



**CMOC**  
China Molybdenum Co., Ltd

# **Environmental Social and Governance Report 2017**



The report can be downloaded from the official websites of China Molybdenum Co., Ltd. ([www.chinamoly.com](http://www.chinamoly.com)), Shanghai Stock Exchange ([www.sse.com.cn](http://www.sse.com.cn)), and HKEx ([www.hkexnews.hk](http://www.hkexnews.hk)).

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## About the Report

This report gives a detailed account of the performance of China Molybdenum Co., Ltd. in terms of fulfilling environmental and social responsibilities from January 1, 2017 to December 31, 2017. To make the report easier to read, "China Molybdenum Co., Ltd." Shall hereinafter be referred to as "CMOC", "we", or "the company".

The development of the report is based on *Environmental information disclosure Guide* issued by Shanghai Stock Exchange in August 2008 and *Environmental, Social and Governance (ESG) Reporting Guide* published by Hong Kong Exchanges and Clearing Limited (HKEx) in December 2015. The company has complied with the "comply or explain" clause set out in *Environmental, Social and Governance (ESG) Reporting Guide*. All information and data in the report come from official documents and statistics reports of China Molybdenum Co., Ltd. as well as the summary and statistics of its affiliates.

The report focuses on CMOC's performance in terms of fulfilling environmental and social responsibilities, and

covers the information and data on CMOC's affiliates in China, Brazil, Democratic Republic of the Congo, and Australia. We have included this year two businesses that have not been included in our FY2016 ESG Report. They are the overseas niobium & phosphate business acquired in October 2016 and the overseas copper & cobalt business acquired in November 2016.



### Speech by Chairman

After the successful acquisitions of our niobium & phosphate business in Brazil and copper & cobalt business in the DRC, CMOC has become a leading specialty metal producer and one of the largest producers of molybdenum, tungsten, cobalt and niobium across the globe, as well as a low-cost medium-sized copper miner and Brazil's second-largest phosphate producer. Today, CMOC's operations spread across four continents and our competitiveness in all sectors keeps on increasing. The company is now the largest listed company in China's non-ferrous metals sector, and the largest listed company in Henan Province. We also rank among the world's top international mining companies.

Our ambition is to become a respected international resources company. Therefore, we apply our company's sustainable development principles and strive to maximize the interests of all stakeholders. We take practical actions to fulfill our social responsibilities, strictly abide by environmental laws and regulations, attach importance to the coordinated development of business, environment, employees and communities, and actively respond to challenges posed by the various climates, physical, natural and cultural environments of our global operations.

#### Environment

CMOC develops its business operations in harmony with the environment. Each of our operations maintains a mature Environmental Management System (EMS) that is certified to the ISO 14001 standard. We implement a strict tailings management, pursue progressive reclamation during the operational phase, protect the

biodiversity in the areas of mining activities, promote the recycling of resources and minimize emissions and waste generation. As a leading international mining company, we undertake our activities with a focus on our environmental obligations.

#### Employees

CMOC attaches a great importance to the safety, health and career development of its employees. Proud of our 11,226 employees all over the world, we strive to improve our localization policy, fully protect their interests, while strictly complying with requirements of local labor laws and regulations. We always consider employee safety at work as our top priority, and focus our actions to implement the "Zero Harm" concept to our employees, assets, environment and communities. Efforts were also made to strengthen safety through technology, improve occupational health and establish a fair employment mechanism. In China and all our international operations, we provide continuing training to employees so that they could flourish in their careers.

#### Community

CMOC strives to realize a common development between business and community. We are committed to be a responsible neighbor in the communities where we do business and our efforts gained the appreciation of local authorities. In 2017, we applied an active social investment policy to all our operations, covering many areas such as livelihoods, healthcare, education, agriculture, infrastructure and residents housing, with a total invested amount of RMB 166 million. For five

consecutive years, the company has invested no less than RMB 17 million each year in poverty alleviation and education in Luanchuan County, Henan Province, where its headquarters is located. It has been awarded the "Model Company for Charitable Donation" and "Model for Education Promotion" prizes by the local government.

#### Future

We will continue to uphold the values of sustainable development, keep working hard toward a common development based on responsibility, technology and our team, and fully assume our social responsibilities.

I would like to extend my sincere appreciation to all our employees for their hard work, and to our shareholders, local governments and residents for their support. I am also very grateful to our customers and partners for their trust. I hope we can continue to work together and embrace greater achievements in the future.



Li Chaochun  
28th March, 2018  
Beijing, China

Li Chaochun  
Chairman of the Board of Directors



About China Molybdenum Co., Ltd.

Company Profile

China Molybdenum Co., Ltd. engages in nonferrous metal mining, mainly the selection, smelting, and deep processing of copper, molybdenum, tungsten, cobalt, niobium, and phosphate. With a relatively integrated industrial chain, CMOC is globally one of the top five molybdenum manufacturers, the largest tungsten manufacturer, 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: 3993HK).

CMOC has the highest molybdenum-iron and molybdenum oxide production capacity in China. Sandaozhuang molybde-num and tungsten mine, which is wholly owned and operated by the company, has the largest proven molybdenum reserves and the second largest proven tungsten reserves in the country, making it a very competitive, low cost producer of these metals. Shangfanggou molybdenum and iron mine, owned by the joint venture of the company, has abundant high-grade molybdenum reserves. Donggebi molybdenum mine in Hami, Xinjiang, owned by an affiliate of the company, is the first super-scale porphyry molybdenum mine in Xinjiang, and features a large reserve that is high grade, shallow depth, and easy to exploit.

The overseas businesses of CMOC are in Brazil, the Democratic Republic of the Congo and Australia. CMOC International, located in Phoenix, Arizona U.S.A. is responsible for the development and rollout of policy frameworks that govern sustainability matters.

Copebras Indústria Ltda. ("CIL") and Niobras Mineração Ltda ("NML") in Brazil. CMOC indirectly holds 100% equity of the phosphate business of CIL. CIL is a sophisticated producer of phosphate fertilizer and the second largest fertilizer manufac-turer in Brazil, covering the entire phosphate industrial chain. The total annual amount of minerals that it processes reaches nearly 6 million tons, and the total production ranks second in Brazil. Its main products include high-analysis phosphate fertilizer (MAP, GTSP), low-analysis phosphate fertilizer (SSG and SSP powder), animal feed supplements (DCP), intermedi-

ate products (phosphoric acid and sulfuric acid, and sulfuric acid, the latter mainly used by CIL), and relevant by-products (gypsum, fluosilicic acid). 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. NML produces niobium products that meet customer require-ments by processing niobium minerals, including crushing, screening, concentrating, leaching, and smelting. Its productive assets include the Boa Vista Mine, BV processing plant, BVFR processing plant, and a process plant for phosphate tailings.

Tenke Fungurume Mining (TFM) in the Democratic Republic of the Congo. The company holds 56% equity of this mine indirectly plus exclusive rights to purchase an additional 24% equity of TFM. TFM engages in exploration, mining, refining, processing, and selling copper and cobalt in a mining conces-sion 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.

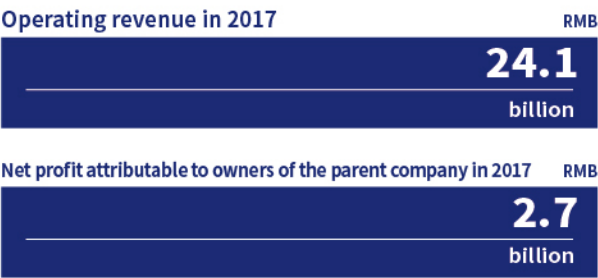
The company also holds 80% equity of Northparkes Copper and Gold Mine ("NPM"), which utilizes both block cave and sublevel underground mining methods. Its advanced extraction processes associated with the active block cave are fully automated.

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, 2017, the main businesses of the company are located in China, the Democratic Republic of the Congo, Brazil, and Australia.

28th March, 2018

Data Overview



Communication with Stakeholders and Selection of Major Issues

Communication with Stakeholders

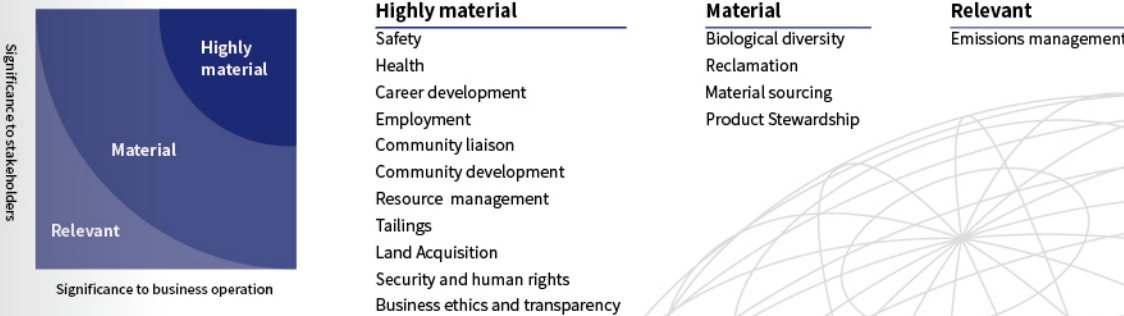
We have classified major stakeholders into shareholders and investors, government and regulatory authorities, employees, customers, suppliers and partners, the community and public. We have fully considered claims of all stakeholders and maintained formal and informal contact with stakeholders.

Communication with and Participation of Stakeholders

| Stakeholders                      | Expectations  | Ways of Communication  |
|-----------------------------------|---|--|
| Shareholders/Investors            | <ul style="list-style-type: none"><li>Protect the rights and interests of shareholders</li><li>Disclose relevant and accurate information in a timely manner</li><li>Improve corporate governance</li><li>Run business in compliance with laws and regulations</li><li>Combat corruption and uphold integrity</li></ul> | <ul style="list-style-type: none"><li>Shareholders' Meeting</li><li>Press releases and announcements</li><li>Company report</li><li>Information on the company website</li><li>Investor meeting</li></ul>    |
| Government/Regulatory Authorities | <ul style="list-style-type: none"><li>Compliance with laws and regulations</li><li>Internal inspection</li><li>Employees' health and workplace safety</li><li>Safe production and operation</li></ul>   | <ul style="list-style-type: none"><li>Compliance report</li><li>Inspection report</li><li>Meetings/seminars</li><li>Project cooperation</li><li>Proper submission of documents</li></ul>                     |
| Employees                         | <ul style="list-style-type: none"><li>Health and safety protection</li><li>Competitive salary system</li><li>Promising career development paths</li><li>Comprehensive employee training</li></ul>   | <ul style="list-style-type: none"><li>Labor contract</li><li>Trade union/workers congress</li><li>Team-building activity</li><li>Employee communication channels</li></ul>                                   |
| Customers                         | <ul style="list-style-type: none"><li>Customers' requests and expectations</li><li>Quality service</li><li>Technology upgrading</li><li>Sound quality assurance system</li></ul>  | <ul style="list-style-type: none"><li>Daily operation/interaction</li><li>Customer satisfaction surveys</li><li>Regular follow-ups</li><li>Product promotion campaign</li><li>Key account meetings</li></ul> |
| Suppliers/Partners                | <ul style="list-style-type: none"><li>Supplier entry management</li><li>Supplier assessment</li><li>Supplier rights protection</li><li>Supplier cooperation</li></ul>   | <ul style="list-style-type: none"><li>High-level meetings</li><li>Bidding and seminars</li><li>Supplier entry and assessment</li><li>On-the-spot inspection</li></ul>  |
| Community/Public                  | <ul style="list-style-type: none"><li>Enthusiasm towards public welfare</li><li>Charitable donations</li><li>Reduce pollutant emissions</li></ul>   | <ul style="list-style-type: none"><li>Charitable activities</li><li>Community investment and service</li><li>Stakeholder engagement</li><li>Environmental protection activities</li></ul>                    |

Selection of Major Issues

After communicating with and investigating internal and external stakeholders, we score and rank social responsibility issues according to two standards, namely their impact on business and stakeholders' rights and interests, so as to reflect their influence on environment and society and better respond to the expectations and demands of stakeholders.





## Environment

As a global mining company spanning four continents, CMOC must meet the challenges of the varying climates as well as different 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 minimize the extent of our environmental impacts through risk-based management systems. 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.

In China, we operate the Sandaozhuang Mine, a leading producer of molybdenum and tungsten. Internationally, we have acquired and incorporated world class mining and processing facilities in Australia, Brazil and the Democratic Republic of the Congo. Each of these operations maintains a mature Environmental Management System (EMS) that is certified to the ISO 14001 standard. These management systems are independently audited and include required training for all employees and contractors to ensure communication of the company’s environmental objectives.

## 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, and are therefore the necessary result of successful mining. Construction and expansion of a TSF is typically an ongoing process over the life of the mine.



CMOC understands the importance of responsible tailings management. Our robust engineering, safety and environmental programs ensure that the risks associated with tailings management are minimized for our communities and our operations. Tailings stewardship is a management strategy CMOC implements throughout the life cycle of a TSF, ensuring that best practices are implemented to properly design, construct, operate, maintain, monitor, and ultimately close the facility. Accordingly, CMOC implements stewardship strategies that include having professionals on staff who are qualified in tailings management, retaining qualified consultants, designing in accordance with international guidelines, implementing surveillance and monitoring programs, and performing systematic third-party reviews. Where feasible, CMOC strives to convert TSFs to a post-operational land use objective while minimizing long-term stability concerns and post-closure monitoring requirements.

In China, tailing ponds construction strictly follows the “three safety and environmental protection

procedures” (design, construction and production). We keep tight controls over every stage, including feasibility study, preliminary design, construction, trial production and completion and acceptance. We also keep accurate records and supervision during construction.



▲ There are 13 tailing ponds in China, with 6 in use. We attach great importance to the security risk management of tailing ponds, and invest about 40 million RMB each year in the maintenance and construction of tailing pond safety facilities.

During the operation of Chinese tailing ponds, we strictly implement the “standardized safety management system of tailing ponds”. We:

- Install the real-time online monitoring system of the tailing ponds, and carry out manual detection with specified frequency to check results of the monitoring system accordingly.
- Have the third party provide safety and technical services of tailing ponds.
- Make sure that the safety facilities of the tailing ponds are under continuous inspection 24 hours a day.
- Take various security measures such as providing safety training to neighboring communities, conducting regular emergency drills, developing evacuation emergency plans and heavy rain warnings.



▲ Tailings produced by our TFM copper and cobalt mine in the DRC are currently being deposited in a TSF with a total storage capacity of 66 Mt. A new TSF is currently undergoing construction adjacent to the first, which will bring the cumulative storage capacity to 147 Mt. Current estimates of the life of mine for our oxide deposits at this property indicate that additional storage capacity will be necessary to accommodate future production of tailings beyond this current expansion. The TSF at TFM is fully lined so as to protect groundwater resources of importance to our communities.

## Reclamation

CMOC applies sustainable development 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 vitally important for CMOC and the communities in which we operate. We consider the input of local stakeholders in determining opportunities for future beneficial land use. Where practicable, we pursue progressive reclamation during the operational phase to minimize environmental impacts. Actions to progressively revegetate disturbed surfaces at our operations helps to reduce erosion and dust emissions.



◀ Our Sandaozhuang molybdenum and tungsten mine in China was among the second batch of “National Pilot Organization of Green Mines” awarded by the Ministry of Land and Resources in 2012. We have restored the vegetation in an aggregated area of 1.25 million square meters of discontinued operations. Nowadays, wildlife such as golden pheasants and hares can be seen from time to time in the forest in mining area.

## Biological Diversity

CMOC operations are accompanied by robust programs to assure that the impacts of our mining 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.

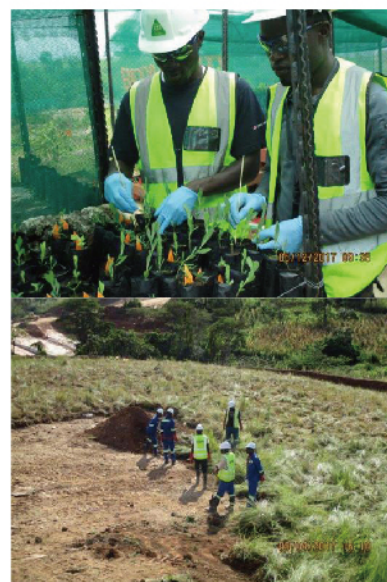
The actions described above, associated with project environmental impact, are required under the regulatory systems of Australia and Brazil that govern our operations in those countries. Our TFM mine in the DRC aligns with international best practice frameworks, including the guidelines and standards 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, as well as the environmental policy of CMOC International that references impacts to biological diversity as a potential outcome of our operations.

At TFM the leading biodiversity conservation issue is associated with the floral community adapted to soils with naturally high concentrations of metals as a result of regional geology. These areas were at one time common throughout the copper belt of the DRC and Zambia. After environmental and social impact assessments of the TFM mining concession at the project's outset in 2006, this floral community emerged as an important conservation issue due to several factors. 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.

In collaboration with lead academic institutions in the field of metalphyte plants, the evaluation of options for mitigating impacts to these plant communities led to development of biodiversity management plans that are subject to annual updates based on results and continual improvement. The TFM program focuses on conservation of host habitats through an innovative program of artificial ecosystems sited outside the direct mining footprint. These efforts are paralleled by other programs such as seed bank and greenhouse conservation. As a result, extinction risk at the level of species as well as habitat has been managed in the 12 years since the mine was constructed. The TFM biodiversity program has attracted regional attention and is contributing to the development of similar programs at other mine sites in the DRC.



▲ Artificial ecosystem construction and greenhouse cultivation of metalphyte plants at TFM, two key aspects of our biodiversity conservation programs in the DRC.

▼ Superb parrot *Polytelis swainsonii* & Pine donkey orchid *Diuris tricolor*, two species of concern managed at the Northparkes Mine's Kokoda Offset Property.



The management of biological diversity is also a key feature of our Northparkes Mine operation in Australia. An environmental impact assessment of a proposed expansion project identified potential impacts to endangered floral communities, as well as to species of concern. Application of the mitigation hierarchy led to the selection of an offset program, implemented through the purchase of a private farm located in the region. Activities at this 'Kokoda Offset property' are focused on such objectives as the management of remnant floral communities of the type identified during impact assessment on the mine property, restoration of additional habitat, and conservation measures for the targeted species of concern.

## 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 natural and strategic need for our business and our surrounding communities. We use water for processing ores, dust control and potable use. The efficient management of water resources is key to our operations. Our water supply comes from surface water, groundwater and municipal sources. In addition, a significant amount of our water sourcing comes from recycled water from our own operations.

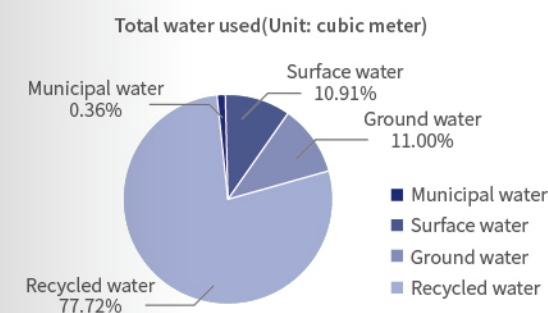


Figure: Percent water from each source type of total water used (recycled, groundwater, surface water and municipal). The total water used is 120.8 million cubic meter in FY2017 )

Sourcing of water for each operation will vary dependent on available resources. The highest volume sources include recycled and ground water. All of our operations utilize recycled water. Process water carries the tailing from ore processing to the tailing storage facility. The tailing material settles and the clarified water is recovered. The recycled water can then be reused in the production process.

In 2017, the company's operations continue development of water resource management programs. In order to reduce the usage of fresh water, we use the water stored in the process, improve our infrastructure and use recycled water. Efforts at our Northparkes mine facility in Australia and our Niobras processing facility in Brazil have significantly increased the amount of recycled water used at each of those operations.



▲ In China, the water we use for production is fully recycled after sedimentation in the tailing ponds, so only a small amount of river water would be used as supplement. Waste water produced during ore selection is shipped to the tailing ponds using sand pump and becomes recycled clean water after being diluted and clarified there. Then 100% of the recycled clean water would be re-pumped to the closed water circuit. Water we used for cleaning the operation equipment are all recycled clean water, which are pumped to designated taps for flushing equipment and manufacturing sites. The water used after flushing would be drained to the emergency pool for the discharging plant or the tailing pools located within the factory through drains and gutters. Those waste waters collected in the discharging plant would be pumped through sand pumps to thickening pool, from where it would be sent to the tailings pond using reciprocating pumps.

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 that is lined in order to protect local groundwater. 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.



Energy

Today’s large scale mining and processing operations require significant amounts of energy. Our operations consume energy both directly in the form of diesel, natural gas and biofuels, as well as indirectly from 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.

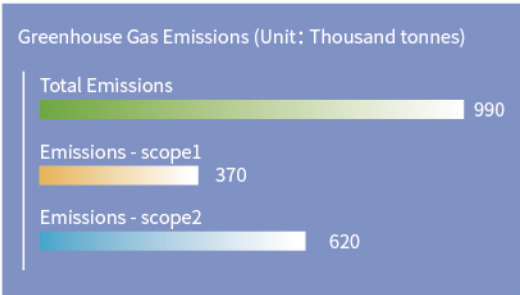


Figure: Total emissions of greenhouse gases in both Scope 1 and Scope 2 for all CMOC sites from January 1-December 31 2017.

Our 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 2017 were approximately 990,000 tonnes. Not reflected in this value is the energy produced by cogeneration from our China, Brazil and DRC facilities.

We try to use the high drop of tailing ponds as well as the waste heat from the production of acid to generate electricity so that we can purchase less electricity. In 2015 China, we started to research the

Emissions Management

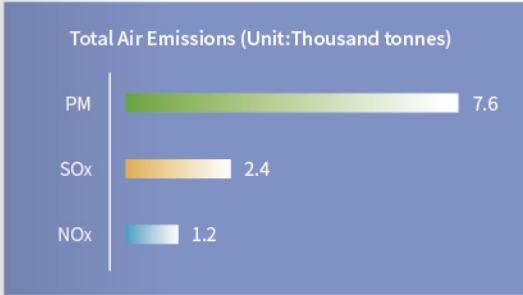
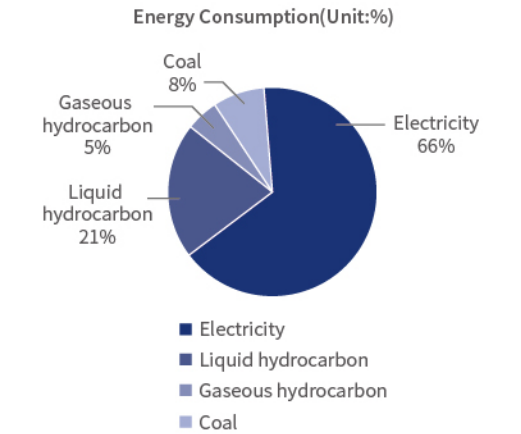
We are committed to the process of continuous improvement through our environmental management systems and look for new opportunities to reduce pollution and minimize environmental impacts associated with air and waste emissions. We implement appropriate control measures for managing air and waste emissions to ensure compliance with applicable environmental standards. The company has complied with the relevant laws and regulations that have significant impacts on us in the countries where we operate. Environmental fines or notices received in 2017 by our operations are generally associated with minor permit variances and resulted in no or minimal environmental impacts.

Air Quality

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

method of using high drop and large amount of tailings circulating water by installing the intelligent industrial circulating water pressure recycle generator, now in operation in two molybdenum mineral processing companies, saving 1.43 million kWh in total. In Brazil, there is a cogeneration plant of electric energy, from the production of sulfuric acid. In 2017, the self-generated electricity in the TFM sulfuric acid plant accounts for 18% of the total purchased electricity.

Our indirect greenhouse gas emissions associated with the use of purchased electricity in 2017 were a total of 620,000 tonnes. Nearly half of the purchased electricity for our worldwide operations comes from hydroelectric power sources. This is due to the fact that 100% of the energy purchased by our TFM operations is hydroelectric. In 2017, TFM contributed money towards the refurbishment of a fourth turbine at the Nseke Hydroelectric Power Plant in the DRC on behalf of the state owned electric utility. Three other turbines have previously been refurbished through the same partnership.



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 spraying and treatment of road surfaces, regular road maintenance and speed limits to minimize the



CMOC’s Catalão site in Goiás Brazil derives much of its energy mix from bioenergy. This operation utilizes biomass-fired furnaces to dry fertilizer products, consuming approximately 173 thousand cubic meters of woodchips in 2017 from company plantation forests, lowering the volumes of fossil fuels needed for this process. To meet this demand, the company invested in reforestation by planting 3,000 hectares of eucalyptus forests, which corresponds to 3.6 million trees. The reforestation area follows the best practices of soil management and about 45% of the area was planted in partnership with rural producers of the region, respecting the areas of permanent preservation of water bodies and legal reserves of the company. This program also contributes to the recovery of the native savanna formations, totaling an investment of approximately US\$600,000 in the recovery of this important Brazilian biome.

Waste Management

By far the largest wastes by volume include the tailing and waste rock produced from our processing and mining activities. In 2017, we produced 35.6 million tons of tailing and 71.7 million tons of waste rock. 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 wastes 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 treatment, storage or disposal facilities. Recycled wastes may be managed onsite or offsite dependent on the specific character and reuse of the waste.

| Waste               | 2017 Volume (thousand tonnes) | Type of Wastes  |
|---------------------|-------------------------------|---|
| Non-Hazardous Waste | 79.5                          | light industrial wastes, wood, scrap metal and general refuse                                     |
| Hazardous Waste     | 5.2                           | mixed industrial waste, used oil and grease, effluents, reagents, chemical containers or coolants |



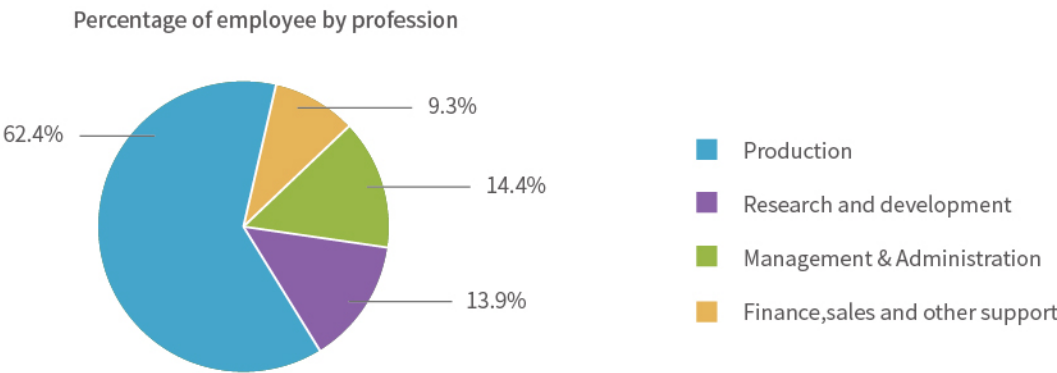
Employees

Zero harm, a concept integrated into our global CMOC operations, means that we strive to operate a business and workplace without exposing individuals to injury. This concept extends to our assets, environment and communities where we live and work. We implement our zero harm safety trainings to ensure continuous improvement of employees' safety awareness at work, thus ensuring their overall wellbeing.

Reflecting our commitment to safe operations, our health and safety management systems integrate risk-based processes and regulatory compliance measures designed to prevent personal safety and occupational hazard events. Our businesses maintain Health, Safety and Environment (HSE) systems that meet certification requirements under

the Occupational Health and Safety Assessment Series OHSAS 18001, and are audited and updated on an annual basis. We comply with all relevant local safety laws and regulations wherever we do business.

We also strictly comply with requirements of local labor laws and regulations, and establish fair employment mechanisms. Though not all sites operate under collective bargaining agreements, all 11,226 employees in our worldwide operations have the right to freedom of association and collective bargaining. We provide employees with market-based wages and benefits and we value communication with, participation of and feedback from our employees.



Safety

Employee safety at work is always our top priority, and we strongly believe that all safety incidents are preventable. A prerequisite for ensuring employees' safety is to maintain a high level of safety awareness. In addition, our safety management system works to reduce the likelihood of safety incidents by identifying and controlling risks in advance, screening hidden dangers, putting major risk sources under tight control, and using automated equipment where technically and economically feasible. This hierarchy of controls employs a series of measures to mitigate safety hazards: 1) elimination of risk, 2) engineering controls (safety devices, barriers, etc), 3) administrative/procedural controls, and 4) personal protective equipment (PPE).



▲ Employees at our Copebras phosphate mine in Brazil. Operations in Brazil are certified to the OHSAS 18001 Health and Safety Management System.

The data of overseas business are as follows

|                                 | Australia | Brazil    | Congo      | Total      |
|---------------------------------|-----------|-----------|------------|------------|
| Man hours worked (MHW)          | 940,960   | 9,219,589 | 18,223,221 | 28,383,770 |
| Total recordable injuries (TRI) | 7         | 20        | 26         | 53         |
| Lost time injuries (LTI)        | 1         | 2         | 3          | 6          |
| TRIR                            |           |           |            | 0.3735     |
| LTIR                            |           |           |            | 0.0423     |

In 2017, the Total recordable injuries (TRI) is 5 and the Lost time injuries (LTI) is 4 in China.

In 2017, we had one reported fatality in CMOC' s worldwide operations at the Tenke Fungurume site in the DRC. We are saddened at the loss of this contractor and view any loss of life at our operations, whether employee or contractor, as unacceptable. The individual was fatally injured while working in a rotary drill mast when a hydraulic hose was disconnected, causing the rotary head to lower in the drill mast. The individual was trapped between the rotary head and the mast and subsequently passed away due to his injuries.

Following a thorough investigation, the TFM team developed corrective actions that included:

- Installation of a barrier that prevents an individual from accessing the drill deck until a prescribed set of actions has been taken, include ensuring the rotary head is brought down to the deck or blocked against movement with the drill steel. (Hierarchy of Control: Engineering)
- Elimination of the night shift work on drills. There was a limited number of employees available to perform the job and the decision should have been made to complete the job during daylight hours. (Hierarchy of Control: Elimination)
- Reinforcing the procedures for working around the mast while the rotary head is in a raised position. (Hierarchy of Control: Administrative)

Zero Harm

We uphold the concept of zero harm operations, a systematically complete safety management regime, and we carry out regular training to raise safety awareness at work of all employees. In China we have 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 under the national standard, and also meets certification requirements for OHSAS 18001.

Health and safety practices at our Tenke Fungurume mine site are certified under the OHSAS 18001 management system; the site has rigorous procedures and programs to ensure compliance with the international safety standard. Compliance is monitored by internal audits, as well as an annual mandated external audit conducted by an independent third party. The health and safety program is also subject to a third party assurance review under the ICMM (International Council on Mining and Metals) framework.

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



▲ Our Australia branch Northparkes copper and gold mine has been enforcing zero harm operation since 2012



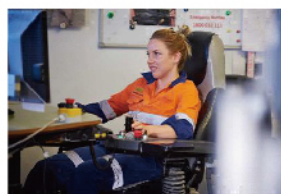
point, and each specific job undergoes safety assessment. Professional, qualified safety personnel carry out day-to-day safety programs, assessing potential safety hazards in the production and work areas of the mine. Furthermore, Northparkes brings in external professional safety institutions for safety coaching. The Northparkes HSE Management System meets the certification requirements for OHSAS 18001.

At our Brazil operations HSE systems are also certified under the OHSAS 18001 safety standard. All

internal processes are under a management system to which all operational leadership has access. 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.

### Safety through Technology

Technologically advanced mines can be safer mines. Our E48 block cave in Australia is one of the world's most automated mines. Driverless loaders are controlled remotely by operators on the surface. In addition to greater productivity, this system of 100% automation takes people out of the underground environment, eliminating their exposure to related work hazards. At TFM, our mine is a state-of-the-art hydrometallurgical operation that promotes safety around reagent control and automation.



▲ Remote control room for the E48 block cave at Northparkes

Our China site is committed to become a technology leader through robust research and development. In recent years, we invested 230 million RMB into new technologies, new equipment and engineering practice for managing voids left by mining. We had the privilege to work with more than a dozen leading Chinese research institutes to develop and implement the technologies for exploration of areas with voids, ground pressure monitoring and microseism monitoring system, and achieved remarkable results. In addition, efforts were made to deploy intelligent equipments and to establish an efficient, practical and safe intelligent production system of open-pit mining. We installed remote control box on some mining facilities and an automatic driving system on ore transport vehicles. Due to the research and application of this system, we have been awarded the 2017 First Prize for Scientific and Technological Progress by the China Nonferrous Metals Industry Association. Thanks to these technological progress and their implementation, we effectively avoided risks triggered by ground pressure activity in areas with voids, and better protected our operators.



#### ◀ Integrated Early Warning Technology

We operate a 48-channel microseismic monitoring and early warning system for open-pit and underground areas, and realize all-weather, real-time and three-dimensional monitoring on the stability of underground areas with voids left by mining, and open pit mines. The technology allows us to monitor the ground pressure of the extremely complicated underground areas with voids at Sandaozhuang, and ensures the safety of these areas. This technology has now been included in Catalog of Advanced Safe Technology and Equipment to be Promoted and Outdated Ones to be Eliminated (2017) compiled by China's State Administration of Work Safety, and has been approved by the China Nonferrous Metals Industry Association.

### Health

CMOC is a human-centered company with a strong focus on our employees' physical and mental 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. We also pay for employees' critical illness insurance and basic medical insurance.

### Occupational Health

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. All sites meet certification requirements for the OHSAS 18001 management system for occupational health and safety management. Guided by OHSAS 18001, health management specialists identify, manage and control potential causes of occupational illness, emerging health problems and critical risks that threaten occupational health.

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. The main causes of occupational diseases in our workplace are dust, noise, hazardous gases.

Dust, the 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 of roads or sealing 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 daily noise monitoring, and requiring the use of hearing protection.



▲ A worker in the electrowinning facility at our TFM operation. Open-sided buildings and personal protective equipment are examples of controls used to reduce employee exposure to potentially noxious air quality in this facility.

### Disease prevention for employees

With a focus on improving employees' physical and mental health, besides providing medical help for sick employees, we also attach great importance to 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



▲ Doctor from Luoyang Central Hospital is providing a Chinese employee with health consulting.

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.

We also pay attention to factors such as mental health, fatigue, substance abuse and stress. Our TFM operations have pioneered an in-cabin fatigue monitor of drivers, a system also being evaluated for use at our Brazil operations. Our Australia operations maintain an "Am I Fit for Work?" program to promote wellness of employees in the areas of mental health, drugs and alcohol, illness, fatigue, and physical fitness.



Wellness

At our Chinese operations we are committed to creating a cheerful and comfortable work environment for employees. We provide various hobby-related activities to enhance employees’ teamwork skills, such as those organized by basketball and badminton teams as well as chess and photography clubs. We also hold employee sports meetings regularly to help enhance employees’ wellness both at work and in daily life. Moreover, we have yoga classes and regular sports meetings designed for female 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.



▲ We sponsor wellness activities such as Tai Chi at our operations in China.

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 work 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. We recognize our employees’ rights to freedom of association as well as collective bargaining. In addition, we have no tolerance for child labor or forced labor. We only employ people who have reached the legal working age. In 2017, we found no violation of any laws and regulations against child labor or forced labor.

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. We do not allow any employment discrimination based on race, ethnicity, religion, gender, age and other factors.

We also implement the principle of giving male and female employees equal pay for equal work, safeguard the right of female employees to enjoy equal treatment, and work to improve their quality of work and life. Our Australia operations offer paternity leave, and in China as well as Brazil we provide up to six-months of maternity leave and a one-hour break every workday for nursing mothers. Our Northparkes copper and gold mine held a White Ribbon Campaign and became the first mine in Australia recognized as a White Ribbon Workplace for playing a pioneering role in preventing and responding to violence against women.



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.

Training

We have a well-developed training system to help employees improve their career development. Our employee training programs are developed under unified planning and are placed under both centralized and decentralized management. By taking into account employees’ personal self-learning patterns, we strive to improve employees’ professional knowledge and initiative in the workplace, with a view to enhancing their sense of pride and achievement. We also design training programs based on employees’ feedback and suggestions to serve as a platform providing more opportunities for career development.



▲ In 2017, four technicians based in China were selected after an open select process to attend a one-year training program in Australia.

In 2017 in China, we launched a training program for medium and high-level management in cooperation with several universities in China. The whole process of the training program was under unified management, which includes analysis of training needs, early-stage research and investigation, course design, development of teaching materials, satisfaction survey, and conversion of training results. The first and second sessions, respectively *Practical Training on Performance and Salary Management for Medium-Level Management* and *Practical Training on Financial Analysis and Cost Control for Medium-Level Management*, enriched the theoretical and management knowledge of trainees.

We also offer technicians professional training programs to improve their skills, encourage them to attend further education classes, and support them to obtain relevant certifications, aiming to help broaden their career paths.

In addition, we provide employees from different business segments with great opportunities to learn from and communicate with each other, aiming to help improve their skills and promote their technical communication.

The overseas operations have their own plans for employee training to support all their staffs.

Examples of employee training programs at international sites

| Australia (NPM)  |
|--|
| <b>NPM Training Management Plan</b><br>Includes the training system at NPM and nationally recognized training programs (eg Certificate III in Resource Processing) |
| <b>NPM Study Assistance Program Procedure</b><br>Provides information on opportunities for employees to apply for tertiary study assistance                        |
| <b>NPM Training Calendar</b><br>Provides scheduled training held onsite at NPM throughout 2017 (including Organizational Development training)                     |
| Brazil   |
| <b>Regulatory training</b><br>Regulatory Standards required by Brazilian law   |



|   |
|---|
| <b>Brazil</b>   |
| <b>Technical training</b><br>To develop and improve specific technical knowledge to perform the function, in the area processes, equipment or to bring new technologies   |
| <b>Behavioral training</b><br>To develop competencies and behavioral specificities  |
| <b>Professional development</b><br>Employees are responsible for their technical and professional development, with support from the managers of each area and the training and development department  |
| <b>DR Congo (TFM)</b>   |
| <b>Competency-Based Training</b><br>To upskill employees, the TFM training department conducts competency-based training programs based on a training guide and a training catalogue that have been developed to address all skill gaps across the mine. All instructors follow "train the trainer" certification programs. |

**Incentive System**

To ensure continuous improvement of staff performance, we have established a complete set of incentive mechanisms and key performance indicators which are evaluated to offer important bases for salary and position adjustment and termination of labor contracts.

Community

CMOC is committed to be a responsible neighbor in the communities wherever we do business. Because our mining operations take place in proximity to other land uses such as urban populations, businesses, agriculture and transportation corridors; there is inherent risk of environmental, social and economic impacts on these neighboring interests from our operations. These risks drive the need for stakeholder engagement 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 are aligned with appropriate policy frameworks. These include national priorities of the host governments where we operate and external best practice frameworks, as well as corporate and site-level policy documents. For example, our operation in China closely aligns community spending with government development priorities, and makes pertinent community investments to enhance performance in achieving those

priorities. Our international operations have community relations policies at the site level, which are also reflective of a corporate policy maintained by CMOC International. Social engagement and community investment activities may also be governed by commitments made through the Environmental and Social Impact Assessment process.

The headquarters of CMOC is based 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. With an underdeveloped economy, local residents are challenged by a lack of employment and educational opportunities as well as access to medical care, and some suffer from long-term poverty. At this site we have been actively implementing the policy of "industry nurturing agriculture" and strive to become a good neighbor of local communities by providing full support for charitable activities and continuously funding local economic development. Some of these efforts have been publicly recognized by awards such as "Advanced Charitable Organization in 2016" and "Advanced

Organization for Respecting Teachers and Valuing Education."

In the Democratic Republic of the Congo (DRC) our Tenke Fungurume Mining (TFM) copper and cobalt business is near rural villages, agriculture and two towns that have experienced significant population influx; the local population having increased from an estimated 70,000 in 2006 to over 220,000 at present. Accordingly, sustainability programs at this site aim 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

(SDG) objectives, as well as the development priorities enumerated by various DRC government structures and NGO partners. 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 drive concerns from stakeholders related to water use and potential impacts from mine operations. 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

Though we operate over a wide range of cultural and economic settings, active engagement with stakeholders near our mine operations is a common element in the success in addressing the issues identified above. Community relations are managed at appropriate levels of engagement that may include local traditional leadership, community interest groups and individuals that have concerns about our operations, and the media.

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 our international 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 operations in China, the company liaises with its local stakeholders on a routine basis through community relations staff, who communicate with government to identify local and regional communities in need of assistance on the basis of the development conditions. These staff members work with the identified populations to select priority development activities such as in the health and education sectors, or in alignment with the regional priority of eliminating extreme poverty.

At TFM a Community Development Forum is comprised of representative stakeholders from nearby communities, who identify priority development needs for investment by the Social Community Fund (SCF), a company-sponsored foundation. The SCF was created through contributions from the TFM operation and directly responds to community priorities in the areas of infrastructure, education, health and income generation. Since inception in 2009 through December of 2017 this fund has received contributions of US\$32.9M to support these programs. The company 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.

At our Northparkes mine in Australia, community relations staff engage with our stakeholders through several means, including neighbors' meetings with the adjoining community, a Community Consultative Committee, mayors & councilors in the regional towns of Parkes & Forbes, the Parkes Chamber of Commerce, leadership of the local indigenous community, and political leaders.



▲ A stakeholder forum helps guide investment programs for the TFM Social Community Fund in the DRC.





◀ Relations with the local indigenous community at our Northparkes Mine in Australia are maintained through the Wiradjuri Executive Committee

At our operations in Brazil the 3 primary elements of the company’s social management strategy are stakeholder engagement, management of impacts and risks, and community development investments. In 2017 the Brazil operation conducted an intensive social diagnostic that included stakeholder identification, engagement and mapping. Results of this exercise guide ongoing stakeholder engagement as well as in the setting of community development priorities.

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 and culture. In aggregate CMOC invested 166.19 million RMB in community projects in 2017.



▲ The Brazil operations utilize several stakeholder communications channels; including direct outreach, grievance management systems and innovative use of social media.

Education

Support for education, from primary school through university, is a high priority for stakeholder communities. Across all operations the company has donated 18.62 million RMB to educational programs.

In China the company believes that educational problems should be first addressed to promote regional development, and we provide 2 million RMB every year through grants to help university students living in poverty receive better education. In the past four years, nearly 5,000 students in the surrounding neighborhood have benefited from our educational grants, of which 2,103 have graduated, found employment and now help lift their families from poverty.

At the TFM operation the local community has voiced concern with the lack of access to and the quality of basic education available to young children in our mining concession area. Accordingly, TFM investments focus on enhancing access to primary schools with construction projects, direct support to school operations, and on improvements to teacher capacity to provide quality education. The company has built 16 primary schools in its mining concession, and provides support such as didactic materials and teacher training to an additional 20 schools. TFM is in the process of identifying populations of school-age children throughout its 1,600 km² concession, and has the goal of assuring that 80% of children in this area have access to full primary schooling delivered by a qualified school teacher.



▲ A primary school classroom in one of the schools supported by TFM.

A national priority area for community action in Brazil is the creation of opportunities for urban children. Our operations in Brazil align with this



▲ Reading materials available through CMOC Brazil’s program in the town of Catalao.

priority, supported in part through its Fundação Nova Vida program. Considering that only 56% of the Brazilian population have the habit of reading and 42% of them have never had any contact with activities of culture, our operations in Brazil align with the challenge of supporting programs that incentivize education, reading, music and arts to contribute change in this scenario.

Health

Our mining operations invested 27.12 million RMB in community-based health projects in 2017, addressing a range of priority needs of our stakeholders.

Communities near some of our operations may suffer from health problems, for example in TFM it is very possible for the exposure to 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. Over 120 wells are operational in the rural parts of TFM’s concession. These wells are complemented

2017 Social Investments for all Operations

| Sector       | Education  | Health     | Livelihoods | Culture   | Environment | Resettlement | Infrastructure | Other     |
|--------------|------------|------------|-------------|-----------|-------------|--------------|----------------|-----------|
| China (RMB)  | 2,000,000  | 0          | 4,7500,000  | 0         | 10,000,000  | 0            | 5,800,000      | 0         |
| NPM (Au\$)   | 16,780     | 25,800     | 0           | 14,500    | 5,850       | 0            | 0              | 0         |
| Brazil (R\$) | 117,716    | 729,805    | 0           | 1,592,304 | 100,000     | 0            | 0              | 0         |
| Tenke (USD)  | 2,576,415  | 4,041,973  | 1,186,601   | 130,690   | 0           | 12,127,513   | 230,767        | 1,577,203 |
| Totals (RMB) | 18,616,926 | 27,116,889 | 12,260,691  | 3,966,412 | 10,221,497  | 76,761,094   | 7,260,640      | 9,982,906 |

Notes: The other part includes administrative costs of community development programs;  
1Au\$=4.9294RMB;1R\$=1.9266RMB;1USD=6.3295RMB.





by potable water systems installed in the towns of Tenke and Fungurume, which supply more than 700 taps in these urban areas. In addition, TFM has built or refurbished 8 rural and urban health centers. Constructed under collaborative agreement with the local health zone authorities, these health centers provide access to medicines and basic health care for rural residents of the TFM concession.



▲ A rural water well, and urban water points being used by residents of our TFM concession in the DRC.

Livelihoods

The priority issue for most communities near our mine operations is the creation of economic opportunities as a means of alleviating poverty. 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. In 2017 for example, our operations in China donated 15 million RMB to support regional township tourism projects including a water park and a holiday resort project. The programs in China also supported agricultural programs that provide economic opportunities for stakeholders in poverty near our operations.

In the DRC our operations are in a zone important for regional agriculture. Accordingly, our livelihood programs seek enhancement of opportunities among local farmers. TFM community programs promote improved maize agriculture and credit programs that supply the mine’s operational needs to provide food for employees, as well as regional market demand. Over 700 farmers participate in this initiative, receiving inputs from TFM, repaid in-kind with maize that the company uses as part of employee compensation. Altogether the company supports more than 1,300 hectares of improved maize culture that reaches nearly 1,200 farmers, plus additional projects in horticulture and animal husbandry; all of which create significant economic opportunities for our local community.

▼ A farmer receives technical guidance from a member of TFM’s community development staff



▲ CMOC provides guidance on the production of mushrooms for community members near its operation in China.

In China, during the four years since 2014, we have donated 17 million RMB every year to where we run our primary business, an aggregate of 68 million RMB to Luanchuan directed to regional poverty relief and education improvement, in keeping with our philosophy that education precedes economic development. We have been successively recognized as a "Meritorious Company for Monetary Donations and Poverty Relief" by the local government of Luanchuan and an "Advanced Organization for Poverty Relief in Henan Province" by the provincial government of Henan Province, and been recommended as a "Nationally Advanced Organization for Poverty Relief." Since 2013, we also began visiting residents living in poverty in the surrounding neighborhood at the advent of every Chinese New Year, with necessities of life worth about 130,000 RMB.

In China CMOC also helps the local government with targeted poverty relief measures based on the actual conditions of the surrounding neighborhood. We also provide specialized funds for residents living in poverty to facilitate immigration, settlement, employment, and startup projects. Our operation in China also supports government initiatives to provide improved housing for rural residents seeking to relocate near urban centers.



◀ Public housing project in the town of Luanchuan, which was supported by our mine operation in China

Culture

CMOC acknowledges the importance of respecting cultural aspects of communities where we operate. In 2017 the company invested 3.97 million RMB in projects that promote 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 support cultural programs targeting children, in keeping with national priorities on providing opportunities for children among the country’s urban population. 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. Technical scholarship holders receive Au\$10,000 per year, while non-technical scholarship holders receive Au\$5,000 per year from Northparkes, who also offer work placements both onsite and throughout Australia.



▲ Youth in the community near our mine operations in Brazil can participate in cultural enrichment programs, including music and art.



▲ Recipient of an Indigenous Scholarship from Northparkes Mine.

Land Acquisition

All our mining operations require significant amounts of land to accommodate mining, processing and administrative needs. The acquisition of land follows procedures derived from internal policies that in turn reflect relevant laws and regulations in the areas where operations are located.

For example, some 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 compensation at fair market values. We have so far signed 47 land use agreements with the surrounding neighborhood. Besides paying a certain amount of cash compensation, we have also employed over 1000 affected parties to provide them with a stable source of income.

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 TFM operation in the DRC land acquisition is guided by international best practices, notably the Performance Standard 5 of the International Finance Corporation (IFC), which help protect the livelihoods and rights of affected





A resident passing through the New Mitumba resettlement village in the TFM mining concession in the DRC. This community of 120 households was formerly within close proximity to one of our copper-cobalt deposits, and were relocated to another location through the TFM resettlement program.

populations that are vulnerable due to poverty and lack of formal title to the lands they occupy. In these cases, land acquisition involves extensive consultation with entire communities who participate in the selection of the areas where they will be relocated, plus significant long-term follow-up on matters such as the restoration of their livelihoods. Since initial construction in 2006 TFM has resettled more than 900 households into new residential areas, and provided livelihood restoration to some 4,700 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, redress of issues and community acceptance of our resettlement program.

Security and Human Rights

All of 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, and for protection of company assets. Our operations in the southern DRC are not located in areas affected by the conflict that can be found in the eastern part of the country. Nonetheless the artisanal mining that occurs throughout the copper mining region of southeastern DRC 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 (VPSH), 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. As an aspect of VPSH implementation TFM provides training to its security personnel on practical aspects of embedding human rights considerations into their routine operations.



▲ TFM security agents receive training in the Voluntary Principles on Security and Human Rights from an officer of the United Nations.

Active law enforcement within the TFM mining concession is the responsibility of the Mines and Hydrocarbons Police, a DRC government agency. While not directly responsible for these police officers, TFM does facilitate their access to training in human rights principles through 3rd party auspices such as those of the United Nations Organization Stabilization Mission in the DR Congo (MONUSCO).

Finally, TFM is also audited by customers, including major automobile and electronics manufacturers, who seek assurance that the products used in their supply chain originate in a socially responsible manner; which includes respect for human rights, elimination of child labor, management of environmental impacts and making positive contributions to local communities.

Product

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

Material Sourcing

Environmental and social risks in the company’s supply chain are addressed through systems for sourcing our input materials and services. Policies developed by CMOC international offer guidance on these supplier management systems at the Australia, DRC and Brazil sites in the areas of human rights, safety and security, ethics and prohibited code of conduct, environment management and community relations.

In addition to these policies, individual sites may focus on areas of direct operational concern. In China, we introduce *Suppliers Entry Management Guidelines* to ensure that qualified suppliers meet the policy and regulation requirements in good commercial reputation, professional expertises, being healthy and safe and environmentally friendly. We regard supplier’s environmental and social risks as an important factor for supplier assessment to

push our suppliers to comply with laws and regulations in environmental protection, employment and operation, so as to better fulfill their social responsibilities. 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. At the TFM site, we conduct supplier due diligence around anti-corruption and human rights, given the status of these issues as focal areas of concern in the DRC. Our operations in Brazil have 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 leaders in the key areas of safety, health and environmental performance.

Product Stewardship

Management systems 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.



At our business in Brazil individual procedures are in place to manage a suite of 28 distinct phosphate products as well as ferroniobium products. Our operation in the DRC follows legacy practices of previous owners that govern the responsible production sale and marketing of our cobalt hydroxide product as well as cathode copper. These practices are being updated in 2017 to become CMOC International procedures, a process that will continue during 2018 as part of the transition from prior ownership.

Our operation in the DRC has a set of special responsibilities related to product stewardship associated with the production of cobalt hydroxide. 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 robust 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 include specific actions to dispose of illegally mined ore confiscated by government authorities within the TFM concessions. TFM does not purchase or process ore from any other source. TFM has a complete system to track the copper and cobalt products produced at its operations through the point of transfer and to the ultimate point of delivery to its customers outside of the DRC. Due to the importance of monitoring and maintaining these

procedures in managing TFM’s mineral supply chain, in 2017 TFM received independent assurance of the company’s product control and custody procedures for the 2016 period, which we will again seek for the 2017 operating year.

CMOC is also a member of the Cobalt Institute, an industry-led trade association that promotes sustainable and responsible production and use of cobalt, participating actively on the sustainability initiatives of that organization.

No breaches related to our products have been reported in 2017 that resulted in impacts to CMOC related to health and safety, environment, labelling or social matters.



▲ Unique tracking data and sealed bags are elements of the system used by Tenke Fungurume Mining to assure that its cobalt hydroxide product originates solely from minerals mined and processed by its own industrial operations within the company’s legal concession boundaries.

Business Ethics and Transparency

CMOC is committed to the highest level of business ethics practices. 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 CMOC International code of business conduct, "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 United States Foreign Corrupt Practices Act, the People's Republic of China Anti-Bribery Act, and the United Kingdom Bribery Act.

In China, we have set up a dedicated disciplinary inspection department to carry out internal supervision and inspection on various sensitive matters inside the company in accordance with our corporate regulations. Through publicity and education in integrity, 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 on a regular basis 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.

At our Northparkes facility, all employees are required to complete modules "Anti-Bribery and Corruption" and "Anti Money Laundering," and they 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 all international laws. TFM has

codified a system of shared values into its "Principles of Business Conduct," which is based upon fundamental values of honesty, loyalty, respect, trust, and integrity, and it also maintains a cadre of detailed policies related to solicitation and extortion, among others.

Our TFM mining 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 a variety of national print media.

In 2017, we neither detected any corruption, bribery, blackmail, fraud or money laundering behaviors in the Company, nor were involved in any lawsuits related to the aforementioned behaviors.

DATA

| EMPLOYMENT   | 2017年  |
|--|--------|
| Total number of employees  | 11,226 |
| SAFETY   |        |
| Total recordable injuries  | 58     |
| Lost time injuries   | 10     |
| EMISSIONS  |        |
| Total greenhouse gas emissions (in thousand tonnes) of scope 1 & scope 2 | 990    |
| GHG emissions- scope1  | 370    |
| GHG emissions- scope2  | 620    |
| Total NOx emissions (in thousand tonnes)                                 | 1.2    |
| Total SOx emissions (in thousand tonnes)                                 | 2.4    |
| Total PM emissions (in thousand tonnes)                                  | 7.6    |
| Total emissions of hazardous waste (in thousand tonnes)                  | 5.2    |
| Total emissions of non-hazardous waste (in thousand tonnes)              | 79.5   |
| Total of tailings and waste rock (in million tonnes)                     | 107.3  |
| Waste rocks  | 71.7   |
| Tailings   | 35.6   |



| WATER CONSUMPTION                                 |             |
|---|-------------|
| Total water consumption (in million cubic meters) | 120.8       |
| Municipal water                                   | 0.4         |
| Surface water                                     | 13.2        |
| Ground water                                      | 13.3        |
| Recycled water                                    | 93.9        |
| ENERGY CONSUMPTION                                |             |
| Total energy consumption(in MWh)                  | 2,874,000   |
| Electricity                                       | 1,891,000   |
| Liquid fuel                                       | 613,000     |
| Gas   | 134,000     |
| Others  | 236,000     |
| PACKAGING MATERIALS                               |             |
| Packaging material in total (in tonnes)           | 3,700       |
| COMMUNITY INVESTMENT                              |             |
| Total(in million RMB)                             | 2017 166.19 |
| Education   | 18.62       |
| Health  | 27.12       |
| Livelihoods                                       | 12.26       |
| Culture   | 3.97        |
| Environment                                       | 10.22       |
| Resettlement                                      | 76.76       |
| Infrastructure                                    | 7.26        |
| Other   | 9.98        |

ANNEX I - ESG INDEX

| Aspect                     | Description   | Reference |
|----------------------------|---|-----------|
| A.ENVIRONMENT              |   |           |
| Aspect A1 Emissions        |   |           |
| General Disclosure         | Information on:<br>(a) the policies; and<br>(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. | 6         |
| KPI A1.1                   | The types of emissions and respective emissions data  | 10        |
| KPI A1.2                   | Greenhouse gas emissions in total (in tonnes) and,where appropriate, intensity (e.g. per unit of production volume, per facility)   | 27        |
| KPI A1.3                   | Total hazardous waste produced (in tonnes) and,where appropriate, intensity (e.g. per unit of production volume, per facility)  | 27        |
| KPI A1.4                   | Total non-hazardous waste produced (in tonnes) and, where appropriate, intensity (e.g. per unit of production volume, per facility)   | 27        |
| KPI A1.5                   | Description of measures to mitigate emissions andresults achieved   | 10        |
| KPI A1.6                   | Description of how hazardous and non-hazardous wastes are handled, reduction initiatives and resultsachieved  | 10        |
| Aspect A2 Use of Resources |   |           |
| General Disclosure         | Policies on the efficient use of resources, including energy, water and other raw materials   | 9         |
| KPI A2.1                   | Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total (kWh in ' 000s) andintensity (e.g. per unit of production volume, per facility )  | 28        |
| KPI A2.2                   | Water consumption in total and intensity (e.g. per unit of production volume, per facility)   | 28        |
| KPI A2.3                   | Description of energy use efficiency initiatives andresults achieved  | 10        |
| KPI A2.4                   | Description of whether there is any issue in sourcing water that is fit for purpose, water efficiency initiativesand results achieved   | 9         |
| KPI A2.5                   | Total packaging material used for finished products (in tonnes) and, if applicable, with reference to per unit produced   | 28        |



| Aspect A3 The Environment and Natural Resources |  |             |
|---|--|-------------|
| General Disclosure                              | Policies on minimising the issuer's significant impact on the environment and natural resources  | 6           |
| KPI A3.1  | Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them   | 6           |
| B.SOCIAL  |  |             |
| Aspect B1 Employment                            |  |             |
| General Disclosure                              | Information on:<br>(a) the policies; and<br>(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 | 12          |
| KPI B1.1  | Total workforce by gender, employment type, age group and geographical region  | 27          |
| KPI B1.2  | Employee turnover rate by gender, age group and geographical region  | Undisclosed |
| Aspect B2 Health and Safety                     |  |             |
| General Disclosure                              | Information on:<br>(a) the policies; and<br>(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.  | 13          |
| KPI B2.1  | Number and rate of work-related fatalities   | 13          |
| KPI B2.2  | Lost days due to work injury   | 13          |
| KPI B2.3  | Description of occupational health and safety measures adopted, how they are implemented and monitored   | 13          |
| Aspect B3 Development and Training              |  |             |
| General Disclosure                              | Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities.  | 17          |
| KPI B3.1  | The percentage of employees trained by gender and employee category (e.g. senior management, middle management)  | Undisclosed |
| KPI B3.2  | The average training hours completed per employee by gender and employee category  | Undisclosed |
| Aspect B4 Labour Standards                      |  |             |
| General Disclosure                              | Information on:<br>(a) the policies; and<br>(b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to preventing child and forced labour  | 16          |
| KPI B4.1  | Description of measures to review employment practices to avoid child and forced labour  | 16          |
| KPI B4.2  | Description of steps taken to eliminate such practices when discovered   | 16          |

| Aspect                            | Description  | Reference   |
|-----------------------------------|--|-------------|
| Aspect B5 Supply Chain Management |  |             |
| General Disclosure                | Policies on managing environmental and social risks of the supply chain  | 25          |
| KPI B5.1                          | Number of suppliers by geographical region   | Undisclosed |
| 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   | 25          |
| Aspect B6 Product Responsibility  |  |             |
| General Disclosure                | Information on:<br>(a) the policies; and<br>(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 | 25          |
| KPI B6.1                          | Percentage of total products sold or shipped subject to recalls for safety and health reasons  | Undisclosed |
| KPI B6.2                          | Number of products and service related complaints received and how they are dealt with   | Undisclosed |
| KPI B6.3                          | Description of practices relating to observing and protecting intellectual property rights   | 25          |
| KPI B6.4                          | Description of quality assurance process and recall procedures   | 25          |
| KPI B6.5                          | Description of consumer data protection and privacy policies, how they are implemented and monitored   | 25          |
| Aspect B7 Anti-corruption         |  |             |
| General Disclosure                | Information on:<br>(a) the policies; and<br>(b) compliance with relevant laws and regulations that have a significant impact on the issuer relating to bribery, extortion, fraud and money laundering  | 26          |
| 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  | 26          |
| KPI B7.2                          | Description of preventive measures and whistle-blowing procedures, how they are implemented and monitored  | 26          |
| Aspect B8 Community               |  |             |
| 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  | 20          |
| KPI B8.2                          | Resources contributed (e.g. money or time) to the focus area   | 20          |
| KPI B8.1                          | Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport)   | 28          |