMOC invested nearly 27.5 million RMB in community-based health projects in 2018, addressing a range of priority needs. Communities near our TFM operation, may suffer from chronic diseases such as malaria, or gastrointestinal illness due to a lack of access to clean water. Other issues may arise from the lack of access to medical care. At sites where these conditions exist our support of health projects helps address some very high priorities for local communities. In the DRC our potable water programs serve both rural as well as urban populations and address chronic gastro-intestinal illnesses that contribute to high infant mortality. In addition to continuation of the clean water programs in 2018, TFM also supported the eleventh annual indoor residual spray campaign for malaria control in concession, which has helped reduce malaria incident rates from 77% pre-control to 15% in the communities, as well as the "SafeStop" HIV/AIDS facility where several thousand truck drivers attended education sessions and may receive counseling for HIV testing. In addition to these programs, TFM has implemented a cholera management plan for the 2018 rainy season.

## Livelihoods

A priority issue for all communities near our mine operations is the creation of new opportunities for individuals to meet their economic needs. Our programs are directed at building capacity to address existing economic drivers, such as agriculture and local business development, including vendor opportunities with the mine itself. Other initiatives may focus on creating economic diversification. For example, our operations in China continue to support regional township tourism projects launched in 2017 including a water park and a holiday resort project. In 2018 construction was underway on the water park project river dam, and the holiday resort project is applying for land use approval. In 2018 CMOC invested nearly 55.7 million RMB in projects directed at the enhancement of livelihoods.

Our TFM operation is in an area where agriculture is important to the local economy and to household food security. Therefore, one of our key areas of investment is in the agricultural sector. TFM supports multiple programs in this sector, including a 100 ha demonstration farm for instruction on improved agriculture, which graduated 50 participants in 2018, an agricultural credit program that supports over 600 local farmers cultivating over 700 ha of intensive maize cultivation that has seen five-fold

increases in production over baseline conditions, additional programs for market-oriented vegetable production and animal husbandry projects. TFM also invested in construction of a truck park and market center to provide buses, large trucks and local passengers using the national road system a place to rest, shop and relax as well as a market for local community members to sell their products. This facility will be operated by the population of a nearby resettlement community.

In China CMOC also helps the local government with targeted poverty relief measures based on the actual conditions of the surrounding neighborhood. We arranged earmarked funds to support the public housing project in Luanchuan County in order to improve the housing conditions of local residents. Through 2018 more than 2,000 households living in remote or substandard houses have been resettled in improved housing. In addition, in 2018, we also supported rural road maintenance projects to help improve road conditions.

In China we helped build an agricultural project featuring a lotus root starch plantation as well as sweet potato, fruit and corn plantations; covering a total area of about 17 hectares and benefiting more than 80 households. It is expected to increase local farmers' revenue by approximately 400,000 RMB per year. In addition, we continue to organize Spring Festival visits to the families in difficulty in the surrounding communities, donating some necessities of life. The value of the donation in 2018 is approximately 260,000 RMB.



Lotuses near the lotus root starch plantation blooming in summer.

## Culture

CMOC acknowledges the importance of respecting cultural aspects of communities where we operate. In 2018 the company invested nearly 1.5 million RMB in projects that promote cultural activities of interest to our stakeholders, including programs and organizations supporting music and sports, as well as in recognition of local cultural values. Our mining operations in Brazil continued support of cultural programs that target children, in keeping with national priorities on providing opportunities for children among the country's urban population; and in collaboration with local initiatives. In 2018 these included support to for ballet through the Sport and Cultural Association of Dance, and to the Cubatao Symphonic Band through the Symphony Institution.

# Community

## Land Acquisition and Resettlement

All our mining operations require significant amounts of land to accommodate mining, processing and administrative needs. The acquisition of land follows procedures derived from site policies that in turn reflect relevant laws and regulations in the areas where operations are located. At all operations land acquisition methods reflect internationally accepted good practice principles of stakeholder consultation and negotiated settlement based on fair market valuation.

Residents living in the neighborhoods surrounding our operations in China may lose their land due to continuous mine development. At these sites land acquisition procedures include such elements as consultation, negotiated settlements and fair compensation. We have signed land use agreements with the surrounding neighborhood. Besides paying a certain amount of cash compensation, we have also employed local residents affected by our mining activities. In 2018, we employed an additional 28 people under this program, and in total over 1,000 local residents have been provided with a stable source of income through our land acquisition activity. In 2018 there were no cases of land acquisition requiring resettlement at our China operations.

At our operations in Australia and Brazil the surrounding land uses include extensive agriculture. In these cases, the need for additional land is met through strategic planning, enabling sufficient lead times for engagement and negotiation with land-owners, and in compliance with well-defined internal and regulatory processes. At our Brazil site resettlement follows an internal policy that calls for pre-impact socio-economic analysis including vulnerability assessments that drive subsequent, multi-year monitoring until pre-impact conditions are reestablished. In 2018 there were 3 households in the Brazil site's monitoring effort that had been impacted by prior year resettlement activities. In 2018 there were no land acquisition activities at the Northparkes mine that required resettlement.



Resettled communities in our TFM mining concession benefit from primary schools, potable water projects and ongoing programs to assure livelihood restoration.

At our TFM operation in the DRC land acquisition is guided by international good practices, notably Performance Standard 5 of the International Finance Corporation (IFC), which help protect the livelihoods and rights of affected populations that are vulnerable due to poverty and lack of formal title to the lands they occupy. In 2018 significant land acquisition projects at TFM included the resettlement of village populations near the Pumpi and Mambilima deposits. Since initial construction in 2006 TFM will have resettled more than 1,147 households into new residential areas and provided livelihood restoration to some 5,605 displaced farmers. The TFM program is subject to external audit on an annual basis, during which performance is evaluated in terms of alignment with internal and external policies, continuous improvement, redress of issues and overall community acceptance of our resettlement program.





### Security and Human Rights

Our operations have security programs appropriate to their needs, including the prevention of access to mine areas due to concern for public health and safety as well as for protection of company assets.

In the copper mining region of southeastern DRC significant artisanal mining takes place, which also occurs illegally around and within the TFM mine concession. To protect company assets and personnel and to maintain access control for our active operations, TFM employs security agents within its workforce. These agents are unarmed, have no law enforcement capacity, and are primarily engaged in surveillance and the operation of access control points.

TFM implements the Voluntary Principles on Security and Human Rights (VPSHR), which are a set of principles that help guide companies in maintaining the safety and security of their operations while encouraging respect for human rights. TFM provides training to its security staff and personnel of private security contractors on key elements of the VPSHR. Private security firms are also subject to due diligence at the contracting stage, including human rights aspects. Of TFM's 292 direct hire security employees 270 were trained on the VPSHR in 2018 (93%), and of the 1,293 private security contractors 1,128 also received VPSHR training in 2018 (87%).

Enforcement of national mining law within the TFM concession, with reference to the legal extraction of minerals, is the responsibility of a branch of the national police, specifically the Mines and Hydrocarbons Police (PMH). Though autonomous in their operations, the PMH operate under terms of a contract with TFM that addresses concerns such as the nature of support provided by TFM. The contract makes explicit reference to TFM adoption of the VPSHR, including directives on how to follow up on

allegations of human rights violations. Though disallowed from providing direct training to the PMH, TFM seeks opportunities to facilitate third party training in the VPSHR for police assigned to its concession.

TFM was the subject of a Human Rights Impact Assessment (HRIA) in 2014, in alignment with broad perspectives on human rights as identified in the UN Guiding Principles on Business and Human Rights (UNGPR). The UNGPR includes additional aspects in its definition of human rights, above and beyond security matters, such as water security, pollution and community health and safety. Findings of the HRIA were incorporated into the TFM sustainable development risk register, along with corresponding action plans, and are subject to ongoing progress review by site management along with other sustainability risks to the business.

Human rights issues are also managed at TFM through a defined program that includes assigned staff under the direction of a Human Rights Compliance Officer. Broadly aligned with VPSH principles, the program provides for staff training on the CMOC and site Human Rights policies, as well as assessments of specific human rights risks, including from contractors. Action plans are implemented for those risks deemed material to the operation.

At the Northparkes operation the need for compliance training is identified according to role requirements. All inducted employees are assessed on their knowledge of the Northparkes code of conduct, which includes elements of anti-discrimination policy; and supervisors receive additional training on Fair Work legislation. All new employees and contractors of our operations in Brazil are also trained on the site code of conduct, including equal opportunity requirements and anti-discrimination prohibitions. At both sites violations of these policies lead to disciplinary action, including termination of employment or contract of work.



## Product

Our mine and processing operations produce refined metal as well as intermediate and final composite products that are essential to the global economy. Our manufacturing streams also consume other products and services sourced from suppliers and contractors. The sourcing, manufacturing, transport and delivery of all these materials may pose material environmental and social risks that are addressed with policies and procedures at our operating sites.

### Materials Sourcing

Environmental and social risks in the company's supply chain for the procurement of materials needed to support our operations are addressed through systems for sourcing our input materials and services. Key sustainability policies developed by CMOC for the international operations offer guidance on these supplier management systems at the Australia, DRC and Brazil sites in the areas of human rights, anti-corruption, code of conduct, environment management and community relations.



In China, we have the Suppliers Entry Management Guidelines to ensure that qualified suppliers meet policy and regulatory requirements in terms of commercial reputation, required professional expertise and HSE considerations. We regard a supplier's environmental and social risks as an important factor in our assessments, motivating those with whom we do business to comply with laws and regulations on environmental protection, employment and operations, which reduces overall risk to CMOC.

Management of transportation contractors at the Northparkes operation in Australia provides additional focus on health, safety and environmental topics relevant to the shipment of its copper concentrate product. These topics are embedded in the standard terms and conditions of contracts with vendors, which include reference to the site Code of Conduct as well as Key Performance Indicators for environmental matters.

At the TFM worksite in the DRC, human rights and corruption are focal areas of concern. As such, we conduct due diligence of suppliers and vendors to screen for violations in the applicable laws or CMOC policies related to anti-corruption or human rights. During the screening process, a subset of these contractors may be subject to site visits during which safety, environmental and employment policies and programs (and their implementation) are reviewed. With respect to employment practices by contractors, TFM pays special attention to policies pertaining to the legal working age of their employees. The screening-phase site visits also provide valuable insight into the practical aspects of equipment, tools and readiness to perform the proposed scope of work. The TFM procurement team also maintains a preferred practice of sourcing service contracts in the host and neighboring provinces.

Our operations in Brazil rely on a supply chain policy that includes principles such as assessment of environmental risks associated with the supply chain and related vendor performance, safety risks and related vendor compliance and vendor support for local procurement. Site teams in the supply chain, technical and sustainability areas participate in the review of select vendor proposals that may present risks in material aspect. Brazil has a well-developed system for evaluating and providing feedback to local suppliers; which includes the use of specific key performance indicators, a ranking of supplier performance, and public recognition of lead vendors in the key areas of safety, health and environmental performance.

## Product Stewardship

Management systems at our international sites related to product stewardship address the quality, compliance and sustainability risks associated with our products and processes; including occupational health and safety, environmental management, quality control/quality assurance and labelling in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals. These systems ultimately protect the interests of our clients and may enhance access to preferred markets for CMOC products.



Cobalt hydroxide product at TFM sealed and labelled for shipment to customers

In the DRC our product assurance is largely driven by compliance needs derived from international trade, transport and material classification schemes of the countries and regional associations through which product is transported and consumed; with special regard to cobalt hydroxide. The Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) regulation of the European Union for example addresses the production and use of chemical substances, and their potential impacts on both human health and the environment. REACH requirements directly drive the classification and labelling process of our cobalt hydroxide, which also considers the requirements of up to 12 additional countries that may be involved, in the transport and final disposal of our product.

Our operation in the DRC also has a set of special responsibilities related to product stewardship associated with the sustainability of its supply of cobalt hydroxide to global markets. The DRC hosts a high number of unregulated artisanal miners as well as customers for their product, a situation that has led to high profile international concerns around the risk of child labor, workplace health and safety and human rights in the cobalt supply chain from that country. The TFM operation manages this risk through a set of product control and custody procedures to ensure that it mines, processes and sells only those minerals that originate within its mining concessions and that are mined by its own operations. These procedures are in turn guided by the requirements of responsible and sustainable management as described in this report. TFM does not purchase or process ore from any other source. These procedures include specific actions to dispose of illegally mined ore confiscated by government authorities within the TFM concessions. TFM has a complete system to track the copper and cobalt products produced at its operations through the points of transfer and to the ultimate point of delivery to its customers outside of the DRC. CMOC has no tolerance for child labor or forced labor, employing only people who have reached the legal working age. In 2018, we found no violation of any laws and regulations regarding child or forced labor.

Due to the importance of monitoring and maintaining these procedures in managing TFM's mineral supply chain TFM again received independent assurance of the company's product control and custody procedures for the 2018 period (see 'Assurance Statements'.)



# Product

In 2018 CMOC continued its membership in the Cobalt Institute (CI), an industry-led trade association that promotes sustainable and responsible production and use of cobalt, participating actively on the sustainability initiatives of that organization. CMOC was particularly active in 2018 in the development of the Cobalt Industry Responsible Assessment Framework (CIRAF), an initiative of CI to provide assurance around sustainable sourcing of cobalt in global markets. In January of 2019 CI launched the CIRAF program and external engagement is ongoing.

Supporting this initiative with respect to TFM's production and marketing of its cobalt hydroxide entails a primary

commitment to comply with relevant host government legislation. Compliance is specifically directed toward the set of risk areas deemed by the CIRAF process as material for sustainable cobalt production. Further commitment is required to implement one or more of a suite of external standards appropriate to each of these same risks. In each risk category there are several options presented for standards from which companies can select one or more that are appropriate for their operations. The following table identifies the CIRAF external standards, disaggregated by those that TFM has chosen to apply either as primary drivers of risk management at the site or as guidance for additional alignment. The table further identifies the other standards offered by CIRAF with which TFM is materially aligned, but not implementing directly.

		CIRAF Risk Categories→									
		Env. Air/Water	Biodiversity	OH&S	Corruption	Security & Human Rights	Child Labor	ASM	Livelihoods	Resettlement	
Specific CIRAF Standards Applied at TFM	ICMM 10 Sustainable Development Principles	✓	✓	○	○	✓	✓	✓	✓	○	
	GRI Standards and MMS	○		○	○	○	○	○	○	○	
	Voluntary Principles on Security & Human Rights					○					
	United Nations Guiding Principles					○					
	National Compliance Framework	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Extractive Industries Transparency Initiative				○						
	IFC-PS	○	○			○	○		○	✓	
	OHSAS 18001			✓							
	ISO 14001	○									
	TFM alignment with other CIRAF Standards	UN Global Compact (UNGC)	●		●	●	●				●
Towards Sustainable Mining (TSM)		●	●	●	●	●	●	●	●	●	
Risk Readiness Alignment (RRA)		●	●	●	●	●	●	●	●	●	
Initiative for Resp. Mining Assurance (IRMA)		●	●	●	●	●	●	●	●	●	
OECD Due Diligence Guidance (OECD-DDG)					●	●	●	●			
Corporate Human Rights Benchmarks (CHRB)						●					
✓	Standard that drives action										
○	Deliberate alignment										
●	Material alignment										

At our operations in China quality and safety issues related to our products are driven by various national regulations, as well as the ISO 9001 Quality Management System scheme, under which the Sandaozhuang mine is certified.

At our business in Brazil procedures are in place to manage health, safety, environmental and quality risks associated with a suite of 28 distinct phosphate products consumed domestically, as well as ferroniobium products that are exported.

In 2018 the Northparkes operation completed a life cycle assessment, which will lead to an update of the site's Product Stewardship Risk Assessment relative to the dangerous and hazardous goods classification of our copper concentrate. The risk assessment is scheduled for completion by mid-2019.

No breaches tied to our products have been reported in 2018 that resulted in impacts to CMOC in terms of to health and safety, environment, labelling or social matters.

## Business Ethics and Transparency

CMOC is committed to a high level of business ethics practice. We affirm our commitment to act with integrity at all times and to respect the laws and regulations of wherever we do business. As stated in our code of business conduct for the international operations, "Corruption and bribery will not be tolerated and will result in disciplinary action, including termination, as well as possible civil and criminal consequences for the offending individual (s)". CMOC annually trains employees and suppliers to abide by international and local laws and regulations that forbid bribery of government officials and others, including the People's Republic of China Anti-Bribery Act, the United States Foreign Corrupt Practices Act and the United Kingdom Bribery Act. Training is mandatory for all CMOC employees deemed as occupying positions having potential for corruption risk, which included more than 800 personnel in 2018, of which half work at the TFM site. In addition, all the Directors of the Board, the supervisors and the senior management of the CMOC Group also received anti-corruption training in 2018.

In China, we have set up a dedicated disciplinary inspection department to carry out internal supervision and inspection on various ethical matters inside the company in accordance with our corporate regulations. Through internal communications and training we help our employees to form values of integrity and self-discipline and continuously raise their awareness to comply with laws and regulations. We ask procurement staff to rotate positions on a regular basis to mitigate the potential of collusion risk, and sign integrity agreements with suppliers in an effort to effectively control their risk of corruption and prevent possible losses attributable to corruption caused by mismanagement.



In China, we organized a training on business ethics and transparency for the senior management.

At our Northparkes facility, all employees are required to complete the modules "Anti-Bribery and Corruption" and "Anti Money Laundering," and we maintain a SpeakUp program which encourages employees to report instances of misconduct to a "fair work officer." Our Brazil operations follow an internal compliance manual and adhere to Brazilian law as well as their international equivalents.

Our operation in the DRC participates in the Extractive Industry Transparency Initiative (EITI) at the country level. A TFM representative is a member of the National Committee for EITI-DRC that represents industry concerns; coordinating the preparation and submittal of disclosures regarding TFM payments to the national treasury and other government entities on an annual basis. In addition, TFM also publishes payments to treasury and government on a quarterly basis in the form of press releases, which are made available to national print and online news services for further publication.

In 2018, there were no instances of corruption, bribery, blackmail, fraud or money laundering being notified to our internal legal group or through other channels of communication experience by the Company, nor were any lawsuits related to these behaviors filed against the company.

## Data Overview

EMPLOYMENT	2018	2017
Total number of employees	10,900	11,226
Total number of contractors	7,686	
Total number of Female	2,971	
Total number of Male	15,615	
<b>SAFETY</b>		
Total recordable injuries	60	58
TRIR	1.39	
<b>EMISSIONS</b>		
Total greenhouse gas emissions (thousand tonnes)	980	990
GHG emissions- scope1	470	500 <sup>[1]</sup>
GHG emissions- scope2	510	490 <sup>[1]</sup>
Total NOx emissions (thousand tonnes)	1.9	1.2
Total SOx emissions (thousand tonnes)	3.5	3.6 <sup>[2]</sup>
Total PM emissions (thousand tonnes)	7.7	7.6
Total emissions of hazardous waste (thousand tonnes)	4.0	5.2
Total emissions of non-hazardous waste (thousand tonnes)	11.4	15.3 <sup>[3]</sup>
Total amount of tailings and waste rock (million tonnes)	101.6	107.3
Waste rocks	68.6	71.7
Tailings	33.0	35.6
<b>WATER CONSUMPTION</b>		
Total water consumption (in million cubic meters)	125.0	120.8
<b>ENERGY CONSUMPTION</b>		
Total energy consumption(in MWh)	3,080,000	2,874,000
<b>COMMUNITY INVESTMENT</b>		
Total(in million RMB)	308.4	166.2
<p>Note:</p> <p>[1] GHG emissions- scope1 &amp; scope2 restated from those published in 2017 to reflect actual situation.</p> <p>[2] SO<sub>x</sub> emissions restated from those published in 2017 to reflect actual situation.</p> <p>[3] We have redefined the non-hazardous waste and slags have been excluded so numbers restated from those published in 2017 to ensure comparability over time.</p>		

HKEX ESG Reporting Guide	Description	Location/Remarks
<b>A.Environment</b>		
<b>Aspect A1 Emission</b>		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer  relating to air and greenhouse gas emissions, discharges into water and land and generation of hazardous and non-hazardous waste	Environment
KPI A1.1	The types of emissions and respective emissions data	Environment
KPI A1.2	Greenhouse gas emissions in total (in tonnes) and, where appropriate intensity (e.g. per unit of production volume, per facility)	Environment
KPI A1.3	Total hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility)	Environment
KPI A1.4	Total non-hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility)	Environment
KPI A1.5	Description of measures to mitigate emissions and results achieved	Environment
KPI A1.6	Description of how hazardous and non-hazardous wastes are handled, reduction initiatives and results achieved	Environment
<b>Aspect A2: Use of Resources</b>		
General Disclosure	Policies on the efficient use of resources, including energy, water and other raw materials	Environment
KPI A2.1	Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total (kWh in '000s) and intensity (e.g. per unit of production volume, per facility)	Environment
KPI A2.2	Water consumption in total and intensity (e.g. per unit of production volume, per facility)	Environment
KPI A2.3	Description of energy use efficiency initiatives and results achieved	Environment
KPI A2.4	Description of whether there is any issue in sourcing water that is fit for purpose, water efficiency initiatives and results achieved	Environment
KPI A2.5	Total packaging material used for finished products (in tonnes) and, if applicable, with reference to per unit produced	Undisclosed: this is not a material issue for CMO.

## Index I – ESG Content Index

HKEX ESG Reporting Guide	Description	Location/Remarks
<b>Aspect A3: The Environment and Natural Resources</b>		
General Disclosure	Policies on minimising the issuer's significant impact on the environment and natural resources	
KPI A3.1	Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them	Environment
<b>B. Social</b>		
<b>Aspect B1: Employment</b>		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer  relating to compensation and dismissal, recruitment and promotion, working hours, rest periods, equal opportunity, diversity, anti-discrimination, and other benefits and welfare.	Employee
KPI B1.1	Total workforce by gender, employment type, age group and geographical region	About CMOC; Employee
KPI B1.2	Employee turnover rate by gender, age group and geographical region	Undisclosed: this is not a material issue for CMOC
<b>Aspect B2: Health and Safety</b>		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer  relating to providing a safe working environment and protecting employees from occupational hazards.	Employee
KPI B2.1	Number and rate of work-related fatalities	Employee
KPI B2.2	Lost days due to work injury	Undisclosed: this is not a material issue for CMOC
KPI B2.3	Description of occupational health and safety measures adopted, how they are implemented and monitored	Employee
<b>Aspect B3: Development and Training</b>		
General Disclosure	Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities	Employee
KPI B3.1	The percentage of employees trained by gender and employee category (e.g. senior management, middle management)	Undisclosed: this is not a material issue for CMOC
KPI B3.2	The average training hours completed per employee by gender and employee category	Undisclosed: this is not a material issue for CMOC
<b>Aspect B4: Labour Standards</b>		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer  relating to preventing child and forced labour	Employee



## Index I – ESG Content Index

HKEX ESG Reporting Guide	Description	Location/Remarks
KPI B4.1	Description of measures to review employment practices to avoid child and forced labour	Employee
KPI B4.2	Description of steps taken to eliminate such practices when discovered	Employee
<b>Aspect B5: Supply Chain Management</b>		
General Disclosure	Policies on managing environmental and social risks of the supply chain	Product
KPI B5.1	Number of suppliers by geographical region	Undisclosed: this is not a material issue for CMOC
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	Product
<b>Aspect B6: Product Responsibility</b>		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer  relating to health and safety, advertising, labelling and privacy matters relating to products and services provided and methods of redress	Product
KPI B6.1	Percentage of total products sold or shipped subject to recalls for safety and health reasons	Undisclosed: this is not a material issue for CMOC
KPI B6.2	Number of products and service related complaints received and how they are dealt with	Undisclosed: this is not a material issue for CMOC
KPI B6.3	Description of practices relating to observing and protecting intellectual property rights	Undisclosed: this is not a material issue for CMOC
KPI B6.4	Description of quality assurance process and recall procedures	Product
KPI B6.5	Description of consumer data protection and privacy policies, how they are implemented and monitored	Undisclosed: this is not a material issue for CMOC
<b>Aspect B7: Anti-corruption</b>		
General Disclosure	Information on: (a) the policies; and (b) compliance with relevant laws and regulations that have a significant impact on the issuer  relating to bribery, extortion, fraud and money laundering	Product
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	Product
KPI B7.2	Description of preventive measures and whistle-blowing procedures, how they are implemented and monitored	Product
<b>Aspect B8: Community</b>		
General Disclosure	Policies on community engagement to understand the needs of the communities where the issuer operates and to ensure its activities take into consideration the communities' interests	Community
KPI B8.1	Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport)	Community
KPI B8.2	Resources contributed (e.g. money or time) to the focus area	Community

## Index II—GRI Content Index

GRI Standard Title		Location/ Remarks
<b>GRI 100: Universal Standards</b>		
<b>GRI 102: General Disclosures</b>		
<b>Organizational Profile</b>		
102-1	Name of the organization	About this Report
102-2	Activities, brands, products, and services	About CMOC
102-3	Location of headquarters	About CMOC
102-4	Location of operations	About CMOC
102-5	Ownership and legal form	About CMOC
102-6	Markets served	About CMOC
102-7	Scale of the organization	About CMOC
102-8	Information on employees and other workers	About CMOC, Employee
102-9	Supply chain	About CMOC
102-10	Significant changes to the organization and its supply chain	About CMOC
102-11	Precautionary Principle or approach	Management Approach, Environment, Community, Employee
102-12	External initiatives	About CMOC
102-13	Membership of associations	About CMOC
<b>Strategy</b>		
102-14	Statement from senior decision-maker	Message from the Chairman
<b>Ethics and Integrity</b>		
102-16	Values, principles, standards, and norms of behavior	Management Approach
<b>Governance</b>		
102-18	Governance structure	Management Approach
<b>Stakeholder Engagement</b>		
102-40	List of stakeholder groups	Management Approach, Community
102-41	Collective bargaining agreements	Management Approach, Employee
102-42	Identifying and selecting stakeholders	Management Approach
102-43	Approach to stakeholder engagement	Management Approach
102-44	Key topics and concerns raised	Management Approach

## Index II—GRI Content Index

GRI Standard Title	Description	Location/ Remarks
<b>Reporting Practice</b>		
102-45	Entities included in the consolidated financial statements	CMOC Annual Report 2018 About CMOC
102-46	Defining report content and topic Boundaries	About this Report
102-47	List of material topics	Management Approach
102-48	Restatements of information	About CMOC
102-49	Changes in reporting	About this Report
102-50	Reporting period	About this Report
102-51	Date of most recent report	March 31, 2018
102-52	Reporting cycle	About this Report
102-53	Contact point for questions regarding the report	Board Secretary' s Office
102-54	Claims of reporting in accordance with the GRI Standards	About this Report
102-55	GRI content index	Index II
102-56	External assurance	Management Approach Assurance statement
<b>GRI 200: Economic</b>		
<b>GRI 103: Management Approach</b>		
103-1	Explanation of the material topic and its Boundary	Management Approach
103-2	The management approach and its components	Management Approach
103-3	Evaluation of the management approach	Management Approach
<b>GRI 201: Economic Value Generated and Distributed</b>		
201-1	Direct economic value generated and distributed	About CMOC
203-1	Infrastructure investments and services supported	Community
<b>GRI 205: Anti-corruption</b>		
205-3	Confirmed incidents of corruption and actions taken	N/A Products
<b>GRI 300: Environment</b>		
<b>GRI 103: Management Approach</b>		
103-1	Explanation of the material topic and its Boundary	Management Approach Environment
103-2	The management approach and its components	Management Approach Environment
103-3	Evaluation of the management approach	Management Approach Environment

## Index II—GRI Content Index

GRI Standard Title	Description	Location/ Remarks
<b>GRI 301: Materials</b>		
	Materials used by weight or volume	Undisclosed: this is not a material issue for CMOC.
<b>GRI 302: Energy</b>		
302-1	Energy consumption within the organization	Environment
<b>GRI 303: Water</b>		
303-1	Water withdrawal by source	Environment
303-3	Water recycled and reused	Environment
<b>GRI 304: Biodiversity</b>		
304-2	Significant impacts of activities, products, and services on biodiversity	Environment
<b>GRI 305: Emissions</b>		
305-1	Direct (Scope 1) GHG emissions	Environment
305-2	Energy indirect (Scope 2) GHG emissions	Environment
305-4	GHG emissions intensity	Environment
305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	Environment
<b>GRI 306: Effluents and Waste</b>		
306-2	Waste by type and disposal method	Environment
307-1	Non-compliance with environmental laws and regulations	Environment
<b>GRI 308: Supplier-Environmental-Assessment</b>		
308-1	New suppliers that were screened using environmental criteria	Product
308-2	Negative environmental impacts in the supply chain and actions taken	Product
<b>GRI 400: Social</b>		
<b>GRI 103: Management Approach</b>		
103-1	Explanation of the material topic and its Boundary	Management Approach Employee Community
103-2	The management approach and its components	Management Approach Employee Community
103-3	Evaluation of the management approach	Management Approach Employee Community
<b>GRI 402: Labor Management Relations</b>		

## Index II—GRI Content Index

GRI Standard Title	Description	Location/ Remarks
402-1	Minimal notices regarding operational changes	Employee
<b>GRI 403: Training and Education</b>		
	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities	Employee
<b>GRI 404: Training and Education</b>		
404-2	Programs for upgrading employee skills and transition assistance programs	Environment
<b>GRI 407: Freedom of Association and Collective Bargaining</b>		
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	Statement in Employee
<b>GRI 408: Child Labor</b>		
408-1	Operations and suppliers at significant risk for incidents of child labor	Employee Products
<b>GRI 409: Forced or Compulsory Labor</b>		
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	Employee Products
<b>GRI 410: Security Practices</b>		
410-1	Security personnel trained in human rights policies or procedures	Product
<b>GRI 412: Human Rights Assessment</b>		
412-1	Operations that have been subject to human rights reviews or impact assessments	Community
<b>GRI 413: Local Communities</b>		
413-1	Operations with local community engagement, impact assessments, and development programs	Community
<b>GRI 414: Supplier Social Assessment</b>		
414-1	New suppliers that were screened using social criteria	Product
<b>GRI 416: Customer Health and Safety</b>		
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	Statement in Product
<b>GRI 417: Marketing and Labeling</b>		
417-1	Requirements for product and service information and labelling	Product
417-2	Incidents of non-compliance concerning product and service information and labelling	Statement in Product

# Assurance Statements



## Assurance Statement - Product control and custody at TFM

The management of Tenke Fungurume Mining S.A. (TFM), asked Corporate Integrity Ltd. to review product control and custody procedures at the TFM concession in the Democratic Republic of Congo (DRC) and to provide assurance over the following statement:

***'Tenke Fungurume Mining S.A. (TFM), an industrial copper and cobalt mine in southeastern DRC and an affiliate of CMOC, is committed to apply a duty of care in product stewardship commensurate with the concerns of its customers in the international minerals supply chain.***

***TFM implements robust product control and custody procedures to ensure that it mines, processes and sells only those minerals that originate within its mining concession and that are mined by its own operations. These procedures include specific actions to dispose of illegally mined ore confiscated by government authorities within the TFM concession. TFM does not purchase or process ore from any other source. TFM maintains a system to track the copper and cobalt products produced at its operations through the points of transfer, and to the final point of delivery to its customers outside of the DRC.***

***TFM continues to implement the Sustainable Development Principles of the International Council on Mining and Metals. Incorporation of these Principles is a reflection of our continued commitment to maintaining our status as a responsible mining operation and supply chain, further aligning with other international good practice frameworks that seek elimination of child labor, forced labor and violations of human rights.***

***Due to the importance of monitoring and maintaining these procedures in managing TFM's mineral supply chain, in 2018 TFM received independent assurance of the company's product control and custody procedures.'***

Our approach involved:

- Interviews with relevant personnel at the site
- Review of procedures in place at the operation for control, custody and tracking of product and for implementation of the 10 Sustainable Development Principles
- Visit to the confiscated product disposal site
- Review of samples of documents used for recording and reporting the control, custody and tracking of product from the mine concession area.

### **Our Findings:**

Based on our review, its scope and limitations, nothing has come to our attention that prevents us from concluding that TFM's assertions in the above statement are correct.

### **Limitations of the Work Performed**

This work has been carried out by checking samples of information and documents that have been made available during the period of assurance activity by TFM. Our evidence gathering procedures have been designed to obtain a limited level of assurance on which to base our conclusions.

The assurance statement provided by Corporate Integrity Ltd. is not intended to be used as advice or as the basis for any decisions, including, without limitation, financial or investment decisions.

### **Statement of Independence**

The independence of our team has been reviewed and none of the Corporate Integrity Ltd. assessors involved in this project presents a conflict of interest to the integrity of this assurance statement.

### **Standard Applied to This Engagement**

International Standard on Assurance ISEA3000 (revised) – Assurance Engagements other than Audits & Reviews of Historical Financial Information' issued by the International Auditing and Assurance Standards Board (IAASB).

**Corporate Integrity Ltd.**

## Assurance Statement



The CMOC Environmental Social and Governance (ESG) Report for 2018, has been prepared by the management of China Molybdenum Co., Ltd.(CMOC) who are responsible for the collection and presentation of this information.

### Scope

Corporate Integrity Ltd., in accordance with CMOC management's instructions, was asked to perform:

1. A review of policies and systems in place at the CMOC's international operations in relation to CMOC's commitment to align with ICMM Principles for Sustainable Development in the mining and metals industry and ICMM Position Statements. The operations covered by this review were:
  - Tenke Fungurume Mining operations in the Democratic Republic of Congo;
  - Northparkes operations in Australia;
  - Niobras and Copebras operations in Brazil; and
  - Corporate activities relevant to the above operations.
2. A review of statements in relation to the above operations made in the CMOC ESG Report covering the 2018 reporting year including reporting against GRI Standards.

This involved selective reviews of documents, interviews, site visits to all of the above operations, interviews with the management of the Global Sustainability Team and discussions with the CMOC Board.

### Key Findings

Based on our review, its scope and limitations, nothing has come to our attention which causes us to believe:

- That the policies and systems in place at the international operations are not in alignment with the ICMM principles for sustainable development in the mining and metals industry and ICMM Position Statements.
- That the information reported relating to the international operations in the CMOC ESG Report for 2018 and the related GRI disclosures have been materially misstated.

### Methodology

Through document reviews and interviews, the work activity involved:

1. A review of CMOC policies and their alignment to ICMM's 10 SD principles and ICMM Position Statements.
2. A review of processes in place to identify and prioritise SD risks and opportunities during the reporting period and the results of the identification and prioritization process.
3. A review of the systems and approaches that CMOC is using to manage its identified material SD risks and opportunities and to implement ICMM's 10 SD principles.
4. A review of statements made in the CMOC ESG Report for 2018. This involved corporate and site level management interviews and documentation reviews in support of reported information.
5. A review and selective testing for accuracy of quantitative information and qualitative statements made in the CMOC ESG Report for 2018 and as referenced by the GRI Content Index.

### Limitations of the Work Performed

This work has been carried out by checking samples of information and documents that have been made available during the period of assurance activity by CMOC. Where such information was deemed independently verified by other third parties commissioned by CMOC, this was not subjected to re-verification by Corporate Integrity Ltd. Our procedures have been designed to obtain a limited level of assurance upon which to base our conclusions.

The assurance statement provided by Corporate Integrity Ltd. is not intended to be used as advice or as the basis for any decisions, including, without limitation, financial or investment decisions.

### Statement of Independence

The independence of our team has been reviewed and none of the Corporate Integrity Ltd. assessors involved in this project presents a conflict of interest to the integrity of this assurance statement.

### Standard Applied to This Engagement

International Standard on Assurance ISFA3000 (revised) – Assurance Engagements other than Audits & Reviews of Historical Financial Information' issued by the International Auditing and Assurance Standards Board (IAASB).

### Corporate Integrity Ltd.