



# Responsibly sourcing the commodities for everyday life

Sustainability Report 2018



# We are one of the world's largest globally diversified natural resource companies, employing 158,000 people in 150 mining and metallurgical sites, oil production assets and agricultural facilities around the world

## 2018 performance overview and strategic priorities:



## Our values

Our values reflect our purpose, our priorities and the beliefs by which we conduct ourselves. They define what it means to work at Glencore, regardless of location or role. They are the fundamental basis of our sustainability management system along with our Code of Conduct and our Group policies.



### Safety

Our first priority in the workplace is to protect the health and wellbeing of all our people. We take a proactive approach to health and safety; our goal is continuous improvement in the prevention of occupational disease and injuries.



### Entrepreneurialism

Our approach fosters the highest level of professionalism, personal ownership and entrepreneurial spirit in all our people while never compromising on their safety and wellbeing. This is important to our success and the superior returns we aim to achieve for all our stakeholders.



### Simplicity

We aim to achieve our key deliverables efficiently as a path to industry-leading returns, while maintaining a clear focus on excellence, quality, sustainability and continuous improvement in everything we do.



### Responsibility

We recognise that our work can have an impact on our society and the environment. We care profoundly about our performance in relation to environmental protection, human rights, and health and safety.



### Openness

We value open relationships and communication based on integrity, cooperation, transparency and mutual benefit with our people, our customers, our suppliers, governments and society in general.

## Contents

### Governance

2018 performance overview and strategic priorities	IFC
At a glance	2
Chairman's introduction	4
Chief Executive Officer's review	6
View from the HSEC Committee Chair	8
Our strategic approach	9
Performance overview	10
About this report	11

### Material topics

Stakeholder engagement	14
Participation in external initiatives	16
Ethics and compliance	17
Catastrophic hazard management	18
Workplace health and safety	24
Climate change	30
Water and effluents	36
Waste and air emissions	42
Human rights and grievance mechanisms	48
Community engagement and social commitment compliance	54
Product stewardship	60
Our people	64

### Commodities report

Coal	70
Copper	82
Ferroalloys	92
Nickel	98
Oil	106
Zinc	114

### Additional information

Glossary	120
Assurance statement	122
Important notice concerning this document including forward looking statements	124

## Our sustainability communications

Our Sustainability Report 2018 forms part of Glencore's annual corporate reporting suite. It expands on the information provided in our Annual Report 2018, detailing how we address the most material sustainability risks and opportunities we faced during the year.

In addition to this report, we also publish Our Approach to Sustainability, a GRI data book, Payments to Governments report, standalone human rights and water reports and Modern Slavery Statement as well as making regular updates on our activities via our website and social media platforms.

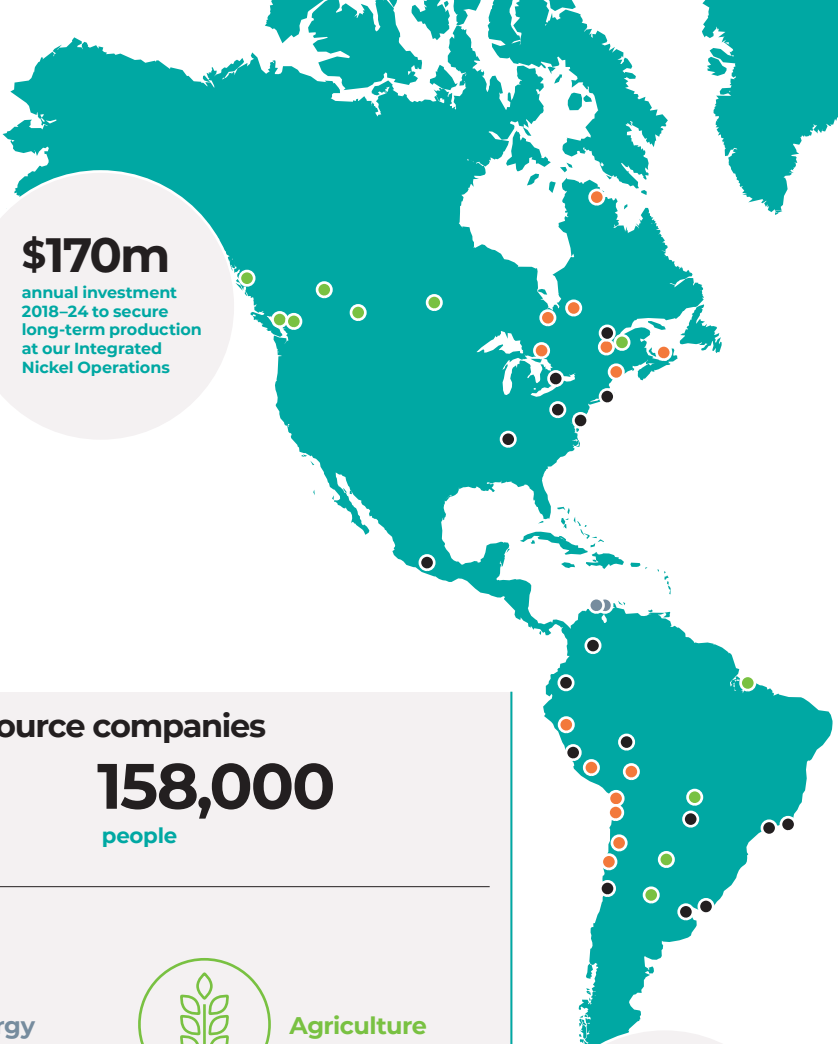
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- @Glencore
- facebook.com/Glencore
- youtube.com/glencorevideos

# At a glance

We are one of the world's largest natural resource companies. Active at multiple stages of the commodity supply chain, we are uniquely diversified by geography, product and activity, maximising the value we create for our business and its diverse stakeholders

**\$170m**  
annual investment 2018-24 to secure long-term production at our Integrated Nickel Operations



**\$200m**  
to increase Collahuasi copper concentrator throughput capacity to 170ktpd. Commissioning 2021

One of the world's largest natural resource companies

**150**  
sites

**50**  
countries

**90**  
offices

**158,000**  
people

## Three business segments



Metals and minerals



Energy



Agriculture

## Active at every stage of the commodity chain



**1**  
Exploration, acquisition and development



**2**  
Extraction and production



**3**  
Processing and refining



**4**  
Blending and optimisation



**5**  
Logistics and delivery

## Highly diversified

**90+**  
commodities

**3**  
business segments

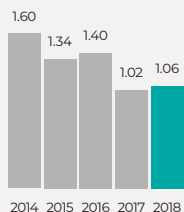
## With impressive market insight

**40+**  
years' experience

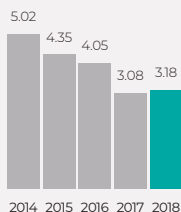
**3,000**  
employees in marketing

## Focused on sustainability

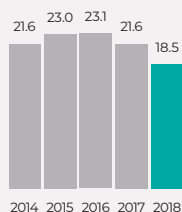
**Lost time injury frequency rate**  
(per million hours worked)



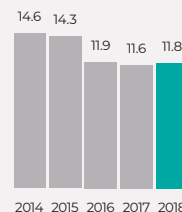
**Total recordable injury frequency rate**  
(per million hours worked)

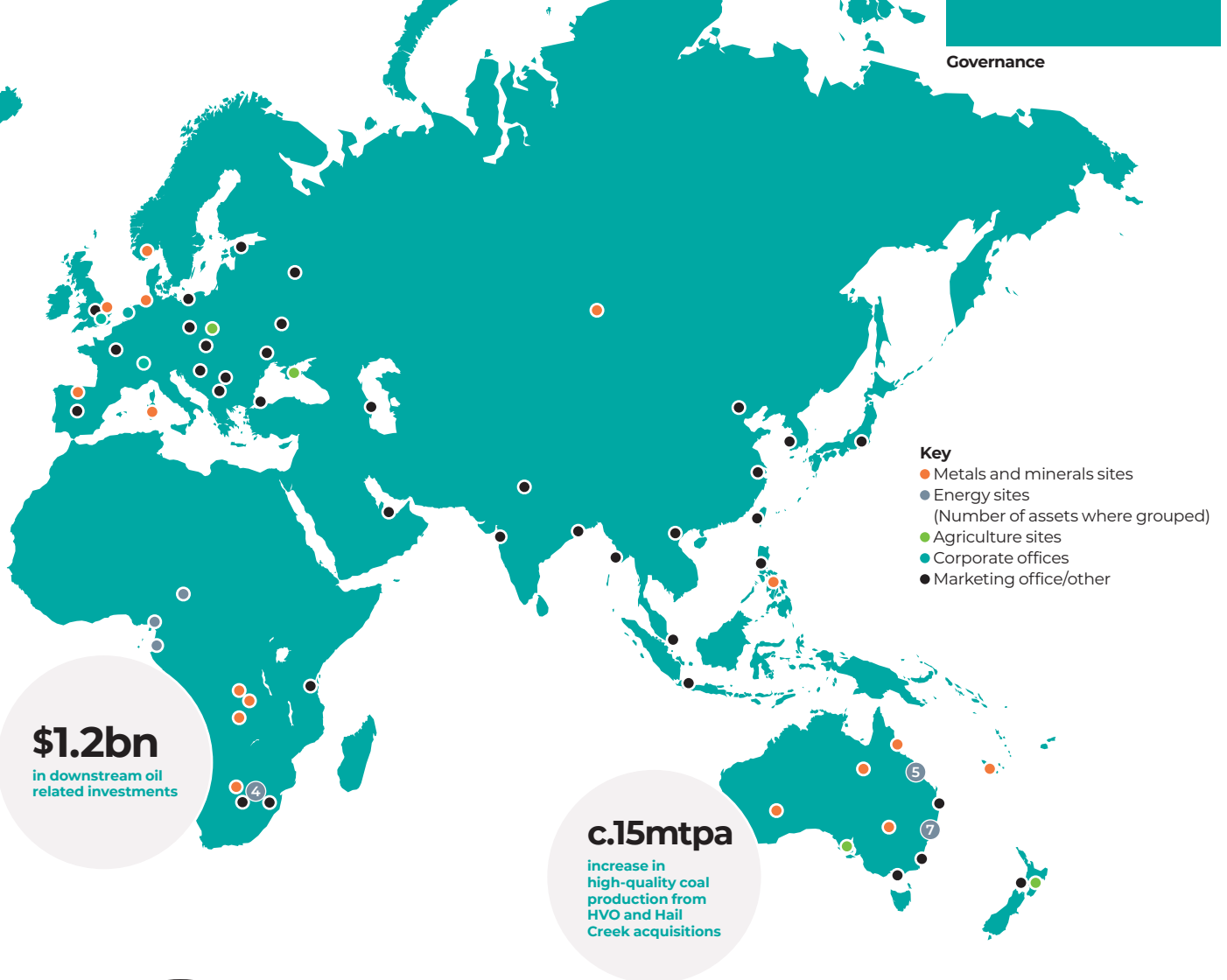


**CO<sub>2</sub>e Scope 1**  
(million tonnes)



**CO<sub>2</sub> Scope 2 – location based**  
(million tonnes)

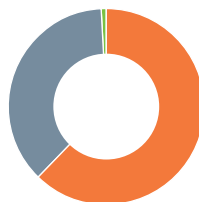




### What makes us different?

- High-quality, low-cost assets in desirable commodities
- Entrepreneurial culture: employees empowered to make decisions
- Long-term relationships with broad base of suppliers and customers
- Marketing business less correlated to commodity prices
- Maximum flexibility and economies of scale

Adjusted EBITDA 2018



**\$15.8bn**  
(2017: \$14.6bn)

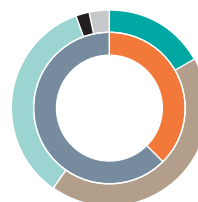
**Business segments**

- Metals and minerals
- Energy
- Agriculture

**Regions**

- Americas
- Asia
- Europe
- Africa
- Oceania

Revenue<sup>1</sup> by region and segment 2018



**Metal and minerals**  
**\$83.4bn**  
(2017: \$80.5bn)

**Energy**  
**\$139.0bn**  
(2017: \$128.3bn)

Non-current assets<sup>2</sup> by region



**\$78.0bn**  
(2017: \$78.2bn)

1 Revenue by geographic destination is based on the country of incorporation of the sales counterparty. However, this may not necessarily be the country of the counterparty's ultimate parent and/or final destination of the product, see note 2 of the financial statements in our Annual Report 2018.  
2 Non-current assets are non-current assets excluding other investments, advances and loans and deferred tax assets. The percentage contributions are derived from the information included in note 2 of the financial statements in our Annual Report 2018.

# Chairman's introduction

**We recently established a permanent Ethics, Compliance and Culture committee to provide oversight and leadership of the Group's key ethics, compliance, culture and governance matters**



I am pleased to introduce our 2018 Sustainability Report, which continues our commitment to disclose transparently on our efforts to progress the integration of sustainability throughout our business.

We have focussed this report on our performance and progress in the areas that we have identified as being material to Glencore, its assets and its external stakeholders.

## Safety

The Board is deeply saddened to report that during 2018 thirteen people lost their lives at our managed operations. In addition, we also experienced a rise in our lost time and total recordable injury frequency rates.

While the halt in the downward trajectory in incidents that our operations have achieved over recent years is disappointing, we remain committed to achieving a fatality and injury-free work place. Going forward, the Board, through its HSEC committee, on which I sit, will continue its work on reducing fatalities, which includes receiving, reviewing and making recommendations on the reports made on each fatality. As a business, we will renew our efforts to deliver a fatality and injury-free workplace.

Over the years, we have taken a robust strategic approach to occupational health, which has continued to reduce year-on-year the number of new cases of occupational disease we record.

I was very pleased to participate again in our annual HSEC summit, hosted by our Board HSEC Committee chairman, Peter Coates. The summit

brought together nearly 100 of Glencore's senior management, including the heads of our commodity departments.

One of the key topics of the 2018 summit was innovations in mobile equipment, including monitoring for fatigue, collision avoidance technology and seat belt sensors. In addition, we discussed using electric-powered vehicles in underground mines, coaching techniques to improve supervisor safety awareness and slope monitoring technology.

## Climate Change

We recognise that Glencore has a key role to play in enabling transition to a low-carbon economy.

During the year, we continued our work on our carbon strategy. We also engaged with investor signatories of the Climate Action 100+ initiative on the additional steps we are taking to further our commitment to this critical transition. Together, these efforts resulted in the publication of our climate change position statement that furthered our commitment to the transition to a low-carbon economy.

Reflecting our commitment to transparency, we will continue to publish data on our climate change performance on our website, including continued disclosure of our Scope 3 emissions. We will also review any changes to the Nationally Determined Contributions (NDCs) in line with the Paris Agreement and other relevant policy, economic and technology developments to assess societal progress in the energy transition and to update our scenario-based portfolio assessment.

We recognise the importance of disclosing to investors how Glencore ensures its material capital expenditure and investments align with the Paris Goals. Starting in 2020, we intend to report publicly on the extent to which, in the Board's opinion, we achieved this in the prior year and the methodology and core assumptions for this assessment.

Also from 2020, we will start disclosing our longer-term projections for the intensity reduction of Scope 3 emissions, including mitigation efforts. In addition, we are developing longer-term targets for reducing our greenhouse gas emissions intensity based on policy and technological developments.

As an early supporter of the voluntary guidance on consistent climate related financial disclosures produced by the Taskforce on Climate-related Financial Disclosures, we continue to disclose the metrics, targets and scenarios we use to assess and manage relevant climate-related risks and opportunities.

We take an active and constructive role in public policy development and participate in relevant trade associations. We acknowledge the IIGCC Investor Expectations on Corporate Climate Lobbying and recognise the importance of ensuring our trade association memberships do not undermine our support for the Paris Agreement and its Goals.

We are considering whether our membership of trade associations aligns with our stated climate change positions. In 2019, we will publish the result of this review, including any material misalignments identified and the actions we take to address these concerns.

**Governance**

We recently established a permanent Board Ethics, Compliance and Culture committee to provide oversight and leadership of the Group's key ethics, compliance, culture and governance matters.

The committee assumes responsibility for overseeing the implementation of the provisions of the 2018 UK Corporate Governance Code that fall within its remit, particularly focusing on the alignment of the Group's culture with our purpose, values and strategy. Additionally, it oversees the implementation of our compliance and Raising Concerns programmes.

Our existing Business Ethics Committee (BEC) provides support and reports to the new committee. Our BEC comprises of Glencore's CEO, CFO, General Counsel and senior management. The BEC considers compliance issues relevant to Glencore as well as reviewing and approving policies, procedures and guidelines.

**US Department of Justice investigation**

In July 2018, we received a subpoena from the US Department of Justice (DOJ) to produce documents and other records with respect to compliance with the Foreign Corrupt Practices Act and US money laundering statutes.

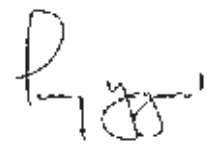
Following receipt of the DOJ subpoena, the Board established an Investigations Committee with a remit to include management and oversight of the DOJ investigation. I chair this committee and it comprises of only independent non-executive directors.

As the committee is separate from the Group's executives, they have no decision making power concerning the investigation.

**Going forward**

We remain committed to operating transparently and responsibly. We are reflecting this commitment through our ambition to integrate sustainability throughout every aspect of our business. We recognise that we will only achieve this aim through collaborative partnerships with all of our stakeholders.

The Board and I would like to take this opportunity to thank all of those working at Glencore for their efforts to drive the success of our company, which, in turn, delivers meaningful benefits for all of our stakeholders.



**Anthony Hayward**  
Chairman  
15 April 2019

# Chief Executive Officer's review

**We remain committed to high standards of corporate governance and transparency and welcome increased transparency around the redistribution and reinvestment of our payments to governments**



## Business Overview

During 2018, Glencore delivered a record Adjusted EBITDA as well as significant cash returns to shareholders. Reflecting the strength of our uniquely diversified business portfolio and commitment of our people, we achieved these results in a challenging operating environment, marked by deteriorating market sentiment as well as some company-specific challenges.

The year started with the prospect of synchronised economic growth that supported positive commodity fundamentals and prices. However, by mid-year, a strong US dollar, increased volatility and heightened US trade policy tension began to weigh on broader markets, with widespread concern around sustainability of Chinese growth also resurfacing. Most commodities ended the year materially lower than where they started.

Notwithstanding the volatility in commodity prices, similar to previous years, underlying demand for our key commodities remained generally healthy throughout the year.

## Democratic Republic of the Congo (DRC)

The year also brought specific challenges for Glencore and our DRC operations, arising from sanctions imposed on Dan Gertler, Katanga's deliberations with Gecamines over the required recapitalisation of its main operating subsidiary, the introduction of a new mining code and the appearance of excess levels of uranium in the cobalt hydroxide produced at Katanga.

Katanga resolved the matter with Gecamines in a constructive manner, while after careful consideration of its legal and commercial options

and obligations to a broad stakeholder universe, Glencore settled its dispute with the various entities affiliated with Dan Gertler, in a manner that sought to address appropriately all applicable obligations and concerns.

In contravention of the applicable stabilisation protections afforded by the previous mining code, the new mining code includes significant immediate changes to royalties, various taxation requirements and repatriation of profits. Given the legal risks of non-compliance, our DRC subsidiaries are currently complying with the new code 'under protest'.

We hope to be able to negotiate a reasonable resolution with the DRC government on various key issues during 2019, but remain willing to take the necessary steps to protect our legal rights.

## Safety

We are deeply saddened to report thirteen fatalities at our managed operations during 2018; our thoughts are with the families, friends and colleagues affected by these incidents. This is an increase on the number recorded during 2017 and we are strengthening our efforts to establish a robust safety culture at all of our assets.

Tragically, there have already been eight fatalities at our assets during 2019. Of these, six occurred at our Mopani copper mine in Zambia. We have closed Mopani's underground operations and we are reviewing its operating practices to understand better the challenges that this asset faces.



We are committed to addressing what needs to be done to develop and maintain a safe workplace for all those working at Glencore.

### Tailings storage facilities (TSF) management

Looking beyond our operations, the industry was devastated by the tragic events that took place in Brazil earlier this year when the Brumadinho dam failed causing devastating loss of life and environmental damage. We have an established dam safety assurance programme, further details on which are available on page 45. We are also working on strengthening our transparency through increased disclosure on our TSF management.

Glencore is participating in ICMM's development of an international standard for TSF. This standard is expected to create a step change for the industry in the safety and security of these features.

### Moving towards a lower-carbon economy

As one of the world's largest diversified resource companies, we recognise that we have a key role to play in enabling transition to a low-carbon economy. We do this through our well-positioned portfolio that includes copper, cobalt, nickel, vanadium and zinc – commodities that underpin energy and mobility transformation.

We can deliver a strong investment case to our shareholders through investing in assets that are resilient to regulatory, physical and operational risks related to climate change. In addition, we are prioritising our

capital investment to grow the production of commodities essential to the energy and mobility transition and which support the growing needs of a lower carbon economy.

### Transparency of payments

We remain committed to high standards of corporate governance and transparency and welcome increased transparency around the redistribution and reinvestment of our payments to government. We have been an active supporter in the Extractive Industries Transparency Initiative since 2011.

During 2018, we actively sought feedback from interested stakeholders on our approach to disclosing our payments to governments. As a result, the annual payments to government report that we published in 2018 took a more consistent approach to disclosing receipt entities (national, regional and municipal entities in all countries that we operate in) as well as including information on the extent of purchases from state-owned oil enterprises.

### Management changes

We have appointed Peter Freyberg, the former head of our coal industrial assets, to the role of Head of Industrial Mining Assets. This is a newly-created position with oversight and responsibility for all of our industrial mining assets. Peter brings a wealth of operational experience from his management of our coal assets and will focus his attention on coordinating our goals of producing safely, productively and sustainably.

### Going forward

Looking ahead, we are confident that our diverse commodity portfolio will continue to meet global needs. Through constructively collaborating with all of our stakeholders, we expect to create sustainable long-term value for all stakeholders.

We will continue to work towards our ambition to become a safety and health leader in our industry, creating a workplace without fatalities, injuries or occupational diseases, while protecting and improving the wellness of our people and communities.

The senior management team thank all of those working at Glencore for their continued efforts towards the success of our company.



**Ivan Glasenberg**  
Chief Executive Officer  
15 April 2019

# View from the HSEC Committee Chair

**Our Board Health, Safety, Environment and Community and Human Rights (HSEC) Committee, which includes Ivan Glasenberg, Tony Hayward and Patrice Merrin, has overall responsibility for the strategic direction of our sustainability activities and monitors the development and implementation of strategic HSEC programmes and policies**



As Chairman of our Board HSEC Committee, I am pleased to share with you our Sustainability Report for 2018. While we are making progress in our efforts to integrate sustainability into every aspect of our business, we still have areas of weakness to address and challenges to overcome.

Our Board HSEC Committee, which includes Ivan Glasenberg, Tony Hayward and Patrice Merrin, has overall responsibility for the strategic direction of our sustainability activities and actively monitors the development and implementation of strategic HSEC programmes and policies.

The HSEC Committee has focused on two key areas of the business over the past 12 months.

Firstly we have continued our oversight of the SafeWork programme implementation and its focus on the identification of fatal hazards and the establishment of a robust safety culture at all of our operations.

The second key area of focus for the board has been on the development and full implementation of our Catastrophic Hazard identification, management and assurance systems. The final stages of the assurance process was introduced during the year and we consider this process as being the most important non-financial risk management issue for Glencore.

As part of our routine committee business, we discuss a broad range of sustainability matters and continually review Glencore's HSEC strategies. We also review operational performance by way of internal and external reports, as well as independent audits.

Unfortunately, despite the enormous effort, we are sorry to say that we are continuing to have an unacceptable level of fatalities in our business and eliminating these fatal incidents is a priority for the HSEC Committee.

Whenever a fatality occurs at one of our operations, the HSEC Committee insists that the General Manager of that particular operation attends a subsequent HSEC Committee meeting in person. The General Manager is required to explain the incident and the circumstances leading up to it and describe the actions taken to prevent a re-occurrence. The Committee, reviews and makes recommendations on these findings.

Through Tony Hayward's role as the chair of our internal working group on climate change, the HSEC Committee receives regular updates on the progress we are making to address carbon emissions and climate change matters in our business. Glencore's climate change position statement, published in early 2019, is a key step forward in formalising our approach and ambition in this area.

In May 2018, I was very pleased to once again chair our annual internal HSEC summit. The summit is a critical component of our annual HSEC programme and brings together nearly 100 members of Glencore's senior management, including the heads of our commodity departments. The programme for the summit included a review of the previous year's HSEC performance for each commodity department and, most importantly, provided an opportunity for sharing ideas as to how we might improve in the future.

A handwritten signature in black ink that reads "Peter Coates". The signature is fluid and cursive, with a large initial 'P'.

**Peter Coates**  
Senior Non-Executive Director  
and Chairman of the Board  
HSEC Committee  
12 April 2019

# Our strategic approach

**As a global producer and marketer of commodities, our geographic presence, products and activities make us unique. Integrating our marketing and industrial business sets us apart from our competitors, helps us generate value and provides greater oversight over our value chain**

Our strategic objective is to grow total shareholder returns in a sustainable manner while maintaining a strong investment grade rating and acting as a responsible operator. We recognise our ongoing responsibility to not only deliver financial performance but also make a positive contribution to society and create lasting benefits for stakeholders in a manner that is responsible, transparent and respectful to the rights of all.

We believe that by being a better operator, and doing things the right way, we will become a partner of choice for our stakeholders. We are achieving this through targeting continuous improvement in our health and safety programmes, our environmental performance, community relations and delivering on our commitments to respect human rights.

Our approach to integrating sustainability throughout our business has clearly defined imperatives, objectives, priority areas and targets. It supports our business to meet legislative requirements, manage the catastrophic hazards associated with our business, and maintain our social licence to operate.

### Sustainability at our independently operated joint ventures (JVs)

We have a non-controlling interest in four major mining assets, the Antamina copper-zinc mine in Peru (Glencore has a 33.75% interest), the Cerrejón coal operation in Colombia (33% interest), the Collahuasi copper mine in Chile (45% interest) and the Hunter Valley coal operations in Australia (49% interest).

Independent management committees operate these non-controlled JVs. The JV partners are active participants in these



committees and we use our role to influence the management team to adopt appropriate operational and governance standards that reflect those of Glencore and the other JV partners.

Along with our JV partners, we are currently working with

the management teams at Antamina and Cerrejón to map their processes and standards against the requirements of the International Council for Mining & Metals. The operational teams will develop action plans to address any identified gaps.

# Performance overview

We take our responsibilities to our people, to society and to the environment seriously, and align our activities with the relevant international standards

✓ Achieved
➤ On track
✗ Not achieved

Material topic	2015–2020 strategic priority	Performance indicator	2017	2018	Status
<b>Catastrophic hazard management</b>	<ul style="list-style-type: none"> <li>No major or catastrophic environmental incidents</li> </ul>	Number of environmental incidents (major and catastrophic)	0	0	✓
<b>Workplace health and safety</b>	<ul style="list-style-type: none"> <li>No fatalities</li> <li>50% reduction of Group LTIFR by the end of 2020, against 2015 figure of 1.34<sup>1</sup></li> <li>50% reduction in TRIFR by the end of 2020 using 2014 figures as baseline of 5.02<sup>1</sup></li> <li>Year-on-year reduction in the number of new cases of occupational disease</li> </ul>	Fatalities at managed operations	9	13	✗
		Lost time injury frequency rate	1.02	1.06	➤
		Total recordable injury frequency rate	3.08	3.18	➤
		New occupational disease cases	46	32	✓
		Number of high-potential risk incidents reported	368	434	✓
<b>Climate change</b>	<ul style="list-style-type: none"> <li>5% (minimum) carbon emission intensity reduction on 2016 baseline by 2020</li> </ul>	CO <sub>2</sub> e Scope 1 (million tonnes)	21.6	18.5	➤
		CO <sub>2</sub> Scope 2 – location-based (million tonnes)	11.6	11.8	➤
		Total energy use (petajoules)	202	208	➤
		Carbon emissions intensity (tGHG/tCu)	4.38	4.09	➤
<b>Water and effluents</b>	<ul style="list-style-type: none"> <li>Complete implementation of water management guideline</li> </ul>	Share of sites that have implemented the water management guideline by the end of 2019 (%)	n/a	n/a	➤
<b>Human rights and grievance mechanisms</b>	<ul style="list-style-type: none"> <li>No serious human rights incidents</li> </ul>	Serious human rights incidents	0	0	✓
<b>Community engagement and social commitment compliance</b>	<ul style="list-style-type: none"> <li>Implement our social value creation strategy</li> <li>Distribute the community leadership programme toolkit</li> </ul>	Community investment spend (\$ million)	90	95	➤
<b>Product stewardship</b>	<ul style="list-style-type: none"> <li>Ongoing engagement with organisations and interested stakeholders on responsible sourcing</li> </ul>	Continued engagement with a broad range of stakeholders, including customers, regulatory organisations and industry associations			➤

<sup>1</sup> Baseline figures include Glencore Agriculture.

# About this report

**Further information about our general approach and position on various sustainability issues is available at [glencore.com/sustainability](http://glencore.com/sustainability)**

This sustainability report complies with the core level of the Global Reporting Initiative (GRI) Sustainability Reporting Standards, including the metals and mining sector supplement. Our online GRI Index provides further details: **[glencore.com/sustainability/reports-and-presentations](http://glencore.com/sustainability/reports-and-presentations)**.

Deloitte LLP has independently assured the report's GRI compliance (Assurance statement in the Additional information section).

Glencore is a signatory to the principles of the United Nations Global Compact (UNGC) and this report serves as our advanced level UNGC Communication on Progress, outlining our support for its broader development objectives and our work on implementing the principles. It also fulfils our reporting requirements as members of the International Council for Mining and Metals (ICMM).

## Boundaries and scope

This report includes information and data from our industrial and marketing activities, including only assets where we have operational control, and excluding investment and holding companies. We exclude environmental data from our warehouses, silos and ports, with the exception of any environmental spills if they occur, as their contribution to these indicators is immaterial.

Our marketing offices do not report on environmental data.

The report contains data for the full year 2018.

Acquisitions are only included if they were integrated before 1 July 2018.

Closed sites (or sites in the care and maintenance phase of their lifecycles) report on a limited indicator set, reflecting their reduced activities and workforce.

Data from divestments is included until the month before disposal.

We base workforce numbers on their end of year status, making them the exception to this rule. As a result, this report does not include workforce data from assets that were disposed of in 2018.

In 2016, Glencore divested a 50% interest in Glencore Agriculture. Glencore Agriculture represents Glencore's entire agricultural products operating segment. The disposal of its controlling interest means that Glencore no longer unilaterally directs the key strategic, operating and capital decisions of Glencore Agriculture. As such, 2017 and 2018 data in this report does not include Glencore Agriculture. Data for 2016 includes Glencore Agriculture.

## Data and information

Glencore's internal reporting systems capture and retain the data in this report. The metrics in this report reflect those used in the commodity markets and sectors in which we operate and are primarily based on GRI indicators, including indicators from the GRI metals and mining sector supplement.

In some instances, we have restated figures from previous years to reflect improvements in our data collection, analysis and validation systems. All figures stated in this report represent the latest available data unless remarked upon in the text. Some of the totals shown may reflect the rounding up or down of subtotals.

Glencore seeks to report on every incident in the period when it occurs. Occasionally, our incident reporting may take place later due to an improved understanding of the incident or revisions to its classification. Where this results in a restatement of previously reported data, we will publicly disclose the restatement and its rationale.

Deloitte LLP has not undertaken additional work to review accuracy and completeness for restated data for previous reporting years and has not provided assurance for restated data.

We may change our approach to how we report our data in future sustainability reports without prior announcement; we may also change the reporting of specific data and its interpretation.

## Related publications

During 2018, we published the following standalone reports that are connected to our sustainability activities:

- Glencore Modern Slavery Statement 2018
- Payments to Governments Report 2018
- GRI Databook 2018
- Our Approach to Sustainability
- 2018 Human Rights Report
- 2018 Water Report

There is a list of Glencore's publicly available policy documents at **[glencore.com/who-we-are/governance](http://glencore.com/who-we-are/governance)**.

There is also a list of our current associations and memberships at **[glencore.com/sustainability/reports-and-presentations](http://glencore.com/sustainability/reports-and-presentations)**.

# Material topics

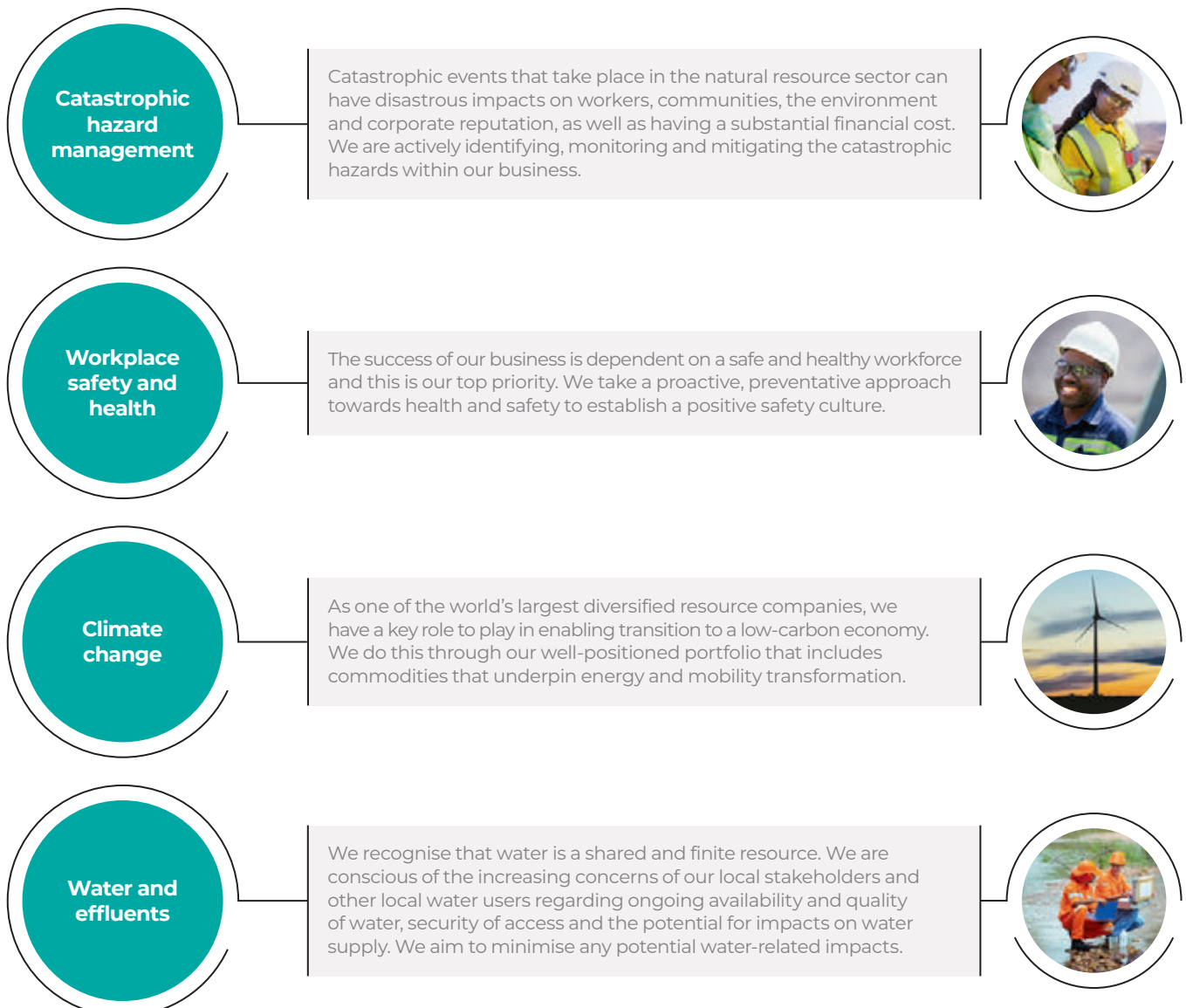
**Our approach to reporting on our sustainability performance and progress focuses on the topics identified as being material to Glencore's development, performance, position and/or future prospects**

Every two years, we undertake a materiality assessment to establish the areas of focus for our sustainability strategic review and the information we disclose in our sustainability reporting. Our assessment takes the views of both internal and external stakeholders into account.

Our materiality assessments consider topics at global and local levels as well as considering information relating to our business and the natural resources sector; our regulatory requirements and the topics raised during engagement with our people and external stakeholders including local communities, investors, the media, governments and non-governmental organisations.

We believe that the identified topics have the potential to have the greatest impact on Glencore's business activities. At each of its meetings, the Board HSEC Committee receives an update on our progress on the management of the identified material topics.

**The topics that we considered material for 2017 and 2018 are:**





Our operations emit emissions such as sulphur dioxide, dust and nitrogen oxide as well as generating waste, which can affect the environment and nearby communities. We monitor all material emissions and continuously look for ways to reduce those that pollute the air around us. We avoid, minimise and reuse waste as much as possible and maintain, assess and audit our waste disposal facilities according to national regulations and internationally accepted guidelines.



Our operations have the potential to affect the rights of our workforce and local communities. We prioritise respect for human rights everywhere that we operate and respect for human rights is enshrined in our Code of Conduct.



The communities surrounding our operations are our neighbours, employees, business partners and future workforce. Through our commitment to two-way dialogue with our local communities, we aim to secure a broad base of support for our activities.



Our products are vital to today's society, creating products that are part of daily life. Our goal is to provide competitively priced commodities that meet our customers' needs and contribute to global society, while addressing any associated health, societal and environmental risks.



Our workforce is fundamental to our success, which is reliant on our ability to attract and retain the best talent. We foster an environment that supports and encourages different backgrounds, cultures and beliefs. We recognise that diversity brings new ideas, innovation and different ways of working and that mutual respect leads to a driven workforce, dedicated to our common goals.



**Our 2018 materiality assessment identified the following topics that will be our focus during 2019 and 2020:**

- Catastrophic hazard management
- Workplace safety and health
- Climate change and energy
- Water
- Responsible sourcing
- Human rights
- Land stewardship
- Responsible citizenship
- Our people

# Stakeholder engagement

**We are committed to transparent and constructive dialogue with all of our stakeholders. Many people and organisations are interested in what we do and how we do it**

We recognise that robust relationships are essential for our social licence to operate. Through building constructive and transparent relationships with our stakeholders, we can strengthen our approaches and improve how we operate.

Our stakeholders include our workforce, shareholders, suppliers and partners, governments and regulators, local communities, non-governmental organisations, labour unions, civil society, media and industry peers.

## Our workforce and labour unions

We recognise that through developing and building a cohesive workplace culture that encourages all of our people to focus on the same goals, we will deliver business success. We have a group-wide internal communications programme for our SafeWork initiative and make sure all our employees and contractors have access to our Raising Concerns platform as a means to express any grievances. Unions play an active role in safety committees at many of our assets, and we uphold our workers' rights to freedom of association, to unionise and to collective representation, regardless of their location or duties. We are committed to working honestly and openly with labour unions at our operations and undertake negotiations in good faith.

### Key concerns in 2018

- Occupational health and safety
- Negotiations of workplace agreements
- Industrial relations and potential site closures

## Governments

We develop constructive relationships with national, regional and local governments in the countries where we operate, and maintain regular dialogue on all relevant issues. We do this by a variety of means that best reflect the local context. Our engagement may be a combination of individually, collectively with other companies or organisations, or as part of an industry association. In our dealings with governments, we conduct ourselves in accordance with Glencore's Code of Conduct and we do not, directly or indirectly, participate in party politics or make payments to political parties or individual politicians.

### Key concerns in 2018

- Tax and royalty payments
- Climate change
- Operational environmental management
- Community socio-economic development projects
- Occupational health and safety





## Participation in external initiatives

Page 16

### Communities

Our asset-based community engagement teams build networks of contacts within local communities and decision-making authorities. They meet and engage with the communities around our operations to share information about our business activities that affect them, key risks and control measures, and to help us understand their views. We adapt how we approach this depending on the operational and cultural environment, but it can include open-house sessions, formal engagements, face-to-face discussions and local grievance mechanisms.

#### Key concerns in 2018

- Local employment and procurement opportunities
- Local socio-economic development projects
- Environmental management
- Potential site closure

### NGOs and civil society

We engage with NGOs, think tanks and business associations that share our interests and concerns. These could be broad policy issues with a global or national reach, or local matters that affect the communities close to our operations. We welcome constructive feedback on our activities, and seek to engage with all our critics or, at the very least, respond publicly to their concerns to increase understanding.

#### Key concerns in 2018

- Operational management
- Public health
- Environmental management
- Socio-economic development projects
- Tax payments
- Industrial relations
- Security
- Human rights

### Peer companies

At both global and national levels, we engage with other mining and extractive companies through platforms such as the International Council on Mining and Metals, Extractive Industries Transparency Initiative and the United Nation's Voluntary Principles on Security and Human Rights. These initiatives provide an opportunity to learn from best practice and to find industry-wide solutions to common challenges. At an operational level, we often work with other multinational and domestic mining companies through nationally run chambers of commerce to deliver an industry-consistent voice during engagement on industry topics.

#### Key concerns in 2018

- Occupational health and safety
- Public health
- Climate change
- Transparency in payments to government
- Land management, site closure and water
- Security and engagement with civil society

### Financial community and media

We actively engage with our investors and financial institutions through regular communication, one-on-one meetings, roadshows and Q&A sessions. We engage with the media at global, national and local levels on topics of public interest. Our approach is one of transparency and timely communications to support fair disclosure.

#### Key concerns in 2018

- Financial performance
- Integration of sustainability
- Payments to government
- Bribery and corruption
- Climate change
- Operational environmental performance
- Human rights
- Industrial relations

### Business partners and customers

We maintain close relationships with our suppliers, partners and customers, engaging regularly with them to understand their views, expectations and perspectives. We undertake due diligence on our supply chain, both for the resources and services we procure as well as the third-party materials we purchase. We are active in many product stewardship institutions, where we work to promote the safe use and handling of our products. We share the specifications of our products and any associated risks with our customers.

#### Key concerns in 2018

- Procurement spend
- Product stewardship approach
- Bribery and corruption
- Human rights

# Participation in external initiatives

**We participate in a wide range of external initiatives, including global, national and regional organisations that support our goal of continuous improvement**

Our participation in a range of external initiatives supports our commitment to continuously improve our approach and performance across sustainability topics.

Our activities in these organisations varies. Our participation ranges from reporting our progress to taking a role in driving strategic change. A number of external organisations assess and publicly report on our performance.

We are also members of a number of other industry- and commodity-specific organisations that encourage the extractive sector to adopt and implement a consistent approach. For example, we have been a member of the plenary of the Voluntary Principles on Security and Human Rights since 2015 and we are members of the World Economic Forum's Partnering Against Corruption Initiative.

## ICMM

International Council on Mining & Metals

The International Council on Mining & Metals is an international organisation dedicated to a safe, fair and sustainable mining and metals industry.

## TCFD

TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

The Task Force on Climate-related Financial Disclosures guidance supports voluntary, consistent climate-related financial risk disclosures.



WE SUPPORT

A voluntary initiative with CEO commitments to implement universal sustainability principles and to take steps to support UN goals.



Corporate Human Rights Benchmark

The Corporate Human Rights Benchmark is dedicated to creating the first open and public benchmark of corporate human rights performance.



CDP encourages the disclosure of the environmental impact of major corporations. We participate in its water questionnaire.



The Extractive Industries Transparency Initiative is the global standard to promote the open and accountable management of oil, gas and mineral resources.



The Responsible Mining Index encourages continuous improvement across the industry by assessing the policies and practices of large mining companies.



17 global goals set by the United Nations to support a systematic global approach to society's overall development.



MACN  
Maritime Anti-Corruption Network

The Maritime Anti-Corruption Network is a global business network working towards a maritime industry free of corruption.

# Ethics and compliance

An overview of our management of ethics and compliance is provided in our 2018 annual report

We seek to maintain a culture of ethical behaviour and compliance throughout Glencore. To support this, we have a Group compliance programme that includes a range of policies, procedures, guidelines, training and awareness initiatives, monitoring and investigations.

Our permanent and temporary employees, directors and officers (as well as contractors, where they are under a relevant contractual obligation) must comply with our compliance policies, procedures and guidelines, in addition to complying with applicable laws and regulations.

## Training and awareness

Our employees receive induction sessions and ongoing training on a range of ethics and compliance issues.

In 2018, 33,944 employees and contractors (2017: 31,737) completed our Code of Conduct e-learning which includes guidance on raising concerns. In addition, 27,510 (2017: 22,872) completed e-learning training on our global Anti-Corruption Policy, which includes topics such as facilitation payments, the giving and receiving of gifts and entertainment and dealings with public officials.

We tailor our training programmes to make them relevant for our employees and contractors and include real-life hypothetical scenarios that illustrate how legal and ethical dilemmas could occur in their daily work activities.

The target audience of the Code of Conduct e-Learning is employees with regular access to a work computer and the training on anti-corruption targets those whose function may require them to interact with third parties.

For those employees who do not have regular access to a work computer, we provide training in other ways including induction sessions, pre-shift general training and toolbox talks. In addition, compliance officers and compliance coordinators conduct face-to-face training for relevant employees to raise awareness about compliance risks related to their functions and to train them on Glencore's compliance policies, procedures and guidelines.

## Reporting misconduct

Everybody working for Glencore (including suppliers) must promptly raise any situations in which our Code of Conduct, its underlying policies or the law appear to be breached with a supervisor or manager locally. Where a concern remains unresolved through these local channels, or if the reporter feels uncomfortable utilising the local channels in resolution of their concerns, the concern can be raised via our Raising Concerns web platform at [glencore.com/raising-concerns/](https://glencore.com/raising-concerns/). The website allows any stakeholder to raise concerns on an anonymous basis.

In 2018, we received a total of 215 (2017: 183 and 2016: 153) reports regarding situations in which Group policies appeared to be breached.

In accordance with our Code of Conduct, anybody working for Glencore who breaches the law, the Code of Conduct, or other policies or procedures may face disciplinary action including dismissal.

In 2018, Glencore dismissed 399 employees (2017: 284 and 2016: 318) for breaching the Code of Conduct. The dismissals predominantly related to failures to follow safety instructions or policies, or misappropriation of company property.

# Catastrophic hazard management

Why this is material

Catastrophic events that take place in the natural resource sector can have disastrous impacts on workers, communities, the environment and corporate reputation, as well as having a substantial financial cost.



## Sustainable development goals



Further information on our management of catastrophic hazards is available in Our Approach to Sustainability.

## Performance

## Our approach

We recognise the exceptional nature of catastrophic events; our Catastrophic and Fatal Hazard Management Policy details our approach to their management, based on critical control management with rigorous monitoring and reporting. We require catastrophic and fatal hazards controls to be in place and regularly reviewed. Our approach reflects international leading practice and ICMM guidance.

## Our ambition

To become a leader in the prevention of HSEC incidents through a proactive risk-based approach.

Major and catastrophic environmental incidents during 2018

# Zero

2017: zero

## Learning from each other

Glencore Zinc employs over 50,000 employees and contractors at 48 assets located in South America, Canada, Kazakhstan, Australia, Europe and the UK, speaking six languages. The diversity of its operations and locations has caused a large variation in its safety performance.

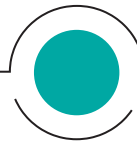
Through site exchanges, our zinc employees are learning different approaches and processes that they can implement at their own operations. During the site visits, the participants discuss the integration of geo-technology into mine design, planning and scheduling as well as the role of supervisors, risk and contractor management and behaviour-based safety concepts.

Further information is available on page 116.



## Highlights

- Zero major or catastrophic environmental incidents
- In addition to those already in place, protocols on aviation, structural failure, shaft and winders, and pandemic and communicable diseases were developed
- Evacuation guidelines developed and rolled out



### Performance

During 2018, we achieved our strategic priority of zero major or catastrophic environmental incidents.

### Risk management

We assess catastrophic events as being those that have the potential to have severe consequences that could devastate the Glencore Group, cause widespread loss of life, significant environmental, social/community consequences and/or result in major reputational or financial damage. We classify the severity of all sustainability-related incidents against a five-point scale (1 – negligible, 2 – minor, 3 – moderate, 4 – major and 5 – catastrophic).

We are committed to eliminating catastrophic incidents at our assets. Part of meeting this commitment is a quarterly departmental reporting programme that we have established for catastrophic hazard management.

Our Board HSEC Committee reviews these reports and our approach is supporting a more consistent application across the business on the identification and management of catastrophic hazards. The findings from the reports are showing the benefits of a proactive verification process.

During the year, we continued the rollout and implementation of our Catastrophic Hazard and Critical Control Guidelines across the Group. These guidelines detail our approach to the management, monitoring and reporting on catastrophic hazards.

We have a suite of hazard protocols that set out the requirements for the prevention of fatalities and catastrophic incidents at our assets. The protocols provide minimum requirements to manage hazards and we require each of our assets to conduct self-assessments against the appropriate protocols for their sites. We continued to enhance the protocols on a risk-based priority.

During 2018, we developed and published protocols for structural failure, shaft and winders, aviation, and pandemic and communicable diseases as well as an evacuation guideline for high-risk sites. We have aligned our aviation protocol with the Flight Safety Foundation's Basic Aviation Risk Standards (BARS). Glencore, along with other major resource companies, is a member of BARS. We ran a BARS accredited aviation workshop and appointed regional coordinators as well as an aviation specialist to support our management of this critical risk.

All of our assets have identified the catastrophic hazards specific to their operations and we have developed critical controls to manage and mitigate these. We are now stress-testing each of the critical controls through a process of continuous improvement and verification. This process is progressing well and we anticipate it will complete by the end of 2019.





It has become clear that many critical controls are dependent on human behaviour. We are investigating the effectiveness of various engineering solutions and technology applications to assess how best to integrate them into our operational processes and reduce dependency on human behaviour.

#### Sharing knowledge

In September, we ran a surface mine geo-technology workshop that was attended by 45 asset-based colleagues who have geo-technology-relevant expertise and responsibilities. External experts also participated in the workshop that led to the updating of our protocol on ground/strata failure as well as the development of a new guideline on open pit slope management and monitoring. In early 2019, we hosted a workshop on underground mine geo-technology.

As our understanding matures of the fatal and catastrophic hazards affecting our assets, we regularly work with subject matter experts, both internal and external, to review and update our protocols and guidelines.

Our improved knowledge and approaches also lead to the development of additional protocols, which we are currently developing for natural disasters and shipping. We will finalise these protocols during 2019 and implement them group-wide, during 2020.

In line with our risk-based approach to catastrophic hazard management, we may develop further protocols if a specific hazard or risk that could result in a major or catastrophic event is identified either within our assets or, if applicable to our operations, by the extractive sector generally. In addition, changes to our portfolio, such as through an acquisition, may expose Glencore to new risks that require the development of a protocol.





## Next steps

### Utilising technology

We recognise the role of underground technology in the mining industry. We are looking at how best to work with other stakeholders and create communities of practice to address common challenges across the sector.

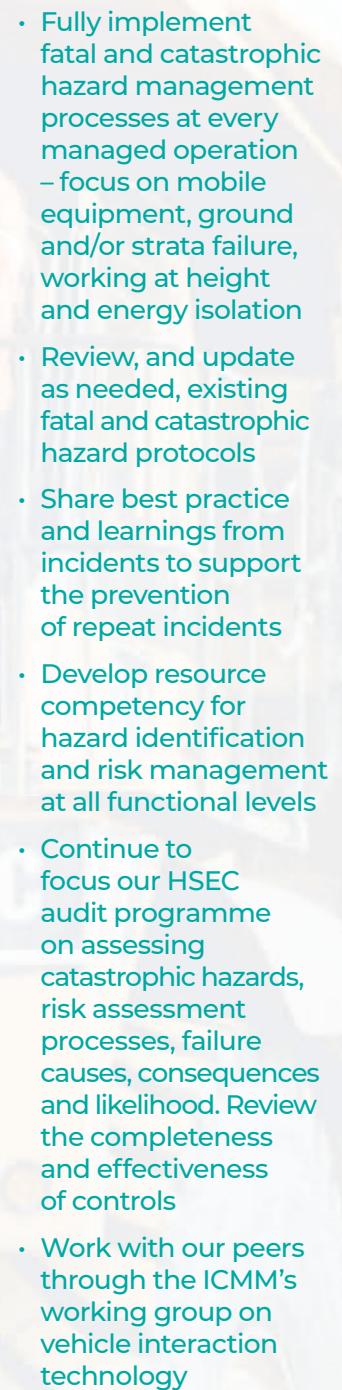
We are establishing an internal, cross-departmental, technology working group to investigate how technology can improve reducing the overall risks faced by our operations. The working group's initial focus will be on technologies related to mobile equipment and ground/strata failure.

We are taking a leading role in the ICMM's Initiative for Safer Cleaner Vehicles (ISCV). The purpose of this initiative is to build an evolving industry pathway towards the safest approach for controlling potential vehicle interactions.

Through ICMM, we are working with equipment manufacturers to develop critical control technology that causes a vehicle to stop automatically if a person or another vehicle enters its 'danger zone', that is a five-metre perimeter. We have successfully piloted this technology with mobile equipment at our ferroalloys assets in South Africa.

An internal working group has used the results from our own pilot study and assessments as well as the findings from the ICMM initiative to develop detailed guidance material on the collision avoidance technology. We will distribute this guidance group-wide during 2019.

Our process safety management (PSM) working group continued its work on considering how our mining operations can apply PSM, an operational framework for managing the integrity of the systems and processes involved in handling hazardous substances. Our approach considers the full operating value chain, from mining through to smelting. We have established, and are further developing, a concept model ahead of its application.

- 
- Fully implement fatal and catastrophic hazard management processes at every managed operation – focus on mobile equipment, ground and/or strata failure, working at height and energy isolation
  - Review, and update as needed, existing fatal and catastrophic hazard protocols
  - Share best practice and learnings from incidents to support the prevention of repeat incidents
  - Develop resource competency for hazard identification and risk management at all functional levels
  - Continue to focus our HSEC audit programme on assessing catastrophic hazards, risk assessment processes, failure causes, consequences and likelihood. Review the completeness and effectiveness of controls
  - Work with our peers through the ICMM's working group on vehicle interaction technology

# Workplace safety and health

## Why this is material

The success of our business is dependent on a safe and healthy workforce. Our diversity, in terms of geographical locations, working conditions, organisational cultures and workforces, means that we need to focus on resolving local challenges and transforming behaviour at all our sites and at all levels of our organisation in order to achieve strong safety and health performances at all our assets.



### Sustainable development goals



Further information on our management of workplace health and safety is available in [Our Approach to Sustainability](#).



## Performance

### Our approach

The health and safety of our people is our top priority and we believe that all fatalities, injuries and occupational diseases are preventable. Through strong safety leadership, we can create and maintain safe workplaces for all our people.

Risk management is at the heart of our approach. We let our people know that we expect every individual, both employees and contractors, to take responsibility for their own safety as well as for the safety of their colleagues and the communities in which they work.

### Our ambition

To become a safety and health leader in our industry, creating a workplace without fatalities, injuries or occupational diseases, while protecting and improving the wellness of our people and communities.

Lost time injury frequency rate (LTIFR)  
(per million hours worked)

**1.06**

2017: 1.02

Total recordable injury frequency rate (TRIFR)  
(per million hours worked)

**3.18**

2017: 3.08

High potential risk incidents (HPRIs)

**434**

2017: 368

New occupational disease cases

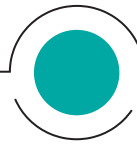
**32**

2017: 46



## Highlights

- Year-on-year decrease in occupational illnesses
- Established working group on exposure action levels



## Performance

We are deeply saddened to report thirteen fatalities at our managed operations during 2018. This is an increase on the number recorded during 2017 and we are reinforcing our efforts to establish a robust safety culture at all of our assets.

During 2018, our lost time injury frequency rate (LTIFR) slightly increased to 1.06 (2017: 1.02) and our total recordable injury frequency rate (TRIFR) to 3.18 (2017: 3.08).

The halt in the downward trajectory that our assets' safety performance has achieved in recent years is disappointing, however, we remain committed to achieving a fatality- and injury-free work place.

Each commodity department has in place a safety work plan that reflects the specific production process for its operations. Group-wide, 58% and 50% of our assets respectively achieved zero lost time injuries and total recordable injuries during 2018.

We are continuing our efforts to establish a sustainable culture of safety in our workplaces that contributes towards our longer-term goal of a 50% reduction against 2015 and 2014 baselines for LTIFR and TRIFR respectively by 2020.

We are pleased with our progress on a continued reduction in the number of new cases of occupational disease. In 2018, we recorded 32 new cases, a 30% drop on the 46 in 2017.

Over the years, our robust strategic approach to occupational health has significantly progressed our performance. Improving our approach to reporting and recording occupational health incidents has supported improvements to our performance through delivering a more comprehensive understanding of our risks and challenges.

Our assets recording the highest number of cases were Ulan (eight cases), Mopani (five cases) and Kidd (five cases). Generally, the reported occupational disease cases involve the ear, musculoskeletal respiratory tract, nervous system or mental disorders. Each asset targets these occupational diseases in their health risk assessments and health management plans.

In 2018, we recorded three confirmed cases of Mine Lung Dust Disease (MLDD) in Australia including two cases of pneumoconiosis and one case of simple silicosis. Two of these individuals are



continue to work at our assets. We are providing ongoing monitoring and rehabilitation assistance for all three cases. We are monitoring and, where appropriate, implementing engineering improvements that address dust mitigation strategies.

We encourage our operations to practice single exceedance reporting for all health exceedances, which requires immediate notification to senior operational management and an investigation with rectification actions. Some of our coal open-cut assets recorded exceedances, particularly in the maintenance areas, due to the practice of using compressed air for cleaning cabinets. We reviewed and implemented alternative approaches, such as the use of vacuuming.

During 2018, we recorded 434 high potential risk incidents (HPRIs) (2017: 368). The majority of our HPRIs related to mobile equipment, ground/strata failure, lifting and cramage, working at height, fire and explosion, energy and electrical safety.

Our analysis of our HPRIs identified the life-saving behaviours most frequently violated being entering danger zones, energy isolation/testing for 'dead' and overriding safety critical equipment.

We are implementing specific training on these areas as part of our ongoing training and coaching to support changing target behaviour, starting with entering danger zones.

## Preventing repeat incidents through the use of technology

An analysis of our HPRIs, showed that a large number relate to mobile equipment (both people-to-vehicle and vehicle-to-vehicle interactions) and operator fatigue. Our commodity businesses have committed to an approach to reduce the occurrence and potential severity of repeat incidents.

Our approach involves installing collision avoidance and fatigue monitor technology to mobile equipment by 2025.

### Collision avoidance

We are working with equipment manufacturers to develop and pilot collision avoidance systems for surface vehicles. Our coal and ferroalloys assets in South Africa are currently implementing this technology at their underground operations. We are also looking at different proximity detection solutions for our open-cut and underground operations. The solutions include underground workers carrying a tag that alerts vehicles of their presence and the installation of proximity detection devices that alert the vehicle operator when there is the danger of collision with another vehicle and/or person.

### Fatigue monitoring

We are managing the risk of fatigue through fitting fatigue-monitoring technology to high-risk vehicles. The technology monitors operators in real-time and it alerts the operator, through an alarm or a seat vibrator, when it observes signs of fatigue, such as eyelid closure and facial and head movements.



### **Risk management**

We believe our approach to safety is the right one for our assets and the countries in which we operate. This is supported by our progress over the last five years during which the number of sites with no lost times injuries has increased by 10% and those with no total recordable injuries has improved by 27%.

Meeting our 2020 LTIFR and TRIFR targets requires the robust application of the SafeWork programme and the identification and mitigation of workplace health and safety risks. Our biggest safety challenge is for every person in our organisation to make the right decision every day.

Our fatal hazard protocols address the most common causes of fatalities and serious injuries within our company and across the industry and underpin our approach to preventing loss of life at our operations. In addition, our life-saving

behaviours encourage our workers to focus on those hazards with the most potential to cause serious injuries or fatalities.

We have identified that four of our identified fatal hazards resulted in our 2018 fatal incidents. These hazards related to mobile equipment, ground and/or strata failure, working at heights, and energy isolation. Our analysis shows that similar hazards caused fatalities during the years 2015 to 2017.

Each of our commodity departments has renewed their focus on these four identified hazards in their annual safety plans. Their assurance activities are also prioritising these hazards.

Our fatality investigations review the impacted department's safety plan and assurance programme to identify any gaps and to promote continuous improvement and a closed loop to the management of fatal hazards.

We take a comprehensive and effective risk-based approach to the management of the health risks associated with our operations and activities, ensuring the assessment, control or elimination of our work environment risks and exposures.

We recognise the role that competent leaders and line managers have in establishing and sustaining a strong culture of health and safety. We are further strengthening the micro-integration of health and safety initiatives in our workplaces through empowering our first-line supervisors to take responsibility for their work areas, manage technical safety aspects and motivate behaviours.

We are continuing to develop a framework of leading practice that supports the development of all of our supervisors at all of our operations.

### **Sharing best practice**

As part of our approach to improving our LTIFR and TRIFR performance, we are increasing the opportunities for shared learnings through active working groups linked by operational type.

Our assets report and share HPRIs every week, along with lessons learned, to prevent repeat incidents. We promote the reporting of HPRIs, recognising their contribution to our progress in improving our health, safety and environmental management.



## Next steps

Our Board's HSEC Committee reviews the findings of the investigations for HPRI's identified as having the potential to result in a catastrophic event. We share these findings across Glencore.

In May 2018, our Board HSEC Committee chairman, Peter Coates, hosted our annual HSEC summit that brings together nearly 100 of Glencore's senior management, including the heads of our commodity departments.

One of the key topics of the 2018 summit was innovations in mobile equipment, including monitoring for fatigue, collision avoidance technology and seat belt sensors. In addition, the presentations included using electric-powered vehicles in underground mines, coaching techniques to improve supervisor safety awareness and slope monitoring technology.

### Collaborating with our peers

We actively participated with our industry peers in the ICMC's safety and health working groups.

During 2018, we continued our participation in the ICMC's occupational health working group. This working group continued its work on the application of critical control management applications for occupational health.

### Addressing exposure action levels

We are establishing an internal, multi-commodity working group to strengthen our efforts in preventing new occupational disease associated with exposure to airborne chemical substances and contaminants, and to develop a consistent group-wide exposure action level (EAL) to apply.

In many countries, mandatory, regulated limits already exist, however, this is not the case in all regions and limits vary by jurisdiction and in some cases are outdated. The working group will consolidate existing EAL, as well as encourage and support assets to improve EAL and highlight existing good practice.

Going forward, we are reactivating our internal occupational health working group to investigate the next wave of improvements for further enhancing our performance.

- Fully implement SafeWork hazard protocol requirements, catastrophic and fatal hazard management plans at all assets
- Establish a consistent approach to preventing repeat incidents through increasing the sharing of learnings, effective reviews of HPRI's and closing out the verification of corrective action
- Implementing collision avoidance and fatigue technologies on mobile equipment and slope monitoring technology at all relevant assets



# Climate change

## Why this is material

As one of the world's largest diversified resource companies, we have a key role to play in enabling transition to a low-carbon economy. We do this through our well-positioned portfolio that includes copper, cobalt, nickel, vanadium and zinc – commodities that underpin energy and mobility transformation.

### Sustainable development goals



Further information on our management of climate change is available in Our Approach to Sustainability.



## Performance

## Our approach

We recognise climate change science as set out by the United Nations Intergovernmental Panel on Climate Change. We believe that the global response to climate change should pursue twin objectives: both limiting temperatures in line with the goals of the Paris Agreement in line with the goals of Articles 2.1(a)<sup>1</sup> and 4.1<sup>2</sup> of the Paris Agreement (the Paris Goals); and supporting the United Nations Sustainable Development Goals, including universal access to affordable energy.

We are prioritising our capital investment to grow the production of commodities essential to the energy and mobility transition and which support the growing needs of a lower-carbon economy. We are limiting our coal production capacity to broadly current levels<sup>3</sup>.

We openly and transparently disclose our energy and carbon emissions footprint. Energy is a key input and cost to our business as well as being a material source of our carbon emissions and we recognise the importance of continued reductions of greenhouse gas emissions from our operations. We are developing new, longer-term targets based on policy and technological developments that support the Paris Goals.

## Our ambition

To deliver a strong investment case to our shareholders through investing in assets that are resilient to regulatory, physical and operational risks related to climate change.

To strengthen our understanding of climate change related risks and opportunities across our business and to continue to revise our carbon scenarios against energy market projections developed by leading organisations.

Total energy use  
(petajoules)

**208**

2017: 202

Carbon intensity  
(GHG/tCu)

**4.09**

2017: 4.38

Carbon emissions  
(million tonnes CO<sub>2</sub>)

**30.3**

2017: 33.2



- 1 Article 2.1(a) of the Paris Agreement states the goal of "Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognising that this would significantly reduce the risks and impacts of climate change."
- 2 Article 4.1 of the Paris Agreement reads: "In order to achieve the long-term temperature goal set out in Article 2, Parties aim to reach global peaking of greenhouse gas emissions as soon as possible, recognising that peaking will take longer for developing country Parties, and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty."
- 3 This may include the exercise of our pre-emptive rights to acquire minority stakes of joint-venture partners in our existing operations.

## Highlights

- Published our climate change position statement
- Reduced Scope 1 and 2 emissions by 9% following the closure and sale of underground coal assets in Australia

## Performance

During 2018, we emitted 18.5 million tonnes CO<sub>2</sub>e of Scope 1 (direct emissions) from our consumed fuel (2017: 21.6 million tonnes). This figure includes emissions from reductants used in our metallurgical smelters. It also includes CO<sub>2</sub>e of methane emissions from our coal and oil operations, which is around 25% of our Scope 1 emissions. The reduction in Scope 1 emissions is mainly due to the closure and sale of underground assets in Australia.

In 2018, we emitted 11.8 million tonnes CO<sub>2</sub> of Scope 2 location-based (indirect emissions) (2017: 11.6 million tonnes). The increase of our Scope 2 emissions is based on our new assets and overall production increases/ramp-ups, which outweigh any reductions resulting from site closures and divestitures.

In addition to Scope 1 and 2 GHG emissions, our activities include Scope 3 emissions. These are indirect GHG emissions throughout our supply chain, including the emissions from the use of the fossil fuels that we have sold to our customers, downstream processing of our metal and concentrates, and time-chartered vessels' emissions.

Our total Scope 3 emissions were 313 million tonnes CO<sub>2</sub>e, an increase on the 290 million tonnes CO<sub>2</sub>e in 2017. The increase was primarily due to the acquisition of coal mining assets during the year. The most significant contributor to our Scope 3 emissions was our customers' usage of the fossil fuels we produced in 2018; this totalled 296 million tonnes CO<sub>2</sub>e (2017: 273 million tonnes CO<sub>2</sub>e).

We have expanded our total Scope 3 emissions to include those from the downstream processing of our nickel and ferroalloys metals; previously we had limited this to those for our copper, zinc and lead products.

In our 2018 GRI Databook, we provide a full disclosure on all of the Scope 3 categories that are relevant and material to our activities.

Our 2018 carbon emissions intensity, measured in terms of tonnes of greenhouse gases emitted per tonne of copper equivalent industrial production (tGHG/tCu), is 4.09tGHG/tCu (2017: 4.38tGHG/tCu; 2016: 4.34tGHG/tCu). Lower coal seam emissions due to the closure of underground assets in Australia drove this reduction.

Expected mine planning changes at certain assets, including Mutanda, are likely to increase emissions intensity temporarily. However, we believe that we are currently on track to achieve our group-wide carbon emission intensity reduction target of at least 5% on 2016 levels by 2020.

## Replacing diesel with wind

Our Raglan Mine in northern Canada is not connected to the power grid and the mine mainly produced its own electricity using diesel.

Together with TUGLIQ Energy, Raglan Mine built its first wind turbine in August 2014, which was the first use of renewable energy in Québec's Arctic territory by a mining company. Its performance and the success of its integration into Raglan Mine's electrical network supported the mine's decision to build a second turbine.

In 2018, Raglan Mine completed its second 90-metre high wind turbine, representing another step in its commitment to reduce the impact of its operations on the environment.

The two wind turbines are forecast to produce about 10% of the mine's total energy, saving approximately 4.4 million litres of diesel annually, and reducing greenhouse gas emissions by about 12,000 tonnes each year – the equivalent of taking 2,700 vehicles off the road.

Further information is available on page 104.



During 2018, our total energy use of 208PJ was an increase on the 202PJ reported in 2017 due to production increases, projects ramping up and inclusion of acquired assets.

### Risk management

Our risk management framework has a specific focus on climate change. This enables us to identify, manage and mitigate climate change risk.

A number of national governments have already introduced, or are contemplating the introduction of, regulatory responses to greenhouse gas emissions as they implement their nationally determined contributions, which they agreed as part of the Paris Agreement. This includes countries where we have assets such as Australia, Canada and Chile, as well as customer markets such as China, India and Europe.

These commitments may result in increased operational costs as energy prices reflecting changes to energy mix and carbon taxes are introduced or revised. In addition, our assets may be affected by changes to physical risk profiles, such as an increased frequency in climatic events such as extreme flooding and chronic events such as droughts, changes in rainfall patterns and gradually rising temperatures.

During 2018, we developed and piloted a self-assessment risk analysis tool that considers regulatory, operational and physical risks from climate change at an asset level. We plan to use this tool at 25 assets. These have been identified using a risk-based approach that considered their absolute GHG emissions as well as their financial value to the business.

The analysis that this tool produces will support our understanding on how best to manage and mitigate climate-related risks. Our internal cross-function, multi-commodity climate change working group, led by our Chairman, will drive this risk analysis process, monitoring its progress and following up on its findings.

### Post-2020 climate change strategy

During the year, our climate change working group furthered the development of our post-2020 climate change strategy. We recognise the importance of continued reductions of greenhouse gas emissions from our operations. We are developing new, longer-term targets that reflect policy and technological developments that support the goals of the Paris Agreement. We intend to make these public in our reporting disclosures in 2020. We will continue to report annually on our progress against our current 2020 target.

During 2018, the following carbon and energy efficiency improvements have been realised:

- Through the optimisation of the rail operations, our Prodeco coal operations in Colombia have achieved a reduction of 1,500 tonnes of GHG per year through efficiency improvements
- In Australia, our Murrin Murrin nickel operations have removed bottlenecks in their ore leach process saving 6,000 tonnes of GHG per annum and reducing energy intensity of the ore leach process by 40%
- Raglan Mine in Canada has completed a second high wind turbine, and, together with the first, it will save around 12,000 tonnes of GHG per annum

#### Portfolio analysis

We monitor revisions to energy and carbon scenarios. To date, there has been little material change to these forecasts since we published our analysis of our portfolio's resilience to future energy demand and carbon regulations in our publication 2017 Climate Change Considerations for our Business. We will update our analysis in 2020.

#### Supporting lower carbon solutions

In Colombia, our Prodeco coal asset is participating in a carbon offsetting programme. It is the first company in Colombia to sign a multi-year purchase of carbon certificates to mitigate climate change. The agreement is between Prodeco and 20 Afro-Colombian communities from the Pacific region of Colombia, represented by the NGO Fondo Acción and supported by Colombia's Ministry of Environment and Sustainable Development, USAID and the NGO Conservation International.

Through the purchase of REDD+ Pacific certificates, Prodeco is supporting the conservation of 700,000 hectares of natural forests, offsetting its carbon emissions and contributing directly to the Colombian government's climate change mitigation strategy.

Our wholly-owned subsidiary, the Carbon Transport and Storage Corporation Pty Ltd, is continuing to progress its carbon capture and storage project in Queensland's Surat Basin. It is currently in the final stages of completing a feasibility study and will be seeking regulatory approval to test inject up to 180,000 tonnes of CO<sub>2</sub> over three years. This is equivalent to storing/removing emissions from 10,000 Queensland households.

In the DRC, we are supporting the refurbishment of the country's main hydroelectric plant. The use of hydroelectric power is supporting our assets reducing their use of diesel generators during power outages.

Our Sudbury Integrated Nickel Operations (INO) in Canada are looking to develop one of the world's first mines wholly operated by battery electric-powered vehicles (EVs).

At 2,600m deep, a major portion of the operating costs for the mine infrastructure at our Onaping Depth nickel project is for the energy used to power the ventilation required to eliminate exhaust contaminants and heat and the refrigeration needed to maintain reasonable temperatures. Through using EVs, Onaping Depth will reduce its energy usage by 44% for ventilation systems and by 30% for cooling equipment, compared to an equivalent diesel-fuelled operation.

Using EVs, Sudbury INO's new mines will reduce greenhouse gas emissions and deliver considerable cost savings through reduced fuel and energy usage. We anticipate Onaping Depth coming on-stream in 2023/24.

During 2017, we implemented an energy and carbon reduction project at our South African, ferroalloys Boshhoek Smelter. The Boshhoek Smelter piloted energy generation technology, which generates electricity from combusting waste carbon monoxide from its smelters.

During 2018, the technology continued to perform well. However, it only achieved 60% of its theoretical design capacity due to the smelters not being designed to supply gas to a co-generation facility at a set pressure. Instead, the smelters were designed to flare gas into the atmosphere. We will address this design obstacle as we rebuild the furnaces over time.

Our ferroalloys teams are sharing these learnings and making evaluations for their Lion and Lydenburg smelters. At both smelters, there is the potential to use CO gas in co-generation and to use the CO gas at Lion smelter to produce ethanol for fuel.

#### Engagement

During the year, we have engaged with interested stakeholders, such as Climate Action 100+ and the Transition Pathway Initiative, on our approach to climate change. In particular, these stakeholders have expressed an interest in our understanding and mitigation of our climate change related risks.



## Next steps

- Prepare longer-term carbon reduction targets
- Review and update our portfolio analysis
- Developing new, longer-term targets based on policy and technological developments that support the Paris Goals

In addition, we were active participants in the International Council on Mining and Metals' (ICMM) climate change working group. Working with our peers, this working group developed a paper on target setting and resilience for the industry. Through ICMM, we are participating in knowledge sharing with our peers across a range of climate change topics.

Glencore was an early supporter of the voluntary guidance on consistent climate-related financial disclosures produced by the Taskforce on Climate-related Financial Disclosures (TCFD). We are pleased to support the TCFD guidance and have started to implement its recommendations in our annual reporting.

Consistent with TCFD recommendations, when appropriate, Glencore will continue to disclose the metrics, targets and scenarios we use to assess and manage relevant climate-related risks and opportunities.

Glencore chose not to participate in the 2018 CDP Climate Change (CDP) questionnaire. We took this decision following consultation with relevant external stakeholders, including investors and analysts. The key feedback we received during these discussions is that the majority of these stakeholders are using non-CDP information sources to assess and engage with Glencore on climate change. We have continued to disclose the information that we previously submitted to CDP in our suite of reporting publications.

### Further information

We publish further information on our progress in climate change matters:

- Integration into business strategy: annual and sustainability reports, 2017 Climate Change Considerations for our Business
- Risk management: annual and sustainability reports, 2017 Climate Change Considerations for our Business
- Contribution to a low-carbon economy: annual and sustainability reports, 2017 Climate Change Considerations for our Business
- Scope 1, 2 and 3 emissions; direct and indirect energy consumption: GRI databooks, sustainability reports
- Coal reserves and production volumes: annual reports, GRI databooks
- Stakeholder engagement: sustainability reports, 2017 Climate Change Considerations for our Business, 2018 climate change webinar

# Water and effluents

## Why this is material

Water is an essential input for many of our industrial activities, for example, in the metal production process, coal handling and preparation plants and for dust suppression around our open-cast mines. During the life of our mines, their operational changes require regular adaptation of water management to maximise the efficient management of natural resources. We ship products over maritime and inland waterways, which could contaminate the water if spilled. Some of our assets are located in areas with high to extremely high water baseline stress and must share access to water with other local water users. Other assets must manage surplus water that may involve dewatering activities and flood protection measures.

### Sustainable development goals



Further information on our management of water and effluents is available in our standalone water report and Our Approach to Sustainability.



Performance

Water withdrawn  
(million m<sup>3</sup>)

**1,020**

2017: 924

**Our approach**

We recognise access to safe and clean water and sanitation as a human right. We seek to understand our effect on the environment, minimise our water-related impacts and ensure that our activities do not compromise any shared use of water. We are committed to ensuring good water management is in place at all of our assets, including, where required, appropriate risk assessments, monitoring and implementation of corrective action. We recognise that water management is a complex issue; to understand it fully requires a dialogue between all the multiple stakeholders involved at each site. Our assets consult their host communities and other relevant local water users to find out their priorities and collaborate on solutions.

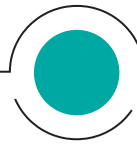
**Our ambition**

To minimise any potential water-related impacts from our operations and provide fair and equitable access for all users.



Highlights

- Continued the roll out of our water management guideline group-wide



Performance

In 2018, we withdrew 1,020 million m<sup>3</sup> of water (2017: 924 million m<sup>3</sup>). The increase was primarily due to the inclusion of the Volcan zinc assets in Peru.

We had three 'moderate' water-related environmental incidents (2017: one moderate incident); we classify the severity of all sustainability-related incidents against a five-point scale from negligible, to minor, moderate, major and catastrophic. These incidents related to:

- A failure, due to heavy rainfall, to contain a spill caused by leaking sodium hydro-sulphide drums at Katanga in the DRC, with some diluted material washed down a drain by heavy rain. KCC cleaned up the area of the spillage and the drain. In addition, KCC is supporting the community to expand their livelihood opportunities through training, financial support and mentoring. The impact was subsequently fully remediated

Glencore's overall water balance (million m<sup>3</sup>)

<b>Water Input (by source)</b>	<b>1,035</b>
Surface water – withdrawn	198
Seawater – withdrawn	148
Groundwater – withdrawn	395
Rainwater – withdrawn	173
Potable (drinking) water imported or withdrawn	19
Other (not potable) water imported from a third party	86
<b>Total water withdrawn</b>	<b>1,020</b>
Water entrained in ore that is processed	15

<b>Diversions and water transferred to others</b>	<b>47</b>
Surface water diversions	12
Aquifer Interception diverted	14
Water supplied to others	21

<b>Total water withdrawn by quality*</b>	<b>1,035</b>
Category 1 – Water withdrawn	306
Category 2 – Water withdrawn	403
Category 3 – Water withdrawn	326

- Water input
- Water use
- Water output
- Water diversion/transferred to others





- A leaking pipeline at the Prodeco Port in Colombia causing approximately 55,000 gallons of diesel to penetrate into the soil. The diesel spill has a radius of less than 50 metres from the leak, wholly located on site. Prodeco has established a full-time diesel extraction process and ongoing monitoring and remediation activities that are expected to continue for another two to three years
- Prodeco identified that acidic water from its La Jagua pit was accidentally discharged into a stream adjacent to the operation. The discharge has been stopped and the acidic water is now stored onsite while a water treatment solution is designed and implemented

During the year, we received 23 water-related community complaints, a similar level to those in 2017 (19). We investigate all complaints and, where appropriate, work with local authorities to address any operational impacts on water sources.

We received 24 water-related fines totalling around \$1.5 million (2017: nine fines totalling \$0.2 million). The majority of the fines, around \$1.26 million, were for incidents at Volcan that occurred between 2006 and 2009 prior to our ownership. Corrective action was subsequently undertaken to prevent future occurrences.

#### Understanding our water footprint

In 2018, we continued to roll out our water management guideline group-wide. The guideline aligns with the ICMM's position statement on water and its water management framework. The guideline reflects our risk-based approach and covers the minimum requirements for water governance, identifying, evaluating and mitigating water-related risks. Once we have completed the implementation of the guideline at all assets, assets will progress to a self-assessment programme.

Water used onsite	1,075
Water used in a task or process	530
Water recycled at onsite treatment facilities	133
Water reused	412
Recycling and reuse efficiency	51%
Change in water in storage	-16

Water output (by source)	1,051
Water discharged to surface water	488
Water discharged to seawater/ocean	154
Water discharged to groundwater	3
Water discharged to offsite treatment or disposal locations	12
Water exported to a third party	53
Water lost to evaporation and other losses	290
Water entrained in waste material and final product	52

Total water output by quality*	1,051
Category 1 – Water discharged	498
Category 2 – Water discharged	408
Category 3 – Water discharged	145

\* Water quality categories reflect the effort required to treat water to achieve drinking water quality. Category 1 is minor through to Category 3 for significant efforts



Water reused  
(million m<sup>3</sup>)

**412**

2017: 371

During the year, we completed a review of water balances at all of Glencore's operated assets to ensure completeness and accuracy of externally reported data. This contributed to our ongoing work to harmonise our work with the Water Accounting Framework of the Minerals Council of Australia as well as improving our understanding of our water inputs and outputs.

In 2017, we completed our assessment of assets potentially facing high water-related risks, which analysed the quantity of water withdrawn at our assets against the water baseline stress data provided by the World Resources Institute's Aqueduct tool. In 2018, we started to assess four assets identified as posing a medium risk to water; the results will determine our approach for other medium-risk assets.

#### Risk management

To mitigate potential water risks, our assets implement asset and/or region-specific measures. For example, our Australian coal assets can experience both flooding risks and water stress. For these assets, our approach to mitigate water-related risks was to establish the Greater Ravensworth Water Sharing Strategy. This approach uses pipelines to connect the Liddell, Mt Owen, Glendell and Ravensworth coal complexes and enables the sharing of water between the operations as required. In 2018, an additional pipeline was constructed, connecting the Intega asset to the system.

This approach has reduced the total amount of water withdrawn as well as reduced operational costs, mitigating flooding risks and reducing water stress on the Hunter catchment basin.

In Australia, our Mount Isa copper-zinc operation has invested more than AUD40 million since 2012 to improve site containment. This work has included construction of 49 new structures (increasing on site capacity by 991ML) with 26km of pipeline installed.

These measures will increase the amount of water available in drought periods while also stopping the discharge of contaminated water during high rainfall events. In addition, the approach will increase the amount of water reused and recycled.



## Next steps

### Improving our water management

Our assets are undertaking a number of initiatives to improve their approach to water management that are specific to their operating processes and locations as well as the opportunities available.

Our Australian coal operations are targeting a 28% reduction in freshwater intensity by the end of 2019 against a baseline year of 2015. Glencore's coal operations in Australia have identified water as one of our most material environmental impacts in our operating regions.

In South Africa, our ferroalloys department is establishing predictive water balances that aim to reduce the amount of water a site withdraws and to identify opportunities for further reductions. Using predictive water balances supports more informed management decisions on the optimisation of operational water use, which in turn can lead to cost savings from the reduced withdrawal of water.

Our South African coal operations are implementing measures tailored to individual operational practices. For example, our Tweefontein coal operation has established a water treatment plant that is treating excess mine water and providing around 6ML each day of potable water to the local community. We are also looking at the viability of a similar approach at the Middelburg coal operation where excess water is currently treated and discharged.

### External engagement

We are actively engaging with our peers on a range of water-related topics through the ICMM's water working group, including the harmonisation of water reporting practices and a consistent approach to responsible water management.

At our Horne Smelter, we are progressing our pilot project on the ICMM's catchment-based approach. The project has three phases; the first will be completed by year-end and the final phase in 2022. The project will support an improved understanding of water, better investment planning and prioritisation, and stakeholder engagement. Horne Smelter will initiate a water management action plan that aligns with the Mining Association of Canada's water stewardship protocol. We will share our learnings group-wide.

During the year, we participated in the CDP's Water Security assessment, achieving a score of 'B', the second highest in the metals sector and the highest in the coal category. Our submission is publicly available.

- Complete group-wide implementation of water management guideline
- Evaluate medium-risk assets with a focus on those with identified reputational issues
- Continue pilot study on implementing ICMM's catchment-based approach
- Continue knowledge sharing and training on water issues
- Review assets' provision of WASH services
- Develop a materiality-based method to assess our suppliers with the highest water risk profiles

# Waste and air emissions

## Why this is material

Responsible resource production involves minimising the impact of our waste and air emissions on the natural environment and our host communities. In recent years, a small number of sudden catastrophic failures at tailings facilities within the resource sector have resulted in a focus on the management of tailings storage facilities (TSFs).

### Sustainable development goals



Further information on our management of waste and air emissions is available in **Our Approach to Sustainability**.





### Our approach

We work to minimise our direct and indirect impacts on the environment, complying with or exceeding relevant regulation and always looking for ways to improve our performance, including reusing as much waste as possible. Our TSFs undergo regular dam safety audits and internal assessments in line with the stringent regulations relating to their management. We continuously monitor our TSFs to support their integrity and structural stability. We work to minimise all types of emissions from our stacks, mining operations and processing facilities. We use abatement systems for our air emissions to meet the applicable threshold values.

### Our ambition

To avoid or minimise adverse impacts on the environment or our surrounding communities.

Total amount of hazardous and non-hazardous mineral waste generated (million tonnes)

**2,264**  
2017: 2,137

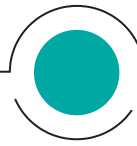
Sulphur dioxide emissions (thousand tonnes)

**381**  
2017: 358



## Highlights

- Ongoing work through our dam safety assurance programme to maintain the structural integrity of our TSFs
- Continued monitoring and identification of reduction opportunities for material emissions



## Performance

In 2018, the total waste produced by our activities was 2,264 million tonnes (2017: 2,137 million tonnes). This was primarily due to increased stripping ratios at a number of assets and the ramp-up of some assets after completion of optimisation projects.

During 2018, our assets, including non-operated joint ventures, monitored and maintained 140 tailings storage facilities (TSFs)<sup>1,2</sup>, of which, 65 are active and 75 closed. 49% of our TSFs are centreline and downstream, and of the 51% upstream, 31% are active and 69% closed.

Our operations emit sulphur dioxide (SO<sub>2</sub>), dust and nitrogen oxide (NO<sub>x</sub>); we monitor all material emissions and take steps to minimise the emissions and their impact.

In 2018, 15 assets implemented dust reduction programmes for emissions from fugitive sources and stacks. These include coal operations in Australia and Colombia, copper operations in Australia and Chile, ferroalloys operations in South Africa and zinc operations in Argentina, Spain and Kazakhstan.

In addition, 21 assets implemented reduction initiatives to reduce other air emissions (such as SO<sub>2</sub>, NO<sub>x</sub>, CO and fumes).

During 2018, our operations emitted 381,000 tonnes of SO<sub>2</sub>, an increase of 6% on 2017 (358,000 tonnes of SO<sub>2</sub> emitted), due to increased production, projects ramping up and integration of newly acquired assets.

## Waste

### Our approach

Most of the waste that Glencore generates is broken rock, tailings, slag and residue from the processing of metals. Our assets have rigorous management systems to dispose of waste while preventing environmental contamination.

Our metal and coal assets generate tailings (residues of mineral processing), which are stored in purpose-built TSFs. During 2017, we rolled out a group-wide Tailings Management Protocol. We developed the protocol in consultation with internal and external experts, and it aligns with the findings of the ICMM's review of tailings management guidelines and recommendations for improvement.

<sup>1</sup> Excludes recent Volcan investment, currently under review.

<sup>2</sup> The number of TSFs is calculated based on a definition that we keep under review.

### Risk management

Dam failure is the greatest risk for our TSFs. Our assets evaluate natural phenomena such as flooding and seismic activity and incorporate these considerations into their TSF designs. Since 2016, our dam safety assurance programme has determined our approach towards the maintenance of our TSFs. This involves a foundational assessment against more than 100 dam safety and governance best practice criteria.

We assess our material TSFs against national regulations and guidelines as well as against criteria aligned with international guidelines from the Canadian Dam Association, the Australian National Commission of Large Dams and the International Commission of Large Dams.

In addition to the dam safety assurance programme, we conduct regular surveillance and quarterly to yearly dam safety inspections (DSI) for operating sites, and annual DSI for closed TSFs. The DSI, carried out by engineers, evaluate the current and past performance of the TSFs and observe potential deficiencies in its condition, performance and operation.

Another auditing layer is our dam safety reviews that take place every three to five years, depending on the potential maximum consequence of the TSFs. This review covers various areas, such as the operation's maintenance, surveillance and monitoring, failure impact assessment, emergency management, public safety and environmental management etc.

Every 12–18 months, Klohn Crippen and Berger, one of the world's leading experts, complete dam safety audits to determine if sufficient work is being undertaken to properly assess and manage the safety of the TSFs.

### External engagement

Glencore is participating in the ICMM's development of an international standard for TSFs for its member companies. Current global best practices in the mining industry will inform the standard, which is expected to create a step change for the industry in the safety and security of these facilities.

In early 2019, Glencore participated in an investor round-table on TSF safety convened by the Church of England's Pension Board and the Council of Ethics on Swedish National Pension Funds, which included a number of investors, peer companies and the ICMM. The round-table recognised the need to establish standards and guidelines on how to address concerns relating to TSFs, to improve monitoring technologies and for investors and governments to work together to influence the industry as a whole.





### **Addressing legacy waste and contamination**

In 2017, Glencore acquired a controlling interest in Volcan Compañía Minera SAA (Volcan), a zinc asset located in Peru. We recognise that historical mining practices, which took place over many years under previous owners, have affected the environment and local community.

Over a number of years, Volcan's operations have accumulated stockpiles of ore, which it is now processing and, as a result, eliminating a potential source of heavy metals from entering the environment. Volcan anticipates the processing of these stockpiles will take around five years to complete, although it is currently trying to speed up this process. Volcan has also incorporated dust control measures for the processing activity to mitigate air and soil contamination.

Volcan recognises the risks associated with lead contamination of soils, particularly in regard to health. Volcan has developed a comprehensive environmental site assessment programme to increase its understanding of lead in the environment and improve its management of the issue. It has completed its evaluation of the sources of lead and is currently undertaking work to improve its understanding of soil characterisation and lead in air and water.

Volcan is running workshops within its local communities to improve their understanding on how to mitigate exposure to heavy metals as well as explaining the risks associated with entering industrial areas.

### **Air emissions**

#### **Our approach**

We monitor our emissions and continuously look for ways to reduce those that pollute the air around us. Wherever we operate, we comply with relevant regulatory limits and/or international standards for air emissions regarding SO<sub>2</sub>.

#### **Risk management**

Our open-cut operations emit dust from excavation and movement of material. We monitor dust levels at affected communities and minimise dust in a number of ways, such as ongoing rehabilitation to avoid dust erosion, sprinkling of roads, coverage of rail cars with tarpaulin and consideration of weather conditions for blasting activities.





## Next steps

- Ongoing review of operational waste management procedures to identify opportunities to minimise the impact of the waste our assets produce

### Addressing legacy emissions

In 2014, our Mopani Copper Mines in Zambia completed its \$500 million upgrade project for its Mufulira smelter. At the time of our acquisition, Mufulira smelter was emitting 100% of its SO<sub>2</sub> emissions into the atmosphere. The upgrade project built a new state-of-the-art smelter within the confines of the existing smelter, while increasing production and maintaining job stability. The completion of the project addressed an 80-year-old legacy issue.

Today, Mopani captures around 95% of emissions, in line with local regulation and international guidelines, and has real-time SO<sub>2</sub> monitoring stations spread across the community. Occasionally, emissions levels exceed these limits for a short period, due to power failure or a planned shutdown.

In February 2019, following a number of performance challenges, Mopani decided to close the Mufulira smelter to undertake further upgrades. These have improved the plant's operating efficiencies as well as delivering an improved consistency to its emissions capture. Mufulira smelter reopened in early March.

While we make numerous efforts to limit air emissions, Mopani's long-standing public health programmes include awareness raising in its surrounding communities in the event that our operational activities result in increased emissions levels. It provides free mobile medical services and treatment at its community clinics and hospital to anyone affected by the emissions.

Mopani's local community members can express any concerns relating to its operations during the regular meetings its management and community relations teams hold or using a grievance mechanism.



# Human rights and grievance mechanisms

## Why this is material

We recognise that mining can have an impact, both positive and negative, on the rights of workers and communities. We are also aware of the need to ensure unencumbered, fair and transparent access to remedy for any stakeholder affected by our operations. We are continuing to look for ways to strengthen the mechanisms we have in place to address this.

### Sustainable development goals



Further information on our management of human rights and grievance mechanisms is available in Our Approach to Sustainability, 2018 Human Rights report and our Supplier Standards.

## Performance

## Community complaints

1,057

2017: 1,063

## Our approach

We are committed to upholding and respecting the human rights of our people and our local communities. We seek to apply relevant international standards to understand, control and mitigate the impact. Our commitment to respect human rights in accordance with the Universal Declaration of Human Rights, the United Nation's (UN) Guiding Principles, the UN Global Compact and International Labour Organization's core conventions is articulated in our Code of Conduct and Group Human Rights Policy. We also seek to apply the Voluntary Principles on Security and Human Rights, International Finance Corporation's Standard 5 and ICM's position statement on Free and Prior Informed Consent.

## Our ambition

To uphold respect for human rights within the Group and throughout our value chain.

## Supporting peace in Colombia

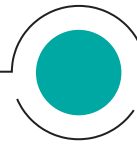
We recognise the significant progress made towards achieving sustainable peace in Colombia. Prodeco is supportive of the steps taken by the government and is an active participant in its operating regions. Prodeco is supporting the peace process through: strengthening local capacities; implementing integrated rural development projects on non-mining lands; promoting a corporate culture of peace; and responsibly managing its impacts within the framework of the UN Guiding Principles on Business and Human Rights and the UN Voluntary Principles on Security and Human Rights.

See page 79 for further information.



## Highlights

- Reviewed assets' implementation of Glencore's Human Rights Policy
- Member of a Swiss government-led advisory group developing guidance for the commodity trading sector on implementing the UN's Guiding Principles
- Participant in the ICMM's working group on community, working on grievance mechanisms guidance



## Performance

During 2018, we reviewed how our assets are implementing Glencore's Human Rights Policy to improve our understanding of the extent to which our business has integrated human rights into its day-to-day operating practices. Our approach included interviews with key internal stakeholders and an external benchmarking of our human rights performance against that of our peers.

Our findings showed that group-wide we have areas of Policy implementation good practice, but also opportunities for improvement to deliver a more consistent approach, regardless of location. We have identified four priority areas: social and human rights incident tracking and reporting; training and capability development; reinforcing expectations with business partners and reviewing the effectiveness of grievance mechanisms. We are now implementing a programme to address these priority areas.

During the year, we enhanced our human rights monitoring and reporting. This has included developing guidance on defining, reporting and investigating social and human rights incidents. We roll out the guidance during 2019.

In 2018, the heads of each of our commodity departments completed training on respecting human rights, Glencore's commitments and the consequences of implication in human rights abuses. Going forward, we will develop a broader human rights training programme for our management teams at our assets.

In 2019, we will publish a standalone human rights report that will detail both our approach and our performance during 2018.

### Developing guidance on respecting human rights for the commodity trading sector

During 2017 and 2018, we participated in a multi-stakeholder advisory group, led by the Swiss government, that collaborated with the Institute for Human Rights and Business (IHRB) to prepare guidance for the commodity trading sector on implementing the UN Guiding Principles on Business and Human Rights.

This guidance aligns with established frameworks, such as the OECD, and aims to encourage shared practice for responsible trading. The guidance outlines the expectations for company behaviour in respecting human rights, provides examples and recommendations tailored for the commodity trading industry, and links to existing resources that companies can draw on to support their implementation journey.



We will actively review our systems and processes against the guidance to identify opportunities to strengthen our approach to human rights in our marketing business.

### Working with our business partners

During the year, we finalised our Supplier Standards, which will be the foundation for enhanced supply chain due diligence throughout our business.

The Supplier Standards builds on the requirements of the Code of Conduct and is aligned with internationally recognised frameworks, including the UN Guiding Principles and OECD.

We are working with the commodity departments to develop and implement processes to embed the Supplier Standards in our contract tendering processes. Once fully implemented, we will conduct risk-based assurance against the Supplier Standards across our business, focusing on products and services that present the greatest risk of human rights abuses.

### Artisanal and small-scale mining (ASM)

It is not uncommon for communities that live near mining operations and suffer from endemic poverty to turn to ASM. This is prevalent near our operations in the Democratic Republic of the Congo (DRC), particularly for cobalt.

As a major producer and marketer of cobalt, we support efforts to establish greater transparency in the value chain, and address the endemic poverty in this region that is the underlying cause of ASM. We have developed due diligence processes to ensure ASM material does not enter our supply chain.

The majority of our cobalt is produced in the DRC. Here, we have established initiatives to deter local community members from becoming artisanal miners. During 2018, through our school holiday camps, over 9,000 children received a meal each day and participated in a wide range of recreational and educational activities which included discussions on children's rights, the importance of education and the risks associated with artisanal mining.

During the year, we supported over 140 agricultural cooperatives with over 4,000 members. We are encouraging these alternative livelihood programmes to become independent and sustainable. One of the small businesses that we initiated and developed is now supplying vegetables to our Katanga mine-site canteen. Another business is preparing meals for a local mining company.

### Indigenous people

Our assets' engagement activities align with the principles of free, prior and informed consent for indigenous people (FPIC). Wherever mining projects are to be located on lands traditionally owned by, or under customary use of, indigenous people, the ICMM position statement on FPIC requires its members to respect indigenous people's rights, interests, special connections to lands and waters, and perspectives.

Some of our assets in Australia and Canada are located on or near the traditional lands of indigenous people. We have formal agreements at a number of these assets, including indigenous land use agreements in Australia and impact benefit agreements in Canada. Wherever we work, we engage in open and continuous dialogue with indigenous communities to understand their culture, views and aspirations. This helps us work with them to minimise our impact and maximise the benefit we bring to them.

In northern Canada, our Raglan Mine celebrated the tenth anniversary of its Tamatumani (second start in Inuktitut) programme. The programme encourages and supports local Inuit community members to work at Raglan Mine. Tamatumani supports the Inuit employees in their professional skills development and aims to accelerate their progression to higher responsibility positions. During 2018, Raglan Mine's 245 Inuit employees represented over 22% of the workforce.

In Australia's Northern Territory, our McArthur River Mine achieved 18.3% Indigenous employment during 2018 through its recruitment and development programmes. Its targeted local Indigenous trainee programme matches existing skills with work areas and leads to a structured 12-month, on-the-job traineeship programme. This programme has been running successfully for two years and led to many of the trainees securing permanent employment.

### Modern slavery

We are committed to preventing the occurrence of modern slavery and human trafficking in our operations and supply chains. We publish an annual Modern Slavery Statement that aligns with the UK government's reporting requirements. Our statement sets out our approach and the steps taken for the prevention of slavery in our organisation and supply chain.

We note the finalisation of similar reporting requirements in Australia during 2018. As part of our preparations to implement the new legislation, a workshop for our Australian-based procurement, sustainability and compliance teams reviewed our existing approaches and processes and agreed to an action plan to close gaps.

During the workshop, the Walk Free Foundation gave an overview of the presence of modern slavery in supply chains, KPMG presented a gap analysis between our existing processes and the anticipated legislative requirements and two of our Tier 1 customers provided details on the steps they are taking to monitor their procurement activities.

We will publish an Australian-focused statement to meet these obligations.

### Resettlement

We seek to avoid resettlement wherever possible. When it cannot be avoided, we proceed in accordance with IFC Performance Standard 5: Land Acquisition and Involuntary Resettlement. Throughout, our priority is to ensure that all affected stakeholders have full participation. Following any resettlement, through ongoing monitoring, we seek to ensure the communities involved can maintain productive livelihoods.

Our coal business is undertaking a number of resettlements in Colombia and two in South Africa, which are being managed in accordance with national and international standards.

During the year, Prodeco in Colombia, along with two other mining companies, met a number of key resettlement milestones:

- El Hatillo: the mining companies and the community signed the El Hatillo resettlement action plan (RAP) in a public ceremony. In addition, the community agreed the schedule for the resettlement's implementation phase
- Plan Bonito: over 80% of the commitments have been completed in the post-resettlement livelihood restoration plan for the Plan Bonito community, which will be finalised in 2019. The plan is benefiting 104 families, 480 people and developing 100 businesses
- Boqueron: the resettlement process is at an early stage and baseline studies are underway, including a health study to assess the wellbeing of the Boqueron community. The involved mining companies have developed a social investment programme to identify and address community concerns, such as a community centre for older people and a solid waste management system. The request by the mining companies to the Colombian government to reevaluate its decision on the need to resettle the Boqueron community due to the lack of environmental or social justifications is still under review

In South Africa, our Goedgevonden team has reached an agreement with the remaining six families. As part of the agreement, the families have chosen a rural relocation and have identified land. Goedgevonden is

now obtaining the necessary approvals for construction. In addition, the resettlement of the Zonnebloem community is underway and so far, 11 of the 13 families have resettled. The team at Zonnebloem has identified an additional family requiring resettlement and is currently working with the family to agree on a RAP. During 2019, Goedgevonden will resettle two households within the iMpunzi's complex.

### Working with security providers

At our assets located in countries that we identified as having a high potential risk of security-related human rights impacts, we established procedures to support the implementation of the UN's Voluntary Principles on Security and Human Rights (VPs). At these assets, employees and contractors in security functions receive annual training on the VPs and we are progressively incorporating the VPs guidance into our security-related processes and contracts.

During 2018, we reviewed and revised our guidance on undertaking assessments to identify regions with high risks associated with security and, for these regions, how to implement the requirements of the VPs.

In Chad, our oil exploration and production (E&P) operation's security superintendents met with local chiefs, and joined community meetings organised by the community relations team. In addition, E&P holds regular meetings with the commander of the armed forces to discuss any concerns about their activities. During 2018, E&P held four public forums, during which NGOs, village chiefs and canton heads, administrative authorities and military representatives participated. The forums hosted discussions on a wide range of operational matters, including security.

In Colombia, Prodeco works with the NGO Fundación Ideas para la Paz (FIP) to run workshops on the VPs. During 2018, Prodeco engaged CREER (the Institute for Human Rights and Business) to review its implementation of the VPs. CREER's main recommendation was for Prodeco to enhance its security risk analysis to include impacts to external stakeholders and to engage these external stakeholders in the risk analysis process and any resulting action plan.

Prodeco also engaged FIP to undertake human rights due diligence with its ten most critical contractors, including Interglobal, its security services provider and a signatory of the International Code of Conduct for Private Security Service Providers' Association.

In the DRC, our assets, Kamoto Copper Company (KCC) and Mutanda Mining (MUMI) undertook meetings with community representatives and traditional leaders to address concerns on theft, artisanal mining and



## Next steps

- Rollout and implementation of the Supplier Standard group-wide
- Refresh, and start to implement, human rights training programmes across the group

intrusions onto the concessions. Intrusions by illegal artisanal miners onto KCC and MUMI's concessions often result in damage to equipment, material theft and injuries to our workforce. The management teams of KCC and MUMI regularly meet with representatives of the provincial government to discuss intrusions by artisanal miners and security concerns.

From September 2018, KCC observed a growing presence of illegal artisanal miners throughout industrial mining concessions in the Kolwezi area. This led to an increasing number of intrusions at mine sites throughout the area, including the KCC concession. The intrusions pose a risk to the safety and security of the workforce, equipment damage and impact the safe and stable running of the operations.

Following an intrusion in December 2018 at the KCC concession by more than 3,000 illegal artisanal miners, during which one mine policeman came under attack and subsequently passed away, local authorities requested support from the army to help stabilise the situation in the Kolwezi area.

Throughout the escalation of intrusions, KCC and Glencore engaged with relevant stakeholders to communicate its actions. These included local and national Congolese authorities; Gécamines; Swiss government; and NGOs. The stakeholders acknowledged the complexity of the situation.

In Peru, there were two incidents involving a small number of people illegally entering Antapaccay's property. We are undertaking an independent review into these incidents. In late 2017, Glencore acquired an interest in Volcan Compañía Minera SAA (Volcan). We are currently reviewing and revising Volcan's policies and procedures to ensure alignment with those of Glencore. In 2019, we will look to implement the VPs at Volcan.

### Grievance mechanisms

We require our assets to operate grievance mechanisms to receive and address concerns from external stakeholders. We make local communities aware of the mechanisms and make them easy to access. We require that assets report and investigate all complaints.

During 2018, we received 1,057 complaints from the communities living around our operations (2017: 1,063 complaints). The majority of the complaints received related to Chad E&P, Mount Isa and Mangoola, primarily regarding access to property (Chad), air emissions (Mount Isa) and noise (Mangoola).

We take all complaints seriously and continuously look for new ways to minimise our impacts.



# Community engagement and social commitment compliance

Why this is material

Mining activities can make a significant contribution to the national and local economies in which they are present. We recognise our responsibility to minimise any negative impact from our activities and to support sustainable development and growth.

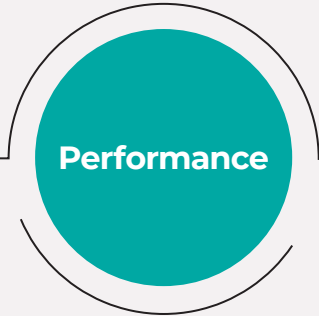


## Sustainable development goals



Further information on community engagement and social commitment compliance is available in Our Approach to Sustainability.





**Performance**

**Tax and royalty payments**  
(\$ billion)

**5.7**

2017: 4.1

**Community investments**  
(\$ million)

**95**

2017: 90

**Our approach**

Through proactive, strategic stakeholder and community engagement, we can support the advancement of the interests of both our host communities and our assets. We take a cross-functional approach to understanding and managing our socio-economic contributions and to deliver shared value while managing our impact on society.

Community investments form part of our contributions to, and financial support of, the broader communities in the regions where we operate. Funds are set aside to support initiatives that benefit communities and local sustainable development. We support programmes for community development, enterprise and job creation, health, education and the environment.

**Our ambition**

To minimise any negative impacts from our operations and to support sustainable socio-economic development and growth in our local communities.

**Creating shared value in South Africa**

Our South African coal business has implemented a significant value creation initiative: free WiFi in its local communities. It has established 11 WiFi hotspots and each hotspot supports up to 250 users and provides access to 500Mb of data per user per day.

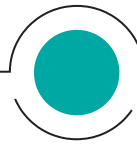
The WiFi hotspots are enabling students to complete school assignments and download study material, job seekers to apply for employment, and entrepreneurs to search and apply for procurement opportunities.

See page 80 for further information.



## Highlights

- Continued delivery of our Community Leadership Programme



## Performance

During 2018, we continued to deliver our Community Leadership Programme (CLP). Site-based general managers and community practitioners participated in sessions in Australia and Peru. In early 2019, we held an European training session, which completed the rollout of the CLP.

Over 150 community managers and operational management have now completed the CLP and are using its toolkit to deliver effective social strategies. We are now developing guidance for community teams on monitoring and measuring the benefits delivered by community programmes.

We will continue to use the CLP as a broad training framework that will continue to evolve as part of the review and development of our approach.

In 2018, we spent \$95 million on community development programmes (2017: \$90 million), which are an integral part of our community and stakeholder engagement strategies, and our investments supported various initiatives in all of our operating regions.

### Socio-economic contribution

We measure our social impact through our socio-economic contribution scorecard. The scorecard supports our efforts to meet objectives for maintaining and strengthening our societal licence to operate while supporting our local communities' own objectives.

Operational objectives	Community objectives
Maintain and protect societal licence to operate, as measured by: <ul style="list-style-type: none"> <li>• Levels of community support and community perceptions</li> <li>• Anticipation and mitigation of risks associated with benefit generation, such as additional migration to these areas, or confusion over which entity will provide public services</li> <li>• Incidents of societal unrest</li> </ul>	Achieve resilience, as measured by: <ul style="list-style-type: none"> <li>• Measurable benefits</li> <li>• Reduced dependency on the asset</li> <li>• Diversified economy</li> </ul>

### The scorecard examines the key value flows that our assets create for four principal stakeholder groups

Stakeholder group	Value flows	2018 results
Employees	<ul style="list-style-type: none"> <li>• Wages and benefits</li> </ul>	<ul style="list-style-type: none"> <li>• 96% of our workforce is local to the country where we operate</li> </ul>
Suppliers and contractors	<ul style="list-style-type: none"> <li>• Procuring goods and services</li> <li>• Skills and enterprise development</li> </ul>	<ul style="list-style-type: none"> <li>• 74% of our global procurement spend is with suppliers and contractors local to the countries where we operate</li> <li>• More than 85,000 people benefited from our enterprise development and economic diversification investments</li> </ul>
Local communities	<ul style="list-style-type: none"> <li>• Community development</li> <li>• Use of shared public-use infrastructure</li> <li>• Skills and enterprise development</li> </ul>	<ul style="list-style-type: none"> <li>• \$95 million spent on programmes supporting local community development, including about \$17 million on enterprise development and economic diversification of local entrepreneurs</li> <li>• Around 2.4 million people living near to our assets have benefited from our community investment activities, including environmental initiatives, healthcare facilities, education programmes and enterprise development</li> <li>• \$5.3 million spent on infrastructure for water processing and distribution</li> <li>• \$3.9 million spent building or maintaining over 134 kilometres of roads</li> </ul>
Local and national government	<ul style="list-style-type: none"> <li>• Taxes and royalties</li> <li>• Shared public-use infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>• \$5.7 billion paid to host governments in taxes and royalties</li> <li>• In total nearly \$20 million spent on public infrastructure such as water, sewage and power networks and roads</li> <li>• \$5.3 million spent on infrastructure for water processing and distribution</li> <li>• \$3.9 million spent building or maintaining over 134 kilometres of roads</li> </ul>

Through our socio-economic scorecard we measure, monitor and communicate on our local, regional and national social contribution. Some of the initiatives that the scorecard recorded during the year include:

- In northern Canada, our Raglan Mine organised two 'meet and greet' sessions that brought together their Inuit partners and suppliers from southern Quebec. Over 60 entrepreneurs took part in the sessions, which are designed to build the local entrepreneurial capacity, establish business relationships and identify procurement opportunities
- In Canada, our Kidd operations are promoting local wellbeing through supporting a local ski hill, sporting activities and sea cadets as well as funding for Timmins hospital and sponsoring an Indigenous nursing experience for over 50 college students.
- During the year, our Antapaccay copper operation in Peru supported a comprehensive health campaign, which was attended by 1,200 local residents, of which over 40% were children
- In Colombia, we have been promoting action and raising awareness on the region's child abuse and early pregnancy issues to public and private stakeholders. Prodeco leads an inter-institutional round-table and supports a programme that works with 22,000 public school students to provide advice, support and promote healthy behaviours
- Our McArthur River Mine in Australia's Northern Territory offers apprenticeship training to encourage local residents to join its workforce

- In Australia, our Mount Isa Mines' Indigenous Employment Programme is providing a pathway for Indigenous Australians to work in its operations
- Our Murrin Murrin nickel-cobalt mine in Western Australia, through its Minara Community Foundation, supports a number of projects that benefit and build capacity for the local community. These include supporting various community events, the Royal Flying Doctor Service, youth outreach programmes and a local tourism initiative
- In Chad, our oil exploration and production team is committed to the nationalisation of its workforce. Multiple initiatives are in place to recruit from the local labour market when the required skill set is available. Where it is not, initiatives such as training and competency development and a robust performance management process are in place to develop the skills and competencies of the local workforce to take positions of increasing responsibility over time
- In Zambia, our Mopani copper operations funded the repairs to a local bridge and roads, as well as clearing drains and providing waste rock for use by local residents

#### Payments to governments

We pay all relevant taxes, royalties and levies required by local and national regulation in our host countries. The payments we make to the governments of the countries in which we operate include local, national, sales and employment taxes, government royalties and

#### Economic value added in 2018<sup>1</sup>

\$ million	Group	Africa	Australia	North America	South America	Rest of the world
Revenues <sup>2</sup>	255,695	9,282	10,716	32,091	8,640	194,966
Payments to suppliers (operating costs) <sup>3</sup>	241,679	5,998	7,894	30,728	1,650	195,410
<b>Economic value added</b>	<b>14,015</b>	<b>3,285</b>	<b>2,821</b>	<b>1,363</b>	<b>6,990</b>	<b>-443</b>
Royalties and taxes <sup>4,5</sup>	5,739	1,570	2,219	408	730	812
Employee wages and benefits <sup>6</sup>	4,759	943	1,354	639	629	1,193
Sum of payments to providers of capital <sup>7</sup>	3,478	719	98	-149	151	2,659
Community investments	95	41	6	2	16	30
Sum of capital expenditure	4,675	1,465	866	540	1,003	800
<b>Economic value retained/contributed</b>	<b>-4,731</b>	<b>-1,454</b>	<b>-1,722</b>	<b>-77</b>	<b>4,460</b>	<b>-5,938</b>

1 For presentation purposes, all figures in this table have been rounded to the nearest unit.

2 Revenues include sales, intercompany sales and other income.

3 Operating costs included all cost of goods sold excluding salaries, employee benefits, taxes, community investments, depreciation, impairment and M2M.

4 Does not include total net refunds from governments on VAT, GST and sales tax amounting to \$1.559 million. Taxes and royalty payments for Equatorial Guinea amounting to \$26 million are included.

5 Does not include income taxes paid in Colombia, Peru and Chile, relating to Glencore's proportionate ownership interest in joint ventures (Cerrejón, Antamina and Collahuasi) amounting to a total of \$725 million.

6 Excludes all costs relating to contractors; these are shown in operating costs.

7 Consists of dividend payments and interest expenses to third parties and inter-Group entities. Payments to providers do not include any repayments of loans to principals.



## Next steps

- Maintaining and strengthening our societal licence

licence and permitting fees. In addition, we contribute to local economies through our use of local suppliers, wages and employee benefits, voluntary support of socio-economic initiatives such as health and education projects and infrastructure development.

We welcome fiscal transparency, as it encourages the responsible management of revenues from extractive activities. We are a supporter of the Extractive Industries Transparency Initiative (EITI) and its principles of transparency and accountability. We participate in in-country forums supporting the EITI.

Our annual payments to governments report includes the information required by the EU Accounting Directive, and details payments by country, project and recipient. This includes disclosure on our oil purchases payments to state-owned enterprises in EITI-compliant countries.

In 2018, the tax and royalty payments made by our industrial and marketing activities was \$5.74 billion, an increase on 2017 (\$4.11 billion). The increase is mainly due to higher average commodity prices and increased production volumes.

Our highest payments made to governments in 2018 were:

### Payments (excluding VAT)

Country	US\$ million
Australia	2,193
Democratic Republic of the Congo	1,063
Kazakhstan	438
South Africa	357
Canada	327
Peru	308
Colombia	195
United Kingdom	123
Chile	98
Zambia	85
Argentina	81
United States	81
Switzerland	67

Does not include total net refunds from governments on VAT, GST and sales tax amounting to \$1.559 million. Taxes and royalty payments for Equatorial Guinea amounting to \$26 million are now included. Does not include income taxes paid in Colombia, Peru and Chile, relating to Glencore's proportionate ownership interest in joint ventures (Cerrejón, Antamina and Collahuasi) amounting to a total of \$725 million.



# Product stewardship

## Why this is material

Our products are vital to today's society, creating devices used daily, all over the world. Supplying these products in a timely fashion with consistency in quality and safety is essential to our business and to our customers. There is increasing focus by consumers on products' entire supply chain. In turn, our customers are seeking increasing assurance on a wide range of sustainability topics across the production of the raw materials they buy.

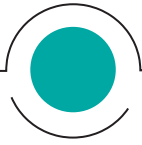
Our success depends on our ability to anticipate and appropriately respond to our customers' needs.

### Sustainable development goals



Further information on product stewardship is available in Our Approach to Sustainability.





## Our approach

We work with experts, industry consortia, our peers and customers to study the properties and impacts of our products throughout their supply chains and lifecycles, to spread understanding of our products. We play an active role in industry associations, which supports our approach to producing, transporting, storing and sourcing our products, responsibly and safely. We engage with a broad range of stakeholders, including civil society, governments, industrial partners and our customers, to promote responsible commodity sourcing. As a vertically-integrated commodity supplier our unique perspective on supply chains supports our contribution towards responsible sourcing initiatives. We support our approach of ongoing improvement in commodity production by sharing responsible sourcing learnings throughout our supply chain.

## Our ambition

To be a responsible supplier of commodities for everyday life. To deliver and market competitively priced commodities that meet our stakeholders' needs and contribute to global society in a sustainable manner, incorporating health, safety, environment and human rights considerations throughout our supply chain.



## Highlights

- Formalised our approach to supply chain management through developing Supplier Standards
- Finalised our supply chain due diligence programme
- Participation in developing external responsible sourcing frameworks for cobalt and copper
- Active participation in LME and LBMA's consultation on responsible sourcing standards
- Contributed to ICMM and RMI's responsible sourcing round-table
- Identified priority substances for chemical management
- Contributed to a new testing methodology to improve product transportation safety

## Performance

### Engagement on responsible sourcing initiatives

During the year, we continued to engage with a broad range of stakeholders to encourage responsible commodity sourcing. Through our role in industry associations, we volunteered to pilot a number of responsible sourcing initiatives.

We participated in the OECD's forum on responsible mineral supply chains, which provided an opportunity for multi-stakeholder dialogue on cobalt. Our customers are looking for alignment of our practices with the OECD's responsible sourcing guidance, and we are integrating its learnings into our supply chain due diligence programmes.

Through our ongoing engagement with the OECD, we continue to share our experiences and knowledge of responsible sourcing. We have aligned our new supply chain due diligence programme, which we will roll out in 2019, with OECD guidance to ensure it complies with regulatory and customer requirements.

We were also active in other responsible sourcing forums, including the Responsible Mineral Initiative (RMI), where we engaged to understand better the assurance process that would be implemented at our Murrin Murrin nickel-cobalt operation in Western Australia. We also continued to collaborate with the RMI, nominating Murrin Murrin as an active refiner under RMI's responsible cobalt programme.

We also worked with our peers in the ICMM's responsible sourcing working group. As part of this group we exchange practices and information to align standards with key downstream industries, such as steel makers, and electronics and automotive manufactures.






 Next steps

- Roll out our supply chain due diligence to all our commodity departments

Both directly and through our membership of industry associations, we provided feedback to the London Metal Exchange's (LME) draft position paper, which recommends a new approach to the responsible sourcing of metals by listing brand names.

We were a core taskforce member for the Cobalt Institute's development of its Cobalt Industry Risk Assessment Framework (CIRAF) for the production of cobalt, running the first desktop pilot study. CIRAF aims to be a broadly-accepted responsible cobalt framework and is aligned with the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas, which is widely recognised as the leading global standard on responsible mineral supply chains.

The framework establishes an industry-wide supply chain risk management guidance that focuses on upstream producers of cobalt. It supports the responsible production of cobalt through the delivery of enhanced due diligence aligned with industry good practice and those global frameworks that are focused on the responsible sourcing of minerals.

Following the finalisation of the LBMA's responsible sourcing programme for silver, in addition to the existing programme for gold, we are implementing the recommendations of the programme at our assets producing LBMA Good Delivery Silver. The programme includes measures to combat money laundering, terrorist financing and human rights impacts.

#### Strengthening our supply chain due diligence

Working with our procurement, legal and compliance teams, we are formalising the supply chain due diligence that we carry out on our third-party suppliers.

We have developed a commodity department-specific approach that allows for the differences that exist between our product suppliers.

During the year, we finalised our supply chain due diligence process at a workshop in Australia. Representatives from the industrial assets and our marketing business attended the workshop. We are now running pilot projects with our cobalt and ferrochrome marketing businesses. The pilot will assess whether the approach fully identifies suppliers with the highest risks as well as develop steps to manage and mitigate the risks.

#### Regulatory compliance

In 2018, Glencore did not produce, process or market any 'conflict minerals' originating from the conflict areas defined by the Dodd-Frank Act (tin, tungsten, tantalum and gold from the DRC and adjoining countries).

# Our people

## Why this is material

Our success relies on our ability to attract, develop and retain the best talent, at every level. We must maintain a capable and engaged workforce that brings a diverse range of experience and perspectives to the organisation, in order to continue meeting our business objectives.



### Sustainable development goals



Further information on our people is available in our Annual Report 2018 and Our Approach to Sustainability.

Performance

Number of employees

**158,000**

2017: 146,000

**Our approach**

We believe that diversity is essential to our business and prohibit discrimination on any basis. We do not tolerate any form of racial, sexual or workplace harassment. We protect and uphold fundamental human rights around the Group, with fairness, dignity and respect. We uphold the International Labour Organization Declaration on Fundamental Principles and Rights at Work. We recognise and uphold our people's rights to a safe workplace, freedom of association, collective representation, just compensation, job security and development opportunities.

**Our ambition**

To be recognised as a top employer in all of our operating regions.



## Highlights

- Rolled out Group diversity policy
- Revised and distributed corporate human rights policies
- Four employees recognised by Women in Mining's Top 100



## Performance

Our people are our greatest asset and we offer them diverse opportunities and support for their development throughout their careers at Glencore, with competitive rewards and benefits.

We support and implement the International Labour Organization Declaration on Fundamental Principles and Rights at Work. We recognise and uphold our people's rights to a safe work environment, freedom of association, collective representation, fair compensation, job security and developmental opportunities.

During 2018, we revised and distributed group-wide our corporate human resources policies. We updated these policies to reflect legislative developments as well as evolving good practice.

We also reviewed our employee market material to reinforce our employer value proposition. This approach, along with our proactive engagement with graduates and prospective employees, supports our ambitions to be an employer of choice that attracts and retains top talent.

Our employees and contractors have access to grievance procedures. During 2018, 59 grievances on favouritism, discrimination, bullying, unfair termination and terms of employment were received, reviewed and, when appropriate, action taken. We are committed to tackling issues in a transparent and timely manner.

### Diversity

Regardless of geography, commodity or operational processes, we are committed to a diverse workforce that reflects the make-up of the local communities living around our operations.

During 2018, we rolled out our Group diversity policy to our industrial and marketing assets. This policy promotes a diverse and inclusive workforce. We have also established guiding principles to improve gender balance, encourage and support diversity and to prevent discrimination.

Group-wide, we employ 12,961 women, 15% of our employees (2017: 12,037, 14%).

During 2018, we nominated over 25 of our female employees for Women in Mining's Top 100. The final list recognised four of our employees. The Top 100 identifies and promotes our industry's pioneering leaders who drive initiatives to improve diversity in the sector.



## Next steps

In South Africa, our coal team has introduced 'We Lead', a women's development programme. This programme supports female employees through a structured mentoring initiative.

We are committed to providing skills development and opportunities to advance the education of our local community members. In South Africa, our ferroalloys team is an industry leader in the employment of skilled artisans. It has invested over \$18 million over the past five years to develop skills and improve the employment-attractiveness of those in its surrounding communities. Graduates are equipped to access employment opportunities in multiple sectors, including mining, construction and manufacturing.

### Union relations

During 2018, we actively engaged with IndustriALL, a global union federation on a number of topics. Through our relationship with IndustriALL, representatives from our African assets participated in a meeting with delegates from unions representing their workers. The meeting discussed contractor numbers, gender and race diversity, employment terms and conditions and community projects.

In South America labour negotiations with unions take place every three years. Our Lomas Bayas copper mine in Chile entered into fresh negotiations in November 2017 that led to a new agreement in early January 2018, reached without industrial action.

In March 2018, at our Oaky North coal mine in Queensland, Australia, employees voted in favour of a new enterprise agreement, following nearly three years of negotiations.

In August 2018, Glencore acquired the Hail Creek coal mine in Queensland, Australia. A review of operations following the acquisition resulted in a restructuring of the business with a reduction of 400 positions from an initial workforce in excess of 1,300 people. Throughout the process, our meetings with workers and their unions resulted in the changes occurring in a consultative and dispute-free manner.

### Wellbeing

A safe working culture is inherent to Glencore. We encourage a trained, competent and motivated workforce, and continue to promote and support health and wellbeing programmes for all our workers and local communities.

### Turnover

During 2018, our global turnover was 11%, a slight increase on 2017 (9%).

- Continue to promote Glencore as an employer of choice through focusing on talent attraction and retention
- During 2019, we will launch our Corporate Scholarship Programme. This focuses on mining engineers in response to the forecasted future shortage of appropriately qualified graduates



# Commodities report

Our activities generate significant benefits for our host governments and communities. We support the responsible management of revenues from extractive activities



Energy products

We are a leading producer and exporter of bituminous thermal coal and a significant producer of both premium hard and premium semi-soft coking coal.



**Read more**  
Page 70



Metals and minerals

We mine and process copper ore and we have a sizeable smelting and refining capacity. We are also one of the largest producers of cobalt, a by-product created by our copper assets in the DRC.



**Read more**  
Page 82



Metals and minerals

We deal in bulk and noble ferroalloys. We are one of the largest integrated producers of both ferrochrome and primary vanadium.



**Read more**  
Page 92



**Nickel**




**Metals and minerals**

We are a leading global nickel producer and trader. We deal in metal, concentrates, intermediates and ferronickel, and produce by-products such as precious metals and platinum.



**Read more**  
Page 98



**Oil**



**Energy products**

We trade in crude oil, refined products and natural gas. We source crude oil and oil products and have additional interests in oil and gas production-sharing contracts.



**Read more**  
Page 106



**Zinc**



**Metals and minerals**

We are one of the world's largest miners and producers of zinc, with a combination of mines and smelters that is unique for a single business.



**Read more**  
Page 114



Energy products

# Coal

We are a leading producer and exporter of bituminous thermal coal and a significant producer of both premium hard and premium semi-soft coking coal. We supply thermal coal to customers from a wide range of industries and locations, including major utilities across three continents. We have interests in more than 28 operating coal mines in Australia, South Africa and Colombia.

## Operating highlights

Attributable coal production of 129.4 million tonnes was 8.8 million tonnes (7%) higher than in 2017. This reflected the recovery in Australia from weather-related and industrial action disruption and the acquisitions of interests in HVO and Hail Creek. It was partly offset by lower production at Prodeco as equipment was reallocated to additional overburden removal and mine development activities. Our 2019 production guidance increased to 145 million tonnes, reflecting a full year's contribution from HVO and Hail Creek, and planned ramp up and business improvement initiatives at existing operations.

**Own source coal production**  
(mt)

**129.4**

**Marketed coal volumes**  
(mt)

**98.6**





**Total recordable injury frequency rate**  
(per million hours worked)

**2.65**

2017: 2.74

**Community investment spend**  
(\$ million)

**6.2**

2017: 5.0

**Water withdrawn**  
(million m<sup>3</sup>)

**102**

2017: 114

**KPIs**

	2018	2017	2016
Fatalities at managed operations	1	0	1
Lost time injury frequency rate (LTIFR) (per million hours worked)	1.39	1.21	1.50
Total recordable injury frequency rate (TRIFR) (per million hours worked)	2.65	2.74	3.79
New cases of occupational diseases	15	11	11
CO <sub>2</sub> e Scope 1 (million tonnes)	6.9	10.0	11.1
CO <sub>2</sub> Scope 2 – location-based (million tonnes)	1.2	1.2	1.3
Total energy use (petajoules)	40	38	37
Water withdrawn (million m <sup>3</sup> )	102	114	73
Community investment spend (\$ million)	6.2	5.0	6.1
Number of employees and contractors	23,826	23,258	21,564
Proportion of female employees (%)	16%	15%	14%



**Key**

1. Prodeco
2. Cerrejón\*
3. Izimbiwa
4. Goedgevonden
5. Tweefontein
6. iMpunzi
7. Collinsville
8. Clermont<sup>1</sup>
9. Hail Creek
10. Newlands
11. Oaky Creek
12. Rolleston
13. Ulan
14. Bulga
15. Ravensworth
16. HVO<sup>2</sup>
17. Liddell
18. Mangoola
19. Integra
20. Mount Owen

\* Independent JV

- 1 Glencore equity accounts our 25.05% interest, manages the operation and markets 100% of the volumes sold.
- 2 Glencore holds a 49% stake and manages the operation jointly with Yancoal, with marketing rights divided between both companies by geography.

Safety



Frontline safety  
leadership plans

To support our approach of continuous improvement, the coal team undertakes regular reviews that identify focus areas to advance safety performance.

During 2018, our coal assets continued to implement their front-line safety leadership plan to address non-compliances, poor hazard recognition and inadequate risk assessments. The plan includes:

1. Leadership-led improvement to risk assessments and hazard identification
2. Compliance with SafeWork procedures and standards
3. Reporting and recording all incidents involving substandard risk and hazard analysis, and non-compliances
4. Proactive steps to improve compliance with safe work procedures and standards

The coal team reviews the plan's progress, quality and effectiveness. In some cases, incident investigations have identified poor risk awareness or non-compliance with procedures as causes to the incident. As such, the plan will remain a key focus for the coal assets.



## Health



### Fit for Life

All three of our coal operating regions undertake visible leadership activities including the scheduling and completion of critical control verifications, high-risk work verifications, planned task observations and safety interactions. These activities include:

- A 'no plan – no work' campaign in Australia focuses on the importance of planning and what this means to different stakeholder groups
- In South Africa, a study on 'a day in the life of a production supervisor' has built understanding of how supervisors plan, prepare for and execute their role. It took three months, involved 40 supervisors and identified the need to focus on pit standards, equipment set-up, contractor management and improved shift handovers
- In Colombia, Prodeco's behavioural safety programme focuses on structured safety interactions through building management's capacity in risk management

**Our coal business maintains a number of health initiatives that address workforce health and wellbeing. These initiatives reflect local culture and needs and improve worker quality of life and productivity, and reduce staff turnover and absenteeism.**

In South Africa, our coal team collaborates with three local organisations, Re-Action!, Life Careways and Life Occupational Health to advance its employee wellness programme. The programme focuses on increasing the number of HIV-positive employees registered in care and treatment programmes. We have extended the programme to include a financial wellness element that provides information on financial planning, financing and insurance.

In Colombia, Prodeco's healthy lifestyles programme offers lifestyle challenges, menus and physical activities.

Our Australian coal operations are a major supporter of 'Mates in Mining'; an initiative that addresses the high rates of suicide among Australian mine workers. The initiative provides suicide prevention and intervention skills and awareness to the mining industry, delivered through a three-tiered approach of General Awareness, Connector, and Applied Suicide Intervention Skills Training.

## Environment



### Ongoing water management improvements

Our coal assets are continuing to make improvements to the management of water, including building a better understanding of their water footprints. Through a continuous approach to updating and improving its assets' water balance models, it is supporting improved prediction and reporting.

Our South Africa coal business integrates water and salt balances for each asset. These water balances have led to an asset-specific water conservation and demand management strategy, which are supporting the achievement of water-use efficiency plans.

Prodeco continues to advance its water targets through the use of rainwater management plans, optimisation of industrial and domestic water treatment systems and maintaining high levels of water recycling within its operations. As part of its regional environmental management strategy, and in partnership with other mining companies and the environmental authorities, Prodeco has developed a conceptual regional hydrogeological model that evaluates the impacts of mining on the groundwater and supports the design of a regional groundwater monitoring network.

Our Australian coal assets have significantly reduced their water footprint through substantial rehabilitation and closure work.



### Implementing a proactive approach to rehabilitation and mine closure planning

Our coal business has the largest land footprint across the Glencore group. It currently owns or leases around 600,000 hectares of land, of which around 57,000 hectares (9%) have been disturbed and around 19,000 hectares (3%) rehabilitated. All of coal's operational management have clear performance expectations on rehabilitation.

During 2018, our coal business achieved some substantial rehabilitation milestones:

- Our Rolleston mine became the second open-cut mine in Queensland to achieve rehabilitation certification; the first was our Newlands operation in 2017
- In New South Wales, our Liddell mine is conducting cattle trials on both rehabilitated and non-rehabilitated land to demonstrate the long-term sustainability of grazing on rehabilitation pastures
- Our Prodeco operations completed 108 hectares of work on historical rehabilitation to ensure that it meets new, improved rehabilitation standards
- Our Australian coal business rehabilitated a record 1,435 hectares, 490 hectares more than was disturbed during the year

We currently have 12 coal assets in care and maintenance and five moving to closure. Our approach focuses on land management options that support sustainable post-mining land use.

## Climate Change



### Prodeco purchase of carbon certificates to mitigate climate change

Part of the planning process includes the treatment of final voids. We take steps to minimise the size or environmental impact of a final void and demonstrate beneficial reuse opportunities. We also play an active role in industry research on improving the understanding of, and developing guidance on, final voids and post-mining land use.

We are also looking at the social transition involved in mine closure. Prodeco is working on a rural development strategy, community strengthening initiatives and participating in the design of long-term regional development plans for the Cesar area.

In South Africa in 2019, we will complete a social impact assessment for mine closure that will support the development of social programmes that deliver a sustainable closure for local communities.

During the year, our Australian coal team hosted an ICMM workshop on closure. During the workshop, our coal business showcased its approach.

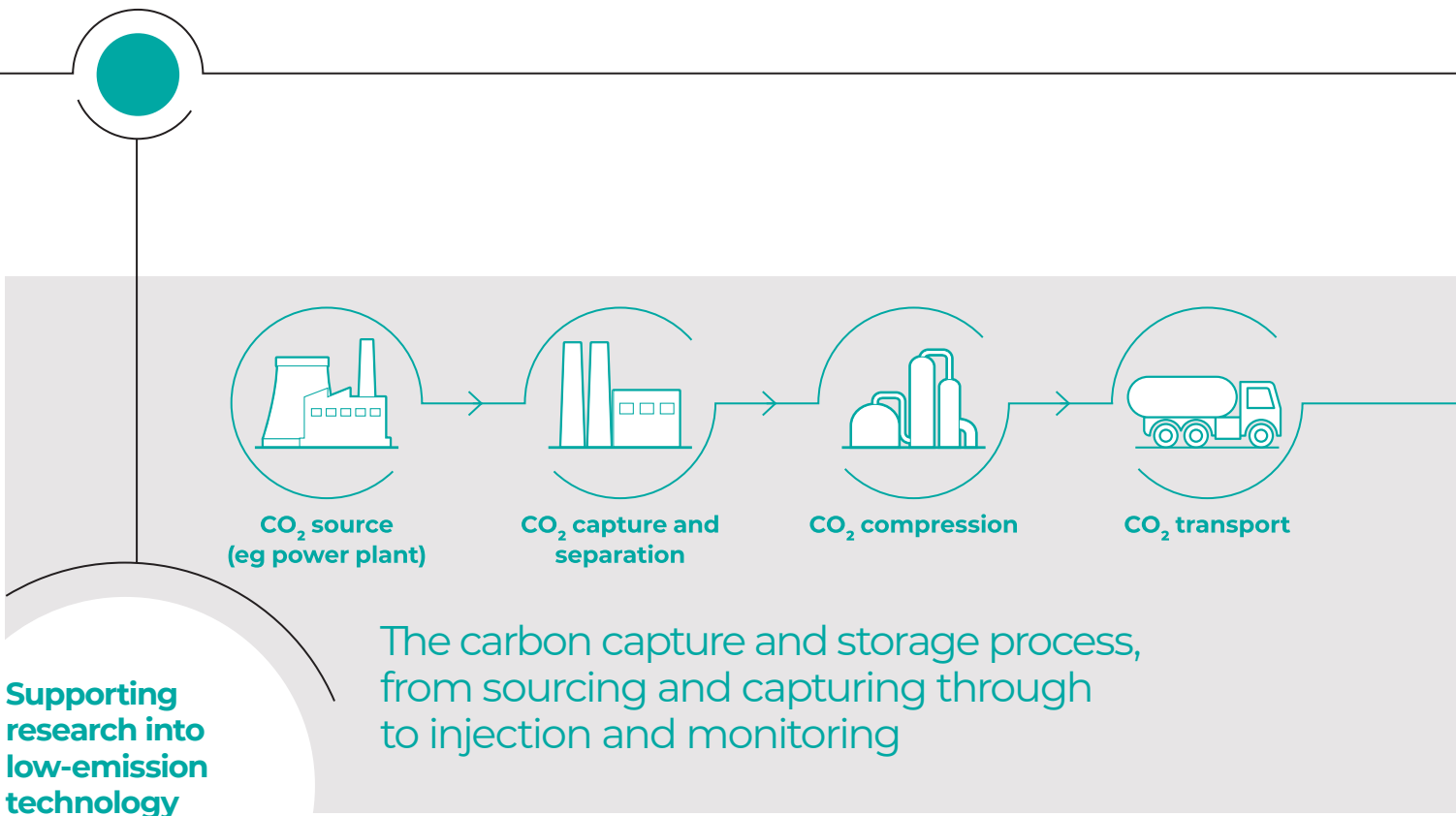
Going forward, our Australian coal business is focusing on monitoring and maintaining rehabilitation quality through the implementation of a rehabilitation report card, as well as integrating identified areas for rehabilitation certification into its annual rehabilitation planning process.

**In April 2018, Prodeco became the first private company in Colombia to sign an agreement for the multi-year purchase of carbon certificates to offset its carbon emissions.**

Prodeco and 20 Afro-Colombian communities of the Pacific region of Colombia, represented by the NGO Fondo Accion, agreed on the purchase of carbon certificates through the REDD+ Pacific project. This project follows the REDD+ global initiative to reduce emissions from deforestation and forest degradation. The United States Agency for International Development (USAID) funds the project, which is supported by Colombia's Ministry of Environment and Sustainable Development as well as the NGO Conservation International.

Through the purchase of REDD+ Pacific certificates, Prodeco is supporting the conservation of 700,000 hectares of natural forests as well as the peace process in Colombia's Pacific region. The certificates reflect Prodeco's commitment to sustainable development and improving the quality of life of vulnerable communities.

Prodeco is also exploring opportunities to develop land-based carbon projects in Colombia's Caribbean region, with some of the organisations involved in the BioREDD+ project. A pre-feasibility study is being developed with the NGO Conservation International on the potential development of a land-based carbon project in Sierra Nevada de Santa Marta, in the Arhuaco indigenous territory. This is one of the most important and iconic ecosystems in the Caribbean region, due to its role in contributing to the region's water, climate regulation, biodiversity, agricultural products and tourism.



Glencore's wholly-owned subsidiary, the Carbon Transport and Storage Corporation Pty Ltd (CTSCo), is continuing to progress its carbon capture and storage (CSS) project in Queensland's Surat Basin.

The project, which began in 2010, is located at Glencore's Glenhaven property, 15km outside the Queensland township of Wandoan, and has received grant funding from the Australian black coal industry via the Coal 21 Fund and the Commonwealth Government.

Since the project's inception, CTSCo has brought together a range of scientific and technical experts from University of Queensland, University of Melbourne and University of Texas to independently review our detailed modelling, testing and analysis to determine the suitability of storing carbon dioxide (CO<sub>2</sub>) more than 1.2km underground. The project will be subject to rigorous government environmental assessments and approvals.

The CTSCo project is currently in the final stages of completing a feasibility study and will be seeking regulatory approval to test inject up to 180,000 tonnes of CO<sub>2</sub> over three years. This is equivalent to storing/removing emissions from 10,000 Queensland households<sup>1</sup>.

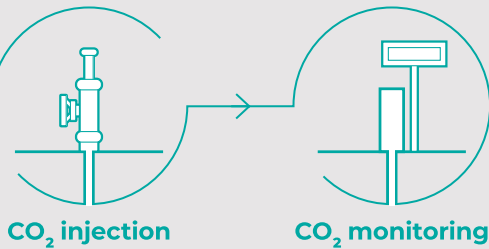
According to the Australian government's CCS Storage Atlas, the Surat Basin in Queensland is one of the most prospective locations in Australia capable of storing industrial-scale volumes of CO<sub>2</sub>, making it a priority area for conducting detailed CCS studies and demonstration projects at scale. As such, the CTSCo project can contribute to the accelerated development of CCS technology globally and also provide a pathway for Queensland and Australia to significantly reduce emissions from coal and gas baseload power generation for decades to come.

The CTSCo test injection is the first step in proving that CCS technology can be safely, effectively and sustainably deployed in the region. Beyond successful test injection, CTSCo is working to apply the learnings, protocols and data from this project to prove industrial-scale CCS storage site further south in the Surat Basin to store CO<sub>2</sub> captured from a nearby coal power station using high efficiency low emission (HELE) technology.

CTSCo has also partnered with Huaneng, who have been successfully operating HELE technology for over 10 years in China, to equip an existing coal power station in Queensland with post-combustion capture (PCC) technology to capture CO<sub>2</sub> for storage in the Surat Basin. PCC is part of the group of HELE technologies. A number of technical studies are underway to explore both options.

<sup>1</sup> According to the Victorian Government Environmental Protection Authority Australian Greenhouse Calculator, each Australian household generates more than 18 tonnes of greenhouse gases every year: [epa.vic.gov.au/agc/r\\_emissions.html#/Community and Human Rights](http://epa.vic.gov.au/agc/r_emissions.html#/Community and Human Rights)

## Community and Human Rights



### Supporting a sustainable approach to fishing

We believe this will provide support to a technology pathway for reducing Australia's overall carbon footprint, help federal and state governments achieve their stated emissions reductions targets, benefit many other industrial CO<sub>2</sub> emitters and extend the life of many of the country's youngest and most efficient coal-fired power generators, leading to considerable cost benefits for households and businesses.

The CTSCo project team is continuing to engage openly with the local communities and assess the economic, environmental, social and cultural implications of the project. This has included public consultation sessions in Wandoan to provide information, answer questions and encourage feedback from local stakeholders.

Glencore's participation in a number of low-emission technology projects in Australia reflects the International Energy Agency's view that CCS is a vital technology if the world is to meet its greenhouse gas reduction targets.

For more information about CTSCo, visit [ctsco.com.au](http://ctsco.com.au)

**During the year, a project to support the recovery of ecological conditions in two local aquatics systems used by local traditional fishermen concluded successfully.**

Working with regional and national authorities, Prodeco developed a fish-restocking project to contribute towards the region's economic development.

The plan included training local fishermen on environmental and ecology issues, conservation, biodiversity and restocking protocols to improve the sustainability of fishing practices. Today, as a result of the training, the fishermen have become local 'fishing observers'.

The National Aquaculture and Fishing Authority (AUNAP) formally identified the fishermen as legally established associations of traditional fishermen, through which the fishermen access AUNAP-delivered benefits.

Following the success of the fish-restocking project, the fishermen have become part of the Conservation of Natural Resources programme. Through this programme and working with the Regional Autonomous Corporation of Cesar and Cesar's Fauna and Flora Network, the fishermen are actively managing the local water resources for their protection, conservation and sustainable fishing.



## Respecting human rights

During the first half of 2018, Fundación Ideas para la Paz (FIP) conducted an evaluation of Prodeco's grievance mechanism to align it with the UN Governing Principles on Business Enterprises and Human Rights (PRNU).

FIP's assessment found that during the last three years Prodeco's grievance mechanism has made significant progress on improving its alignment with the PRNU. The evaluation also identified some further areas for improvement, including:

- Improving the definitions of performance, results and impacts indicators to support better internal processes and also for clearer transparency and accountability
- Training on human rights issues for the internal team
- Regular updating of the grievance mechanism's procedures and increasing the traceability of the process through improved documentation

During 2017/18, Prodeco engaged FIP to undertake human rights due diligence on its suppliers. The exercise reviewed Prodeco's key contractors. Prodeco shared the findings with the contractors. The purpose of the exercise was to:

- Provide a clear understanding of Prodeco's human rights approach, standards and expectations
- Promote and strengthen leaderships within each supplier to increase the visibility of human rights issues in their companies

- Provide Prodeco's suppliers with advice on designing and implementing work plans that include human rights in risk management systems

During 2019, Prodeco will support capacity building through training on risk management systems.

In 2018, as part of Prodeco's implementation of the UN's Voluntary Principles of Security and Human Rights (VPs), it completed a third-party review of its practices. The review identified opportunities for improvement and these are part of an action plan for 2019:

- Development of a bidirectional risk analysis that recognises the potential impacts and vulnerabilities of stakeholders
- Communications through engagement and training of Prodeco's VPs commitments with colleagues, public forces, interested external stakeholders and communities
- Integration of Prodeco's security and human rights risk analysis into its relationship with its private security provider
- Consultation and validation of Prodeco's security risk analyses with interested stakeholders and local communities
- Implementation of a formal mechanism for the identification, registration and treatment of human rights incidents





## Supporting territorial peace

Our South African coal business has proactively engaged with the Minerals Council of South Africa on the development of its human rights framework discussion paper. It has also updated the South African Human Rights Commission on its progress in updating its human rights risks in its consolidated business risk register. This was in response to a recommendation made by an independent third party following its assessment in 2017 of our South African coal business's approach to human rights.

During 2018 in South Africa, our coal team engaged Dr Robert Boutilier, an international expert in relations among extractive industries, communities, governments and civil society, to enhance and strengthen its stakeholder engagement strategy. The process involved interviews with 110 stakeholders from 73 organisations in the Mpumalanga province. The interviews considered concerns and priorities for our South African coal business.

The participants raised concerns about skills development and educational bursaries and scholarships, as well as local economic development and social and labour plans. In addition, there were a number of comments on the lack of responsiveness and engagement as well as a sense of broken promises.

The feedback has reshaped our approach to engagement, which will be rolled out in 2019.

**We recognise the significant progress made towards achieving sustainable peace in Colombia. Prodeco is supportive of the steps taken by the government and is an active participant in this process in its operating regions.**

Prodeco is supporting the peace process through four major initiatives: strengthening local capacities; implementing integrated rural development projects on non-mining lands; promoting a corporate culture of peace; and responsibly managing its impacts within the framework of the UN's Guiding Principles on Business and Human Rights and the VPs.

In September, Prodeco participated in the ceremony with the Estados Unidos community to commemorate the victims of the armed conflict. The ceremony was part of the community's process to build a historical memory. Prodeco's participation demonstrated its commitment to peace and support for the community's historical memory.

In collaboration with a local NGO, in alliance with the Peace and Development Program (PDPC), Prodeco is continuing its support for local communities through strengthening their organisational and entrepreneurial capabilities to encourage greater citizen participation and local sustainable socio-economic development.

During 2018, Prodeco established a public-private alliance to support the development of the Estados Unidos community. The alliance is working together to strengthen a community that was almost destroyed by Colombia's prolonged conflict. The approach includes contributions from local and national authorities, as well as Prodeco working in partnership with the community supported by PDPC.



### Creating shared value in South Africa

Our South African coal business has implemented a significant value creation initiative, free WiFi in our local communities. It has established 11 WiFi hotspots and each hotspot supports up to 250 users and provides access to 500Mb of data per user per day.

The log-on process directs the user to Glencore's landing page and access to the internet. On average, over 2,500 users make use of this service each day, using around 3,200GB of data per month.

The WiFi hotspots are enabling students to complete school assignments and download study material, job seekers to apply for employment, and entrepreneurs to search and apply for procurement opportunities.

Our coal business is also continuing to expand its E-Learning Programme to local schools. This project connects underperforming and disadvantaged rural and urban schools with well-resourced schools through video conferencing. The programme provides an opportunity to improve the quality of the students learning as well as the teachers' access to resources. The objective of the programme is to improve pass rates in mathematics and science.

During 2018, a further two schools were brought online and our coal business has rolled out this initiative to 22 schools.

The coal business's Enterprise and Supplier Development web-based portal is growing in popularity since going live in mid-2017. Nearly 1,500 local suppliers have registered on the portal, and we interviewed 555 to assess their experience, competency and exposure. During 2018, over 60 local suppliers were contracted to deliver services and we are processing a further 105 vendor applications.

We remain committed to eye screening of students in schools within our communities. During 2018 over 2,700 students received eye screening. Since the programme began in December 2016, 11,580 students have been screened.



## Increasing transparency in the supply chain

There is increasing pressure for transparency in the supply chain in relation to the ethical sourcing of our products and services. In 2018, we continued our engagement with our European customers, governments and NGOs, holding a number of meetings providing an overview of our coal business, its sustainability performance and key challenges.

Representatives from our coal business participate in Bettercoal's advisory committee. In 2018, Prodeco completed the onsite Bettercoal assessment. The assessment concluded that Prodeco 'meets expectations' for 14 indicators and 'substantially meets' expectations for 17 indicators.

The final report notes, "the company has established or is in the process of establishing robust management systems and is committed to continuous improvement... The assessment team received positive feedback from employees and stakeholders and a number of leading practices were observed during the assessment.... The company has implemented policies and procedures that align many of its operational practices with the requirements of the Bettercoal Code."

Prodeco developed a continuous improvement plan to respond to the assessment's recommendations. We will track progress against the plan on a quarterly basis and all actions are expected to be completed by the end of 2019.



Metals and minerals

# Copper

We are one of the world's largest copper suppliers and its third largest producer of mined copper. Our industrial assets and marketing activities are fully integrated, and we have a sizeable custom smelting and refining capacity. We have assets in all the major copper-producing regions. We are also one of the world's largest producers of cobalt due to the by-products created by our copper assets in the DRC.



## Operating highlights

Own sourced copper production of 1,453,700 tonnes was 144,000 tonnes (11%) higher than in 2017, mainly reflecting the restart of Katanga's processing operations in late 2017, partly offset by the completion of open-pit mining at Alumbreira.

**Own source copper production**  
(kt)

**1,454**

**Marketed copper volumes**  
(tonnes of metal and concentrates)

**4.5m**



**Total recordable injury frequency rate**  
(per million hours worked)

**2.87**

2017: 2.34

**Community investment spend**  
(\$ million)

**38.8**

2017: 37.5

**Water withdrawn**  
(million m<sup>3</sup>)

**349**

2017: 372

### KPIs

	2018	2017	2016
Fatalities at managed operations	<b>4</b>	1	13
Lost time injury frequency rate (LTIFR) (per million hours worked)	<b>0.38</b>	0.38	0.71
Total recordable injury frequency rate (TRIFR) (per million hours worked)	<b>2.87</b>	2.34	2.89
New cases of occupational diseases	<b>7</b>	20	53
CO <sub>2</sub> e Scope 1 (million tonnes)	<b>1.5</b>	1.7	1.6
CO <sub>2</sub> Scope 2 – location-based (million tonnes)	<b>1.6</b>	1.8	1.7
Total energy use (petajoules)	<b>43</b>	43	42
Water withdrawn (million m <sup>3</sup> )	<b>349</b>	372	350
Community investment spend (\$ million)	<b>38.8</b>	37.5	32.2
Number of employees and contractors	<b>50,256</b>	55,760	44,473
Proportion of female employees (%)	<b>8%</b>	8%	8%

### Key

1. Horne smelter
2. San José Recycling
3. CCR refinery
4. Rhode Island Recycling
5. Antamina\*
6. Antapaccay
7. Collahuasi\*
8. Lomas Bayas
9. Altonorte smelter
10. Alumbra
11. Katanga
12. Mopani
13. Mutanda
14. Sable
15. PASAR smelter
16. Ernest Henry Mining
17. Mount Isa Mines
18. CSA Mine
19. Townsville Copper refinery

\*Independent JV



Safety



**A collaborative  
approach  
to safety**

At our PASAR copper smelter in the Philippines, our safety management team have developed a collaborative approach to encourage better working practices.

Previously, PASAR had a top-down approach to improving safety, which involved the safety management team highlighting poor practices during a weekly plant inspection. As a result, workers avoided being present for the inspection.

Today, PASAR has a more integrated approach that recognises good work as well as opportunities for improvement. The safety management team are present in the plant every day and work with other functions, including environment, occupational health and shift supervisors, to review all of the plant's areas each week. This higher visibility has strengthened relationships between workers and the management team.



## Health



### Preventing malaria in the Democratic Republic of the Congo (DRC)

Team leaders and supervisors participate in a SafeWork coaching programme, which encourages a more constructive environment in which all participants collectively solve challenges. This has encouraged workers to ask questions, to take responsibility for safety decisions and to not be intimidated by management hierarchy. PASAR supports this approach by using positive reinforcement and encouraging wider discussions on identifying further opportunities for improvement.

As a result of this new approach to building a workplace safety culture, PASAR has seen a significant improvement in their workers' willingness to engage on safety matters.

Employees are keen to show the safety management team the work they are undertaking and to respond to questions on how it can be improved.

**The DRC is a high malaria transmission country. Here, our assets are addressing malaria in their local communities through various approaches including indoor residual spraying (IRS) of local homes.**

IRS is an effective control for malaria transmission. Our IRS programme is targeting a 50% reduction in the malaria incidence rate by 2020 on a 2015 baseline through achieving a minimum 85% IRS coverage in targeted areas.

In addition to the IRS programme, we are raising awareness on malaria prevention strategies with employees and local communities, encouraging the use of mosquito nets, supporting prompt medical diagnosis and undertaking external mosquito spraying. In addition, we have programmes to maintain the drainage systems in local communities and to treat mosquito larvae.

Since 2015, we have achieved significant progress in reducing the annual incident rate.



### Addressing HIV in the Democratic Republic of the Congo (DRC)

HIV/AIDS is a significant global health challenge, with the highest impact being felt in sub-Saharan Africa. In the DRC, while the prevalence is limited, our assets recognise the need for preventive actions to limit the spread of HIV/AIDS and before it becomes a major public health issue.

We are convinced that HIV is preventable and that an effective response, with employees and their families at the centre, can mitigate its impact. In our operating region, the majority of the people are HIV-negative and we believe that a constructive approach, strong health and education programmes and effective prevention strategies can prevent the spread of the disease.

We take a comprehensive approach that includes voluntary counselling and testing (VCT), education on HIV/AIDS and tuberculosis prevention and management, building awareness of mother-to-child transmission and an HIV/AIDS workplace awareness programme. We also offer VCT as part of our employees' annual medical examinations.

Our DRC assets have collaborated with the Ministry of Health, local authority and a local radio station to deliver their HIV/AIDS programmes. Both assets receive support from the local communities for their efforts.



### Supporting local public health initiatives in Australia

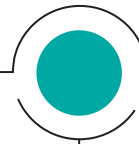
Mount Isa in Queensland, Australia is located in one of the most mineral-rich regions in the world. Our Mount Isa Mines (MIM) designed and developed in-house a 'LEADSmart' smartphone app that was rolled out by the Lead Alliance.

This 'app' provides local community members with direct access to useful information for limiting exposure to lead. The LEADSmart app enables families to track and monitor lead levels and provides information on living safely with lead.

MIM has also provided financial assistance to enable the North West Hospital and Health Service to purchase equipment to facilitate eye-screening imagery at the Mount Isa Hospital. This enables premature babies who require eye examinations travelling 1,000km to Townsville, the nearest testing centre.

The Townsville Hospital and Health Service is now able to treat children with burns without a skin graft following its purchase of a new CO<sub>2</sub> Fractional Laser, with a contribution from our community investment programme.





Director of Paediatric Surgery Dr Dan Carroll said the technology would “significantly increase the quality of life and recovery for about 100 young burns patients every year. The new equipment allows us to work with the scar to improve outcomes rather than resorting to surgery and will make a huge difference to our young patients.”



### Supporting employees' mental health

**Our Ernest Henry Mine (EHM) in Queensland, Australia has implemented a proactive programme to identify, reduce and manage the potential risk factors that can lead to mental health issues.**

The approach includes mental health awareness and workforce education, social activities in the employee residential area and a site-based employee assistance programme.

By incorporating strategies to build coping strategies and personal resilience, providing access to face-to-face professional counselling and implementing social support initiatives, EHM's mental health wellbeing programme has the potential to address absenteeism and return-to-work time frames associated with impaired or untreated mental health conditions.

The programme has successfully raised awareness of mental health, enhanced accessibility to appropriate support and facilitated a more positive work environment. EHM is seeing increased willingness by employees to discuss mental health, which is positively changing attitudes.

Environment



Improving  
air quality

Air quality control (AQC) is an essential element of our Mount Isa Mines (MIM) copper and lead/zinc smelter operations' efforts to minimise its impact on the community and achieve environmental compliance limits. Through AQC, MIM undertakes meteorological and air quality monitoring and assessments that provide triggers to prompt operational adjustments to control emission concentrations.

Based on the recordings of meteorological conditions from 12 monitors located throughout the community, AQC controllers restrict smelter production levels to meet hourly and daily sulphur dioxide (SO<sub>2</sub>) limits.

MIM has created two industry-leading online tools to provide the local community with open and transparent information:

- Smartphone apps with real-time readings from MIM's monitoring systems
- An online portal providing information on MIM's SO<sub>2</sub> management activities and data that is automatically uploaded hourly from MIM's monitoring network

In addition, an air quality education programme helps residents to understand MIM's obligations, management practices and improvement initiatives. These include:

- A community feedback hotline for people with questions or concerns relating to potential impacts of SO<sub>2</sub> and other contaminants
- Including details on MIM's approach to air quality management and performance against regulatory requirements in local community communications
- Educational presentations to schools, childcare centres and doctor's surgeries on air quality

In 2014, our Mopani Copper Mines in Zambia completed its \$500 million upgrade project for its Mufulira smelter. At the time of our acquisition, Mufulira smelter was emitting 100% of its SO<sub>2</sub> emissions into the atmosphere. The upgrade project built a new state-of-the-art smelter within the confines of the existing smelter, while increasing production and maintaining job stability. The completion of the project addressed an 80-year-old legacy issue.

Today, Mopani captures around 95% of emissions, in line with local regulation and international guidelines, and has real-time SO<sub>2</sub> monitoring stations spread across the community. Occasionally, emissions levels exceed these limits for a short period, due to power failure or a planned shutdown.

In February 2019, following a number of performance challenges, Mopani decided to close the Mufulira smelter to undertake further upgrades that have improved the plant's operating efficiencies as well as delivering an improved consistency to its emissions capture. Mufulira smelter reopened in early March.

While we make numerous efforts to limit air emissions, Mopani's long-standing public health programmes include awareness raising in its surrounding communities in the event that our operational activities result in increased emissions levels. It provides free mobile medical services and treatment at its community clinics and hospital to anyone affected by the emissions.

Mopani's local community members can express any concerns relating to its operations during the regular meetings its management and community relations teams hold or using a grievance mechanism.

## Community and Human Rights



### Improving operational environmental performance

In Canada, our Horne Smelter has made significant investments over a number of years to reduce its air emissions and to achieve a high standard in air quality monitoring. Horne Smelter is located in the centre of the Rouyn-Noranda city and is committed to minimising its impact on its surrounding communities.

Its current initiative is the CAD30 million 'ambient air improvement' project. This project includes the construction of an extensive wind fence and new paving to significantly reduce wind speed and limit dust emissions. In addition, Horne has improved its capture and treatment of gas through installing electro-filters for the gas cleaning process and fitting a protective cover over the casting wheel.

For the past 30 years, our CCR refinery has focused on energy reduction initiatives to reduce costs and emissions. These have resulted in a 60% reduction in GHG emissions and energy intensity against a 1990 baseline – or around 60,000 tonnes of CO<sub>2</sub> per year, the equivalent of taking 13,000 cars off the road.

Around 25% of the copper anodes treated by CCR are from recycled copper, which means the production process requires 80% less energy than that used to process 'fresh' copper concentrate; a further contribution to GHG emission reductions.

In terms of carbon intensity, CCR is one of the most efficient copper producers in the world. These efforts have contributed to CCR's survival; it is now the only copper refinery in the eastern part of North America, compared to the nine refineries operating in the early 1990s.



### Reducing congestion

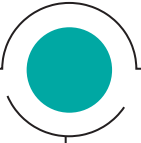
Our Mopani copper asset in Zambia has an operation located near to the town of Mufulira. Currently, road transportation is the only viable means for the movement of goods in and out of Mufulira as the existing railway system, due to a long history of under investment, is non-operational.

Mopani relies exclusively on road transportation to move its products to customers, both in Zambia and overseas. This led to the establishment of a holding place for trucks, while they wait to be loaded or cleared to move to their destinations.

The location of the existing parking area means the trucks have to pass through the central business district of Mufulira and its nearby residential areas. It also has limited space for expansion, which is required as Mopani's current mining projects increase its production volumes.

During 2018, Mopani started to construct a new parking area for the waiting trucks. The new \$1 million parking area is located on land belonging to Mopani and well away from residential areas. It is accessed through existing roadways that do not pass through the town centre and is being built by locally-based contractors.

The number of parking spaces will more than double existing capacity, with spaces for 244 trucks compared to the current 100 parking slots. This will meet the expected increase in the number of trucks as Mopani's mining projects come on stream.



### Building local artisanal skills

**Our copper assets are developing the artisanal skills of local community members to encourage non-mining-related livelihoods.**

Our Antapaccay copper operation in Peru is supporting a hand weaving and literacy training programme for women from rural areas. We initiated this project after identifying widespread illiteracy due to the limited opportunities for the women to complete their education.

In addition to the training on weaving, we also supported the women to develop other skills, such as literacy, oral and written communications and mathematics. A final part of the programme is to provide information on a range of topics such as duties and rights, education, healthy living and environmental practices.

Through combining artisanal skills development with literacy, the programme supports entrepreneurship and employment opportunities. The programme also contributes to the empowerment of the women within their families and communities.

There are 13 communities participating in this programme, with 300 women progressing their weaving techniques and 200 women developing literacy skills.

In the DRC, during 2018, nearly 500 people received training in 23 different business sectors, including carpentry, welding and sewing, as well as providing qualifications for truck driving and car mechanics.



## Supporting local education

Our Antapaccay copper operation in Peru established a mobile school after recognising a gap between the educational performance of rural and urban-based schools. The communities around Antapaccay's operating area tend to be rural and there is an insufficient number of teachers and only basic education resources.

The mobile school is a bus designed to be a classroom, which Antapaccay operates in collaboration with the local education authority. It is equipped with solar panels to power the electrical equipment and use of paper is discouraged to minimise waste.

During 2018, nearly 1,400 students used the mobile school, along with 62 teachers and 57 parents. The bus visited 20 schools and participating students progressed from 'basic' to 'satisfactory' achievement levels.

Heraclio Murillo, Director of the Pichigua community said "The service provided by the educational mobile bus optimises the learning of the students of Pichigua at primary level; it is very motivating and the children happily wait for classes in the bus."

In Zambia, our Mopani copper operation is aligning its approach with steps being taken by the Zambian Ministry of Education to expand and improve education infrastructure through the construction of new facilities and the rehabilitation of old classrooms.

Mopani undertook a consultation process to prioritise local needs. This resulted in the construction of new classrooms and a school hall to provide improved learning environments, and school feeding programmes, which will contribute to reducing absenteeism, increasing attendance as well as achieving better academic performance.

In Australia, Mount Isa Mines has supported the Books in Home initiative for over ten years. It has provided hundreds of children in rural and remote Queensland with nearly 140,000 books. Local teachers have linked improved educational performance and school attendance to the initiative.



Metals and  
minerals

# Ferroalloys

We deal in bulk and noble ferroalloys. Bulk ferroalloys include ferrochrome and chrome ore, ferromanganese, silicon manganese, manganese ore, and ferrosilicon. Noble ferroalloys include vanadium products. We are one of the world's largest and lowest cost integrated ferrochrome producers and one of the largest producers of primary vanadium.

## Operating highlights

Attributable ferrochrome production of 1,580,000 tonnes was in line with 2017, and vanadium pentoxide production of 20.2 million pounds was also similar to 2017 production.

**Own source  
ferrochrome  
production**  
(kt)

**1,580**

**Marketed  
ferroalloys volumes**  
(tonnes of metal  
and concentrates)

**8.3m**



**Total recordable injury frequency rate**  
(per million hours worked)

**3.09**

2017: 3.51

**Community investment spend**  
(\$ million)

**10.2**

2017: 4.0

**Water withdrawn**  
(million m<sup>3</sup>)

**12**

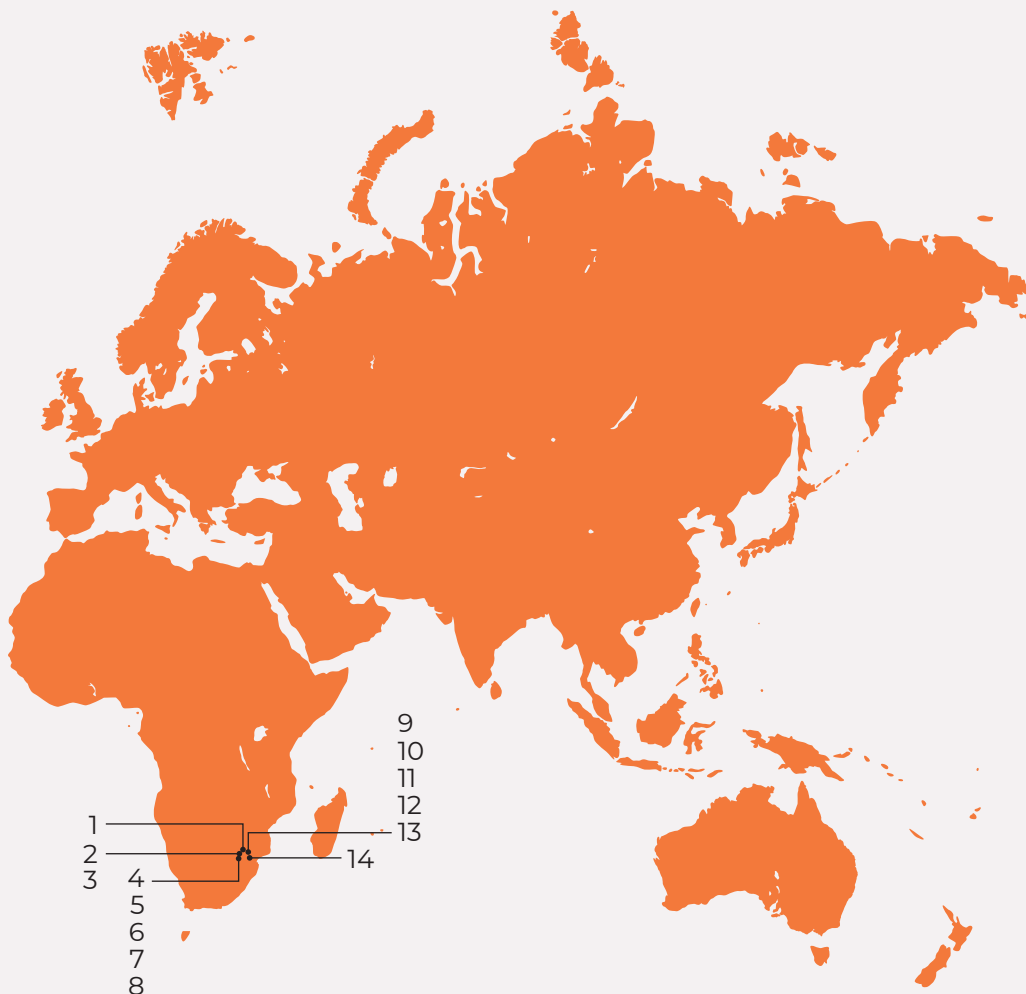
2017: 19

### KPIs

	2018	2017	2016
Fatalities at managed operations	1	2	1
Lost time injury frequency rate (LTIFR) (per million hours worked)	1.18	1.05	1.14
Total recordable injury frequency rate (TRIFR) (per million hours worked)	3.09	3.51	3.89
New occupational disease cases	1	4	6
CO <sub>2</sub> e Scope 1 (million tonnes)	4.1	4.5	4.4
CO <sub>2</sub> Scope 2 – location-based (million tonnes)	6.5	6.4	6.4
Total energy use (petajoules)	31	34	31
Water withdrawn (million m <sup>3</sup> )	12	19	19
Community investment spend (\$ million)	10.2	4.0	3.3
Number of employees and contractors	16,876	13,533	18,867
Proportion of female employees (%)	17%	17%	16%

### Key

1. Rhovan
2. Boshhoek smelter
3. Boshhoek mine
4. Rietvly mine
5. Rustenburg smelter
6. Waterval mine
7. Kroondal mine
8. Wonderkop mine
9. Lion smelter
10. Thorncliffe mine
11. Lydenburg smelter
12. Helena mine
13. Magareng mine
14. Chartech



Safety



Addressing  
geological  
risks to  
improve safety  
performance

The Bushveld Igneous Complex in South Africa can be challenging for mining operations due to significant safety risks relating to falls of ground; these are associated with the region's geology.

Our Eastern Chrome Mines (ECM) undertook an extensive study into the different support methods used for the various geological structures their mining operations encounter. The research analysed how ECM identifies and records these features, as well as looking at each geological structure, such as dykes, faults, joints and potholes, found in their underground workings. Each of these geological structures, if left unsupported, can be a risk to the safe working and productive mining of the operation.





The study established a classification method for mining zones that reflects the geological features they contain. Green zones have no major geological structures, making them geologically safe. In yellow zones, the team leader and shift supervisor can decide on the appropriate support requirement. Red zones have complicated geological structures and a team of specialists make recommendations on the required support method.

The study monitored the support methods for one year to determine their suitability and effectiveness. It concluded that the established classification method supports the use of adequate geological support methods, to improve the mine zone safety for underground work.

The study found that the falls of ground that had occurred were due to human or physical factors, rather than the support method. These factors include a change in ground conditions, such as water becoming present, the incorrect or incomplete installation of the support and an incorrect identification of a geological feature.

The classification method of mining zones is effective and easily implementable from operation to operation.

Community  
and Human  
Rights



Supporting  
the delivery of  
tertiary education

Around 110,000 people live in the Thaba Chweu municipality, which currently has no tertiary education facilities. Post-school education and training opportunities are necessary for the economic, social and cultural development of the region and they support greater social justice through providing equitable access to quality education.

To counter the region's widespread poverty, the municipality needs to increase the number of educational facilities that offer a broad range of courses and qualifications, as well as providing financial support for students. This is an approach offered by a technical and vocational education and training (TVET) college.

Lydenburg, the municipality's largest town and home to 50,000 people, is close to the region's mines and smelters, including our Lydenburg smelter.

A number of years ago, the local municipality authority constructed large workshops for public works; today many of these buildings are empty. The Department for Higher Education recognised the potential to refurbish these buildings as tertiary education institutions. Through developing tertiary education facilities, communities have the opportunity to develop skills and gain qualifications to meet the needs of the local labour market.

As a public institution, the Ehlanzeni TVET College is fully funded by the Department of Higher Education and Training, which means the courses are affordable and training is available to the young people living in local communities. The college addresses the area's need for skills development, as well as making it possible for those who cannot afford the high cost of studying away from home to remain at home during their studies. The Department of Higher Education collaborates with local industry and mining companies to shape the curriculum to meet local employment needs.

Lydenburg smelter is supporting the development of the Ehlanzeni TVET College, in partnership with local business partners. The college has seven campuses, including one located in the more rural area of Mashishing. Lydenburg Smelter's support has focused on the Mashishing campus. In October 2018, construction began on nine classrooms, four workshops, an administrative building, exam hall, student support centre and garden. In addition, the college was equipped with 80 computers including all network requirements. Each classroom has a data projector and screen.



In January 2019, the Department of Higher Education took over operations and classes began at the new Mashishing campus for around 370 students. The College is initially running courses that focus on engineering-related topics, such as electrical, mechanical, boiler-making, motors, and fitting and machining. From June 2019, the courses will be expanded to include those on management skills, such as computers, and then in January 2020 national vocational training will be offered for automotive repair and maintenance, and electrical infrastructure construction.



### Growing a local business

In 2015, a number of older residents of Mashishing, formed a transport group, Rekgodile. This group sought local enterprise development opportunities at our ferroalloys business's Lydenburg smelter. Working in collaboration with Rekgodile our team at Lydenburg smelter incubated this initiative and sufficiently developed the enterprise to a point where Lydenburg smelter assisted them with acquiring two trucks to Rekgodile.

Today, Rekgodile has a fleet of ten trucks that provide services between Lydenburg and Maputo.

From working with these enterprise development initiatives, Lydenburg smelter is increasing its understanding of how to approach enterprise and supplier development, which leads to an increased success rate.

Photo: Steelburger newspaper and the Photographer/journalist (Tumelo Mkhabela)



Metals and minerals



# Nickel

We are a leading global nickel producer and trader. We deal in metal, concentrates, intermediates and ferronickel, as well as producing associated by-products such as copper, cobalt, precious metals and platinum metals.

## Operating highlights

Own sourced nickel production of 123,800 tonnes was 14,700 tonnes (13%) higher than in 2017, mainly reflecting Koniombo running two production lines throughout the year.

**Own source nickel production**  
(kt)

**124**

**Marketed nickel volumes**  
(tonnes of metal and concentrate)

**199k**



**Total recordable injury frequency rate**  
(per million hours worked)

**4.98**

2017: 4.57

**Community investment spend**  
(\$ million)

**2.0**

2017: 1.6

**Water withdrawn**  
(million m<sup>3</sup>)

**123**

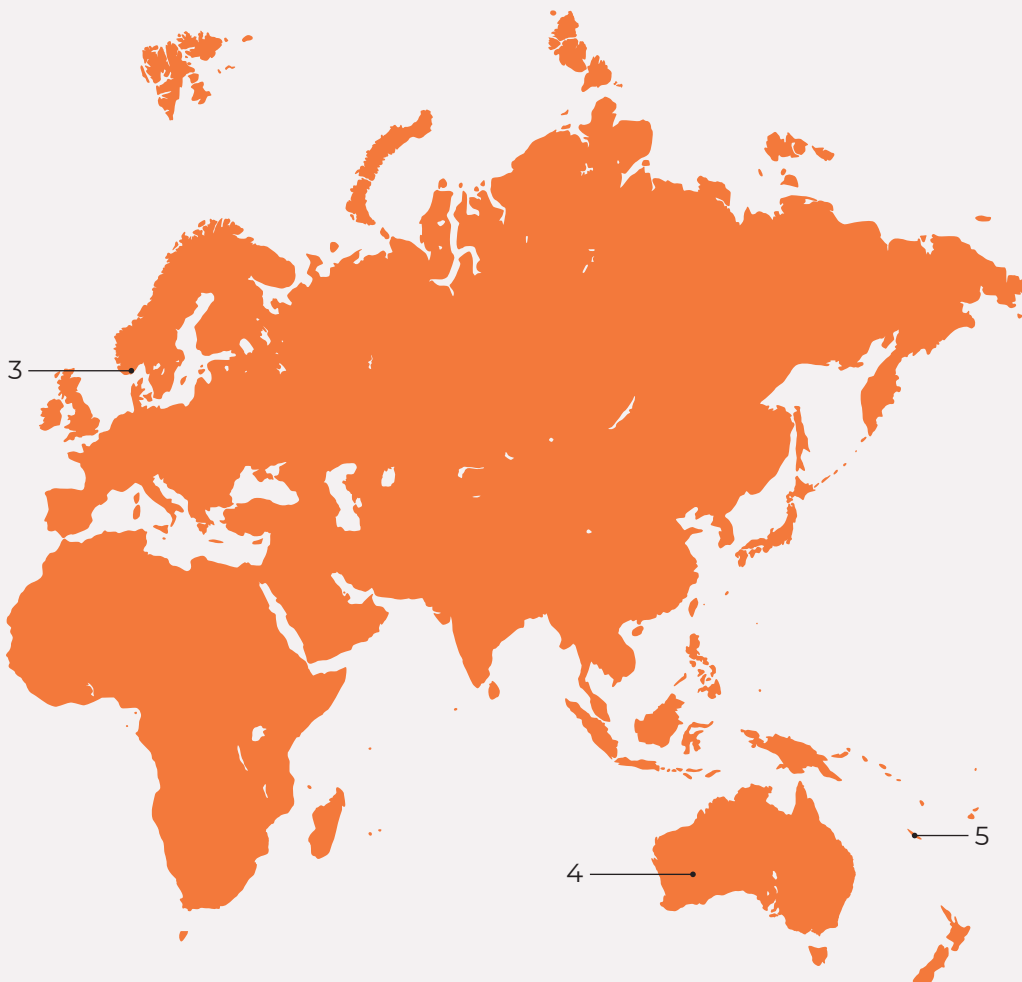
2017: 117

### KPIs

	2018	2017	2016
Fatalities at managed operations	0	0	0
Lost time injury frequency rate (LTIFR) (per million hours worked)	0.94	1.34	1.11
Total recordable injury frequency rate (TRIFR) (per million hours worked)	4.98	4.57	6.23
New occupational disease cases	0	0	0
CO <sub>2</sub> e Scope 1 (million tonnes)	2.8	2.4	2.3
CO <sub>2</sub> Scope 2 – location-based (million tonnes)	0.07	0.04	0.04
Total energy use (petajoules)	32	28	31
Water withdrawn (million m <sup>3</sup> )	123	117	107
Community investment spend (\$ million)	2.0	1.6	1.0
Number of employees and contractors	6,957	6,657	6,402
Proportion of female employees (%)	16%	15%	15%

### Key

1. Raglan Mine
2. Sudbury Integrated Nickel Operations
3. Nikkelverk
4. Murrin Murrin
5. Koniambo Nickel



## Safety



### Making a change to create a safer and more efficient process

At Nikkelverk in Norway, a producer of high-quality nickel and cobalt and one of the largest nickel refineries in the western world, we identified and drove safety improvements for the change process used on crane grabs. A crane needs different grabs to carry the different products that it moves. Changing the grab can take place 25 to 30 times each year. Crane grabs are bulky and heavy, and changing them is not an easy task.

In November 2017, Nikkelverk undertook a review of its operating procedure for this task. The employee-driven review concluded a need to improve the process, which led to the establishment of a multidisciplinary team.

The team established a new approach, which involves less rigging and manual handling. Now the changeover takes 60 minutes and requires three operators, whereas the previous process took 90 minutes with four operators.

Today, the process is safer as less manual handling means less likelihood of injury and greater operational efficiencies. The new approach has transformed a job that “nobody liked” into a safer job that people are happy to perform.



### Murrin Murrin's 2018 hand and finger safety initiative

In the mining industry, workers use their hands and fingers for a countless number of tasks. As a result, hand and finger injuries are one of the most common for miners and account for around 50% of our nickel business' recordable injuries.

After a consistent long-term downward trend in hand and finger injuries at our Murrin Murrin operation in Western Australia, there was a spike of these type of injuries in the first quarter of 2018.

The team at Murrin Murrin identified ten primary hand and finger hazards from a detailed analysis of the injury register and related incident investigations.

Murrin Murrin developed a hand and finger injury prevention initiative, which was rolled out in April 2018. The initiative included:

- Over 900 employees and contractors participating in a hand and finger safety training workshop
- Developing a hand and finger safety 'prompt' to improve hazard identification and control measures
- Covering sprain, strain, hand and finger injuries in a quarterly site bulletin

Early results of the initiative have been encouraging, with total hand and finger injuries declining significantly.

Health



Taking a  
local approach  
to health and  
wellbeing

Murrin Murrin is a remote site with a fly-in-fly-out workforce of around 1,100 permanent employees and contractors. Health and wellbeing has been an integral part of its culture for many years.

Its approach includes the provision of sporting facilities to promote healthy after-work activities. Murrin Murrin also promotes a number of community and recreational events to give additional motivation and to engage the support and participation of family members.

Murrin Murrin sponsors major regional events, such as the Goldfields Cyclassic (cycling) and the Leonora Golden Gift (running). These events promote regional tourism and participation by local communities.

In 2018, Murrin Murrin increased its focus on mental health by collaborating with the Red Cross. The Red Cross ran workshops on improving mental health awareness.

Alex Armstrong, a health and human factors specialist, who coordinates the health and wellbeing programme, concludes that “at Murrin Murrin, health and wellbeing initiatives are seen to improve not only the health and wellbeing of the employees, but also have positive effects on the underlying culture within the organisation. Health and wellbeing initiatives complement and reinforce Murrin Murrin’s safety strategy.”

In Canada, Nickel Rim South (NRS) mine’s HealthyWork initiative is improving the health of its employees. Jim Lundrigan, NRS’s operations superintendent, notes “the average age of our workers was around 55 years and we noted that minor, personal injuries were trending upward. This and the increasing awareness that health and fitness of employees can have a direct impact on worker safety are what led us to the HealthyWork Program.”

HealthyWork comprised a variety of programmes and services for NRS employees and their families, including nutrition, smoking cessation, healthy retirement and stress management. In addition, weekly presentations by health coaches helped to instal healthy behaviours in employees that will hopefully result in longer, healthier retirements.

A key element in the success of the HealthyWork Program is its inclusion in the mine’s performance indicators. In 2018, health coaches gave guidance to employees on 539 occasions, the gym was accessed nearly 700 times and the monthly themed exhibits received 900 visits.

One employee said, “My kids have definitely noticed that dad plays with them more. I take them for walks, we enjoy the outdoors. It is all things I used to not have the time or energy for and now I’m able to do those sort of things because I have changed my lifestyle with help from the health coaches. The kids are really noticing that dad is a lot more fun these days.”





**Onaping  
Depth nickel  
project – one  
of the world's  
first fully  
electric mines**

Our Sudbury Integrated Nickel Operations (INO) in Canada are looking to develop one of the world's first mines wholly operated by battery electric-powered vehicles (EVs).

At 2,600m deep, a major portion of the operating costs for the mine infrastructure at our Onaping Depth nickel project is for the energy used to power the ventilation required to eliminate exhaust contaminants, as well as the heat and the refrigeration needed to maintain reasonable temperatures. Through using EVs, Onaping Depth will reduce its energy usage by 44% for ventilation systems and by 30% for cooling equipment, compared to an equivalent diesel-fuelled operation.

EVs have no emissions, resulting in less pollutants and improved occupational health benefits. They are quieter to operate and experience less wear and tear and have lower maintenance needs due to their simpler machinery.

Using EVs, Sudbury INO's new mines will reduce greenhouse gas emissions by 44% and deliver considerable cost savings through reduced fuel and energy usage.

We anticipate Onaping Depth coming on-stream in 2023/24.

Environment



Raglan Mine  
erects its second  
wind turbine

In 2018, Raglan Mine completed its second 90m high wind turbine, representing another step in its commitment to reduce the impact of its operations on the environment.

Raglan Mine is not connected to the provincial power grid and the mine produces its own electricity using diesel.

Together with TUGLIQ Energy, Raglan Mine built its first wind turbine in August 2014, the first use of renewable energy in Québec's Arctic territory. Its performance and successful integration into Raglan Mine's electrical network supported the decision to build a second turbine.

The two wind turbines are forecasted to produce about 10% of the mine's total energy, saving approximately 4.4 million litres of diesel annually, and reducing GHG emissions by about 12,000 tonnes each year – the equivalent of taking 2,700 vehicles off the road.



To maximise the energy generated by the wind turbines, Raglan Mine integrated two different energy storage systems with its energy network. The findings from using these different systems will identify the most sustainable and efficient storage system, as well as test different options that could be replicated in the local Inuit communities. Raglan Mine's local communities also rely on fossil fuels for electricity and the use of wind energy provides promise for reduced diesel consumption in the region.

Our investment is contributing to the industry's knowledge of how wind energy technologies work in an Arctic environment. The project has become a flagship site for industrial-scale wind power development in the region. It successfully demonstrates that wind energy can deliver significant improvements to the long-term economic stability, energy security, GHG emissions and the overall environmental footprint of mining operations in the northern part of Canada.

## Community and Human Rights



### Raglan Mine's closure plan

We expect our Raglan Mine in northern Canada to remain operational for at least a further 20 years; it has, however, already begun working on its closure plan. It has established a closure plan committee, whose primary function is to build and maintain an open dialogue between Raglan Mine and its Inuit partners. The committee is developing a closure plan that is environmentally responsible and socially accepted.

As part of its long-term closure planning process, the Raglan Mine has initiated the creation of a committee made up of mine employees, researchers from Toward Environmentally Responsible Resource Extraction Network (TERRE-NET) and community and regional representatives.

Raglan Mine's closure plan will meet the requirements of the Québec government as well as integrating the values and knowledge of the Inuit people. It will protect the valued components of the ecosystem (in particular, food and water resources) and will maximise the economic benefit of closure. More specifically, Raglan Mine's closure plan committee is exploring the creation of new Inuit training opportunities that will provide knowledge about the different subjects related to Raglan Mine. This is to improve understanding of mining and reclamation and should eventually help people make their own informed decisions about mining based on better knowledge.

These and many other closure plans will be made to respect and honour the long-lasting relationship that Raglan Mine has with the local Inuit communities, who will continue to live in the region long after the mine has closed. This careful planning and long-term perspective on remediation are what lie at the very core of responsible and effective mine closures.



Energy products

# oil

We trade in crude oil, refined products and natural gas. We source crude oil and oil products from a range of suppliers, with additional interests in oil and gas production-sharing contracts. We also have a substantial shipping portfolio and access to a range of logistics, storage and investment capabilities.



## Operating highlights

In Equatorial Guinea, our entitlement interest production of 4.6 million barrels was 0.4 million barrels (8%) below 2017, reflecting the fields natural decline. This was partly offset by an 11% increase in Chad production, up 0.3 million barrels following the recommencement of a drilling programme in the second half of 2017.

Own source oil production (m bbl)

**4.6**

Marketed crude oil volumes (m bbl)

**944**



**Total recordable injury frequency rate**  
(per million hours worked)

**2.16**

2017: 1.21

**Community investment spend**  
(\$ million)

**0.2**

2017: 0.1

**Water withdrawn**  
(million m<sup>3</sup>)

**0.2**

2017: 0.3

### KPIs

	2018	2017	2016
Fatalities at managed operations	0	0	0
Lost time injury frequency rate (LTIFR) (per million hours worked)	1.35	0.48	0.26
Total recordable injury frequency rate (TRIFR) (per million hours worked)	2.16	1.21	0.65
New cases of occupational diseases	0	0	0
CO <sub>2</sub> e Scope 1 (million tonnes)	1.0	1.0	1.1
CO <sub>2</sub> Scope 2 – location-based (million tonnes)	0.0	0.0	0.0
Total energy use (petajoules)	10	10	10
Water withdrawn (million m <sup>3</sup> )	0.2	0.3	0.1
Community investment spend (\$ million)	0.2	0.1	0.1
Number of employees and contractors	1,331	875	1,109
Proportion of female employees (%)	9%	14%	17%



### Key

1. Carson
2. Long Beach
3. Oklahoma
4. Paraiso
5. Santo Tomás de Castilla
6. Ale Combustiveis
7. Ramallo
8. Karadeniz
9. Chad Oil Assets
10. Cameroon Oil Assets
11. Beira

## Health



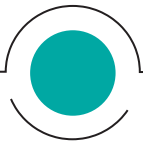
### Maternity health centre in Bemangra

The town of Bemangra is located in the southern Chad province of Guéni, with a population of over 7,000. It is close to our PetroChad Mangara (PCM) oil and gas operations and home to a number of our employees and contractors.

Following years of under-investment, Chadian maternal and infant mortality rates are high, with 856 deaths per 100,000 births<sup>1</sup>. In largely rural areas such as the villages surrounding Bemangra, a lack of medical facilities, transportation, usable roads and trained medical personnel, as well as poverty, further accentuates the risks associated with childbirth.

A community-operated health centre is the main provider of medical services to Bemangra and its surrounding 35 villages and nomadic encampments. A nurse, supported by five local community members, manages the health centre and provides services to the local population of over 16,000 people from the Bemangra, Kiati and BoaKrim-Krim cantons.

<sup>1</sup> Tendances de la mortalité maternelle: 1990–2015 Estimations de l'OMS, l'UNICEF, l'UNFPA, le Groupe de la Banque mondiale et la Division de la population des Nations Unies Résumé d'orientation.



Unfortunately, due to poor maintenance over a number of years, the health centre no longer meets the necessary standards. In addition, the health centre lacked access to basic medication and lighting that affected night-time emergency cases and its delivery room was inadequate.

Through its commitment to support the development of local socio-economic infrastructure, PCM identified a need to work with local authorities to build a new maternity facility and improve the existing health centre's range of services.

Work began in March 2018 with a community consultation phase, well attended by local women as well as representatives from the Ministry of Public Health and local associations, and canton chiefs.

PCM has funded the construction of two new rooms, a delivery room and an observation ward. Prior to the new maternity services becoming established, the lack of facilities meant many women were unable to be treated and faced increased risks associated with home births.

PCM will hand over the new maternity facility to the local community during 2019.

Going forward, we are optimistic that the health services will increase the take-up of medical services by pregnant women and contribute to a provincial reduction in maternal and infant mortality, as well as support a reduction in the transmission of HIV from mother to child.

Environment



Reducing sulphur emissions in shipping

In 2020, the International Maritime Organization's (IMO) regulations on limiting sulphur oxides (SOx) in emissions from ships will come into force. Heavy fuel oil, derived as a residue from crude oil distillation, is currently the main type of 'bunker' oil used in ocean-going ships. It is currently usual practice for ships to release the sulphur contained in the fuel oil as emissions into the atmosphere following its combustion in the ship's engine.

From 1 January 2020, the regulations will limit the sulphur in fuel oil to 0.50%, from 3.5%, for ships operating outside designated emission control areas, such as harbours. Any vessels failing to comply will face fines, may find their insurance invalidated and, as such, being declared 'unseaworthy', barring them from sailing.

Across our fleet of ocean-going vessels (both those we wholly own and those in which we have a financial interest), we have been preparing for the new regulations in a number of ways.

A small number of our larger vessels will be fitted with scrubber systems, a device to control air pollution through stripping out sulphur emissions allowing the ship to continue to use heavy oil fuels. Each scrubber system costs around \$3 million to install.

We are upgrading the remainder of our fleet to allow the use of either hybrid or distillate fuels. Industry experts are forecasting that the majority of ships are likely to move to marine gasoil, a lower sulphur distillate fuel. The alternative is a hybrid fuel, a blended, ultra-low sulphur fuel that until now the shipping industry has not used as a marine fuel. As such, we are preparing our ships' fuel tanks and piping, as well as providing training for our ships' workforce on fuel husbandry, to support our transition to using these new fuel types.

We expect that the steps we are taking will reduce our SOx emissions from our oil shipping interests.





## Treating ballast water

Ships take on board ballast water as a means to provide stability when the ship is empty of cargo. Ships then transport the ballast water, containing thousands of aquatic or marine microbes, plants and animals, around the globe. Untreated ballast water released at the ship's destination can potentially introduce a new invasive species.

In September 2017, the IMO's Ballast Water Management Convention came into force, requiring vessels discharging ballast water in international waters to install a treatment system by 2022. We are equipping our ships with appropriate treatment systems ahead of the regulations deadline.

One approach is to treat the ballast water with ultraviolet (UV) light. The UV light sterilises the ballast water and organisms, stopping their reproduction. UV treatment systems are best suited for vessels that do not take in too much ballast water, such as container ships, offshore supply vessels and ferries.

Electrolytic treatment systems pass an electric current through a small side-stream of seawater to create a disinfectant, which kills the organisms. This system is more suited to larger vessels such as tankers and bulk carriers, which have large ballast water volumes.

A chemical injection system also disinfects the ballast water. Vessels with larger ballast requirements, such as tankers and bulkers, generally use this system.

All the systems that we have chosen meet the requirements of the IMO regulation as well as meeting the approval of the US Coast Guard.

Community  
and Human  
Rights



Rehabilitation  
of Krim-Krim's  
water tower



The town of Krim-Krim in southern Chad is one of the largest urban areas in the region and close to our PetroChad Mangara (PCM) oil and gas operations. In recent years, Krim-Krim's population has rapidly increased due to a large influx of economic migrants looking for employment and former residents returning from the Central African Republic. This has resulted in pressures on local infrastructure and services.

Krim-Krim hosts the province's largest weekly market, which attracts traders from neighbouring cantons as well as around 1,000 to 2,000 visitors, causing further stress on Krim-Krim's facilities.

Outside of the Chad capital, N'Djamena, access to grid-operated water, electricity and sanitation is limited. The majority of the population take water from groundwater sources, such as rivers, water vendors or water towers that access underground natural wells. Many people rely on water from unsanitary sources that can result in health issues such as cholera and other water borne diseases.

During a regular meeting between our PCM team and representatives from the local authority and civil society, Krim-Krim's canton chief requested PCM's support to refurbish a water tower that serves about 39,000 people.

The water tower had not worked for over two years and was causing severe impacts due to the region's ongoing water shortage. In addition, it had resulted in local women and children, who are culturally responsible for providing their household water, enduring long journeys on foot to alternative sources.

In addition to repairs, PCM provided training on maintenance and skills in administration and financial management. The training encouraged the local community to take on the responsibility of maintaining the water tower's infrastructure.

Following the rehabilitation of the water tower and its solar-powered pumps, the restored water tower has a capacity of 40m<sup>3</sup> and a solar and electric system for pumping water.

At the handover ceremony, Mr Toussaint Naim, the Krim-Krim canton chief, noted, "Water is life and by offering water to my people, PCM has offered life to my people."

During the ceremony, women's associations planted young mango, guava, moringa and banana trees around the water supply point. This gesture was to demonstrate that the rehabilitated water tower maintains human life as well as plant and animal life.

Since our presence in Chad began in 2011, Glencore, through PCM, has refurbished three water towers, built three new water towers that are powered by generators, restored two water wells and built 25 water wells, seven community mills and eight granaries.



### Melom School

During 2018, PCM oil and gas operations undertook a socio-economic needs assessment of Melom, a village close to PCM's operations in Bardira. The study, in partnership with the local community, identified an urgent need for a primary school for the children of Melom and its surrounding five villages.

During 2018, three teachers were providing education at the previous school, built in 2011, to nearly 200 students. The school was of a simple straw construction that relied on the availability of straw and of parents to maintain its structure. Unfortunately, the construction technique limited the availability of the classrooms to the dry season and exposed it to fire risks. Eventually, the school was destroyed by severe winds. The distance of Melom from the larger town of Donia limited the children's ability to attend school.

During 2018, PCM commenced construction of a new school in Melom with three classrooms and sanitation facilities. The new school will be handed to the community during 2019 so that lessons can begin for about 300 local students.

In late 2017, PCM completed the construction of a new school for the community of Bardira and its four surrounding villages. Prior to its construction, the children of Bardira took classes sitting in the dust under a tree. During 2018, the Bardira School's attendance record improved significantly with numbers up by 50% on prior years.



### Supporting financial management

In Chad, landowners receive compensation when oil companies purchase land for exploration and development purposes. The compensation is for loss of livelihood from agricultural land and paid either to an affected individual or to a community. Generally, individuals opt for cash compensation while community compensation is of an in-kind nature<sup>1</sup>. Community compensation can include the construction of infrastructure, such as schools, medical clinics and water services to support local socio-economic development.

PCM recognises that a lack of access to banks or a low awareness of financial management can result in the mismanagement of compensation paid to individuals and the loss of money through short-term, unprofitable ventures that do not replace lost livelihoods.

PCM has established a training programme on fiscal management to support the spending of money on sustainable initiatives. It provides the training via individual or public consultation sessions that cover the benefits of building houses, buying agricultural land, paying into a bank savings account and other profitable projects.

Investments to date have included purchasing sheep, machinery for the beneficiation of agricultural products (a husker and mill), a motorcycle with trailer and a mango orchard, and building shops and houses.

<sup>1</sup> D'Appolonia, Report of the External Compliance Monitoring Group (ECMG), Initial Visit of the D'Appolonia ECMG Team to Chad and Cameroon, 23 February to 3 March 2001.



Metals and minerals

# Zinc

We are one of the world's largest zinc miners and producers. Our assets include underground and surface mines, smelters, refineries, concentrators, hydroelectric facilities and warehousing. We trade in zinc and lead concentrates and valuable by-products such as sulphuric acid. We also deal in gold and silver as by-products of zinc mining, copper and lead ores.

## Operating highlights

Own sourced zinc production of 1,068,100 tonnes was in line with 2017, reflecting the disposals of the African zinc assets in August 2017 and the restart of mining at Lady Loretta in mid-2018.

Lead production of 273,300 tonnes was in line with 2017, reflecting stronger production in Australia (due to Lady Loretta) offset by mine planning changes at Aguilar in Argentina.

**Own source zinc production**  
(kt)

**1,068**

**Marketed zinc volumes**  
(tonnes of metal and concentrate)

**3.2m**



**Total recordable injury frequency rate**  
(per million hours worked)

**3.59**

2017: 4.00

**Community investment spend**  
(\$ million)

**38.0**

2017: 39.6

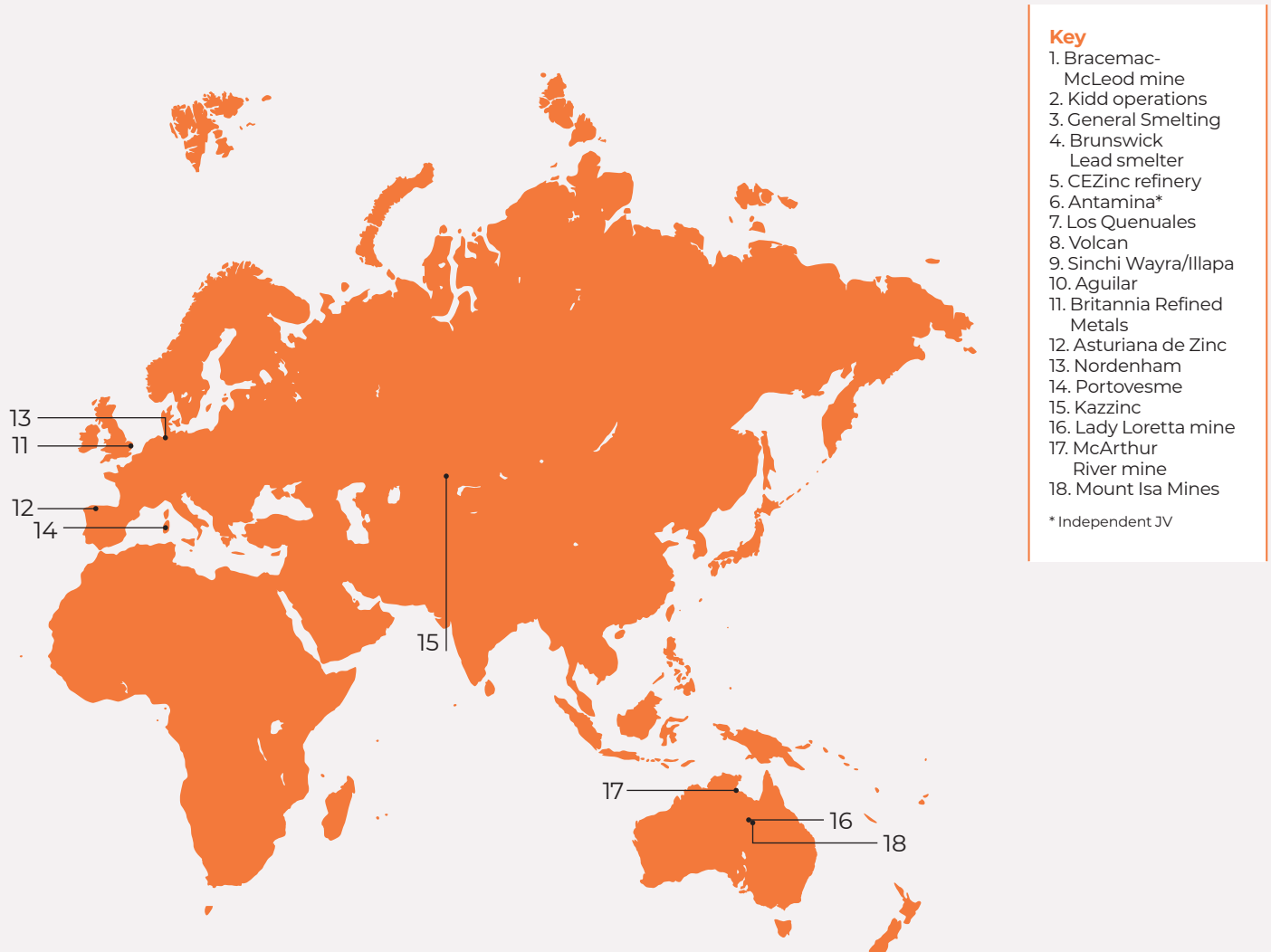
**Water withdrawn**  
(million m<sup>3</sup>)

**434**

2017: 301

### KPIs

	2018	2017	2016
Fatalities at managed operations	<b>7</b>	6	1
Lost time injury frequency rate (LTIFR) (per million hours worked)	<b>1.44</b>	1.63	1.59
Total recordable injury frequency rate (TRIFR) (per million hours worked)	<b>3.59</b>	4.00	3.61
New cases of occupational diseases	<b>9</b>	11	17
CO <sub>2</sub> e Scope 1 (million tonnes)	<b>2.2</b>	2.1	2.0
CO <sub>2</sub> Scope 2 – location-based (million tonnes)	<b>2.4</b>	2.2	2.1
Total energy use (petajoules)	<b>52</b>	48	49
Water withdrawn (million m <sup>3</sup> )	<b>434</b>	301	277
Community investment spend (\$ million)	<b>38.0</b>	39.6	36.2
Number of employees and contractors	<b>54,917</b>	41,769	42,942
Proportion of female employees (%)	<b>16%</b>	18%	18%





## Safety



## Learning from each other

Glencore Zinc employs more than 50,000 employees and contractors at 48 assets located in South America, Canada, Kazakhstan, Australia, Europe and the UK, working in six languages. Assets include underground and surface mines, metallurgical facilities (smelters, refineries), concentrators, hydroelectric facilities and warehousing.

The geographical diversity of the zinc department has caused a large variation in its safety performance and tragically seven people lost their lives during 2018 (2017: six people).

The zinc team has established a number of initiatives to bring about a consistent approach to safety at all of its operations.

At its underground mining operations, significant steps have been taken to mechanise as much of the work as possible to reduce exposure to our employees. Through using mechanised bolters, workers are removed from unsupported ground where rock falls can occur. In addition, rock structure is carefully monitored with technology that sends alarms and alerts when any instability is detected that allows for the removal of workers.

Through site exchanges, Glencore Zinc's employees are learning different approaches and processes that they can implement at their own operations.



During the year, South American and Kazakhstan engineers visited Kidd Operations in Canada and a team from Bolivia travelled to George Fisher Mine in Australia. During the site visits, the participants discussed the integration of geo-technology into mine design, planning and scheduling as well as the role of supervisors, risk and contractor management and behaviour-based safety concepts.

### Building capacity

In early 2018, we restructured our zinc business's HSEC team to improve the technical support it provides to its assets. The revised approach appointed Heads of Practice to provide technical operational guidance and deep-dive investigations into all high-potential accidents.

Recognising that strata failure was a main cause of fatalities in the zinc business, we actively built our expertise in this area, especially in South America. As a result, we appointed new geotechnicians to establish good practice and consistent standards at our assets in Peru, Bolivia and Argentina.

In addition, we are working with hydrogeology experts to understand better the risks associated with aquifers or other groundwater entering the mine, as well as other flooding risks.

### Behaviour-based science

Our zinc business is implementing behaviour-based science (BBS) as a means to address the challenges created through its cultural diversity. The first step is for all our zinc assets to complete a common safety culture survey. This will provide us with an understanding of the existing safety culture and support a focused approach that delivers a zero harm environment.

BBS research shows that a specific set of cultural characteristics are predictive of safety outcomes. The stronger and better aligned a culture is around the critical aspects of peer-to-peer, employee-to-supervisor, and employee-to-management functioning, the better positioned the organisation is to achieve and sustain excellent safety performance.

The safety culture survey will tell us which of these critical aspects is strong in our operating culture and which we can leverage to drive improvements. It will also help us understand where we need to focus our efforts to get better.

We will also work with employee focus groups to understand further our challenges and opportunities.



### Learning from HPRI's at Volcan

Following our acquisition of the Volcan zinc assets in Peru in November 2017 of the voting majority in Volcan, one of the largest zinc and silver miners in Peru, we began to align Volcan's existing policies and practices with those of Glencore. This included implementing our SafeWork initiative, which encourages a culture of zero harm.

The first step was to establish a culture of reporting high-potential risk incidents (HPRI's). Volcan's analysis of its HPRI's led to the development of action plans and sharing of lessons learnt.

From these findings, we provided training to senior management on ICAM – the incident, cause, analysis method used by Glencore. Using ICAM, Volcan developed a consistent approach to investigating HPRI's, supporting the identification of root causes, failed critical controls, environmental conditions and individual and organisational factors. This led to improved analysis and understanding of the cause of the HPRI as well as more robust action plans to mitigate a repeat of these incidents.

As part of an approach of visible leadership, the operational general manager, supported by a multidisciplinary team, leads all investigations.

In 2018, there were ten principal causes of the 27 HPRI's recorded. This resulted in 37 separate corrective actions such as upgrading geomechanical models, standardising sustainability practices, improving project management and risk assessments as well as taking a more robust approach to contractor selection and management, recruitment and training.

Following a repeated number of HPRI's relating to fall of ground, Volcan made a significant decision to stop production at its most profitable mine, Chungar. This provided an opportunity to address the root causes of the HPRI's, as well as sending a strong message to the workforce on the importance the management attributes to a safe working environment and that safety is our top priority.

As a result of the improved approach to understanding the causes of HPRI's, in 2018 Volcan has achieved a year-on-year 12% reduction on its lost time injury frequency rate and 15% improvement on its total recordable injury frequency rate.





## Environment



### Managing overburden

In early 2017, our McArthur River Mine (MRM) submitted an Environmental Impact Statement (EIS) to the Northern Territory government for the long-term management of its waste rock, its Overburden Management Project (OMP).

The EIS describes the project, its potential environmental impacts and proposed environmental management measures. As part of the EIS, MRM has also outlined its plans for when mining and processing finish 30 years from now.

The OMP will provide a number of positive socio-economic outcomes for local communities as well as the regional economy:

- An increase in the scope and frequency of environmental monitoring with additional water, air and geochemistry monitoring to understand the full impact of the OMP
- Employment opportunities will be available for local young people over OMP's four stages, as well as providing increased job stability for the existing workforce
- MRM's local procurement activities will continue to engage with local and regional businesses
- MRM will be collaborating with Traditional Owners and Indigenous leaders on site rehabilitation and in cultural heritage management activities



In July 2018, the Northern Territory's Environment Protection Authority (NT EPA) released its assessment report, which recommended the OMP EIS for approval and recognised the good health of the McArthur River.

The assessment report also included a number of recommendations, which are being considered by the Department of Primary Industry and Resources. With the implementation of the proposed commitments and safeguards contained in the recommendations, the NT EPA is satisfied that the OMP EIS can be implemented and managed in a manner that will avoid environmental impacts and minimise risks.

MRM has consulted widely with a range of stakeholders in relation to the proposed project, speaking or meeting with around 400 people through site visits, face-to-face meetings and community meetings in Borroloola. Stakeholder consultation has covered topics such as cultural heritage, economy and jobs, management of waste rock, air quality, water quality, bush tucker, fish, cattle and closure planning.

# Glossary

## **ASM**

Artisanal and small-scale mining.

## **backfilling**

Filling mined voids with non-hazardous material generally sourced from mine residues, to ensure long-term stability of excavations and minimise the effects of seismic activity.

## **“care & maintenance” phase**

A phase in the lifecycle of an asset where production is stopped, but with the potential to recommence operations later; we manage conditions to ensure that the asset remains in a safe and stable condition.

## **CDP**

CDP is an international, not-for-profit organisation that provides a global system for companies and cities to measure, share and disclose environmental information.

See [cdp.net](http://cdp.net) for further information.

## **closure plan**

A formal document detailing a costed conceptual outline of how Glencore will close an operation, taking into account the options available to deal with prevailing social and environmental issues. We set aside funds specifically for site closure, including land rehabilitation.

## **CO<sub>2</sub>e**

Carbon dioxide equivalent is the universal unit of measurement for the global warming potential (GWP) of greenhouse gases, where one unit of CO<sub>2</sub>e is the GWP for one unit of carbon dioxide. This unit allows us to discuss the equivalence of different GHGs in terms of their GWP. The GWPs used in this report are one for CO<sub>2</sub>, 28 for methane and 265 for nitrous oxide, as per IPCC's 5th Assessment.

## **commodity departments**

Glencore's business is divided into a number of commodity departments, eg copper, nickel, ferroalloys and zinc.

See [glencore.com/who-we-are-at-a-glance/](http://glencore.com/who-we-are-at-a-glance/) for a full list.

## **concentrate**

A natural commodity consisting of extracted and processed mineral ores; the first step towards producing refined minerals and metals.

## **copper equivalent**

We calculate a product-specific production value by dividing the average price of a specific product in a baseline year with the average price of copper in the same baseline year.

## **critical control**

A control that is crucial to preventing or mitigating the consequences of an event. The absence or failure of a critical control would significantly increase the risk connected to the relevant hazard, regardless of the existence of other controls. Controls include mitigation and management actions, devices and technical systems.

## **direct energy**

Energy used and generated by our operations, including energy generated by combustion in boilers, furnaces and vehicles owned or controlled by us. Sources include coal, coke, diesel, gasoline, biomass, biodiesel, fuel oil, jet fuel, kerosene, LPG, naphtha, natural gas, propane and electricity generated from renewable source or recovered on site.

See indirect energy.

## **EITI**

The Extractive Industries Transparency Initiative aims to strengthen governance by improving transparency and accountability in the extractives sector (oil, gas and mining). EITI promotes revenue transparency by monitoring and reconciling payments from mining businesses and government revenues at country level.

## **ferroalloys**

Various iron alloys that have a high proportion of one or more other elements, eg manganese, chrome or silicon.

## **fugitive emissions**

Emissions that emanate irregularly from many diffuse sources, such as gas leakages from equipment, and, in the case of dust, the movements of trucks and machinery in dusty areas.

## **GHG**

Greenhouse gas.

## **Greenhouse Gas Protocol**

Standards and guidance for corporate accounting and reporting on GHG emissions, which help governments and business leaders to understand, quantify, and manage GHG emissions (eg CO<sub>2</sub>). The Protocol separates GHG emissions into different scopes depending on source.

## **GRI**

The Global Reporting Initiative is a network-based organisation that develops and disseminates voluntary sustainability reporting guidelines; there is a specific supplement for the mining and metals industry.

## **grievance process**

A formal grievance process/mechanism for local community members or other stakeholders to use to register any concerns about real or perceived actions by nearby operations, with the objective of resolving problems before they escalate.

## **hazardous**

Dangerous, as defined by national legislation.

## **HELE**

High-efficiency, low-emission

## **hours worked**

Total hours worked by employees and contractors at our industrial sites, including overtime but excluding any scheduled or unscheduled absence (eg holidays or sickness) during the reporting year.

## **HPRIs**

High-potential risk incidents are incidents that could have potentially resulted in a catastrophic (Category 5) or major (Category 4) outcome.

## **HSEC**

Health, safety, environment and communities.

## **ICMM**

The International Council on Mining and Metals is an industry trade body dedicated to establishing and promoting leading sustainability practices.

## **IFC**

The International Finance Corporation is part of the World Bank Group; it finances private sector ventures and projects in developing countries and provides these with advice and guidelines.

## **ILO**

The International Labour Organization is a United Nations agency for the promotion of social justice and internationally recognised human and labour rights.

## **ILO Declaration**

In 1988, the ILO adopted the Declaration on Fundamental Principles and Rights at Work, with the core categories of collective bargaining, discrimination, forced labour and child labour.

## **indirect energy**

Energy used by our sites, but supplied by third parties, often as electricity. This includes electricity, steam and heating/cooling.

See direct energy.

## **industrial activities**

Glencore term covering assets and activities related to commodity production and processing, as separate from marketing activities. See marketing activities.

**IPCC**

The Intergovernmental Panel on Climate Change assesses scientific, technical and socio-economic information on the risk of human-induced climate change. The United Nations Environment Programme and the World Meteorological Organization established the IPCC.

**LBMA**

The London Bullion Market Association is an international trade association, representing the London market for gold and silver bullion, which promotes refining standards, trading documentation and the development of good trading practices.

**LTIs**

Lost time injuries are recorded when an employee or contractor is unable to work following an incident. We record lost days as beginning on the first rostered day that the worker is absent after the day of the injury. The day of the injury is not included. LTIs do not include Restricted Work Injuries (RWIs) and fatalities.

**LTIFR**

LTIFR is the total number of LTIs recorded per million working hours.

**marketing activities**

Glencore term covering trading and sales activities as well as the infrastructure and resources used in transporting products from our industrial sites to customers.

See industrial activities.

**nitrogen oxides**

A range of related chemical compounds, collectively indicated as NO<sub>x</sub>, which can react to form GHGs. Examples are nitric oxide and nitrogen oxide.

**occupational disease**

Any chronic ailment or illness that occurs as a result of work or occupational activity; these are typically identified as being more prevalent in a given body of workers than in the general population, or in other worker populations. An occupational disease is different from an occupational injury.

**OCIMF**

The Oil Companies International Marine Forum is a voluntary association of oil companies with an interest in the shipment of crude oil and products.

**OECD**

The Organisation for Economic Co-operation and Development is an international organisation that provides a forum in which governments can work together to share experiences and seek solutions to tackle economic, social, environmental and governance challenges.

**overburden**

The rock and soil that lies above a coal seam or ore body; it is removed for mining activities.

**petajoule (PJ)**

A measure of energy equivalent to a thousand trillion joules, or 10<sup>15</sup> joules, usually used to express energy consumption by cities or major industries.

**PSM**

Process safety management.

**REACH**

Registration, Evaluation, Authorisation and Restriction of Chemicals is the European Union's chemicals control act.

**Scope 2 – location-based emissions**

This approach applies grid emission factors to all purchased electricity, regardless of contractual purchase arrangements.

**Scope 2 – market-based emissions**

This approach applies GHG emissions from contractual arrangements; we apply supplier-specific emission factors when relevant and available, but where they are not, the country's residual or grid emission factor is applied.

**sulphur dioxide**

A chemical compound (SO<sub>2</sub>) produced by various industrial processes, including the combustion of sulphur-containing fuels. SO<sub>2</sub> is a pollutant gas and a precursor to particulates in the atmosphere. It can be captured and converted to saleable sulphuric acid.

**tailings**

The residue of an industrial process, especially residue that contains mineral ore.

**TRIFR**

Total recordable injury frequency rate = number of fatalities + lost time injuries (LTIs) + restricted work injuries + medical treatment injuries per million hours worked.

**UNGPs**

The United Nations Global Compact principles cover human rights, labour, environment and anti-corruption.

**Voluntary Principles**

The Voluntary Principles on Security and Human Rights (Voluntary Principles) Initiative is a multi-stakeholder initiative involving governments, companies and NGOs, which promotes a set of principles for oil, gas, and mining companies to guide them in providing security for their operations in a manner that respects human rights.

**waste rock**

Mineral wastes produced during mining, excluding overburden. It includes the parts of ore deposits not processed due to economic reasons. We use waste rock for either backfilling or storing at the surface.

**water discharge**

Total of water effluents discharged over the course of the reporting period to subsurface waters, surface waters, sewers, treatment facilities, etc.

**water input**

Total amount of water withdrawal plus water entrained in ore that is processed.

See "water withdrawal".

**water output**

Total amount of water discharged plus water entrained in waste material and final product and water lost to evaporation and other losses.

See "water discharge".

**water quality**

The Water Accounting Framework for the Minerals Industry of the Minerals Council of Australia assesses the quality of water into three categories:

**Category 1:** water that is of a high quality and requires minimal and inexpensive treatment (for example disinfection and pond settlement of solids) to raise the quality to appropriate drinking water standards.

**Category 2:** water that is of a medium quality with individual constituents encompassing a wide range of values. It requires a moderate level of treatment such as disinfection, neutralisation, removal of solids and chemicals to meet appropriate drinking water standards.

**Category 3:** water that is of a low quality with individual constituents encompassing high values of total dissolved solids, elevated levels of dissolved metals or extreme levels of pH (high or low). It requires significant treatment to remove dissolved solids and metals, neutralise and disinfect to meet appropriate drinking water standards.

**water withdrawal**

Total amount of water drawn into the boundaries of the reporting organisation from all sources for any use over the course of the reporting period. Includes surface water, groundwater, rainwater, potable water and non-potable water imported from third parties.

**workforce**

References to our workforce include both employees and contractors.

# Assurance statement



## Independent assurance report to Glencore plc on selected information in the 2018 Sustainability Report

### An overview of the scope of our assurance work

We have been engaged by Glencore plc (“Glencore”) to perform a limited assurance engagement on the following selected sustainability information (“Subject Matter”) reported in the Glencore plc (“Glencore”) 2018 Sustainability Report, and the documents “Our Approach to Sustainability” and “Databook and GRI References” for the year ended 31 December 2018. Each of these are available on Glencore’s website [glencore.com/sustainability](http://glencore.com/sustainability).

### Selected Subject Matter for assurance

Glencore’s assertion in relation to its compliance with the International Council on Mining and Metals (“ICMM”) reporting requirements, as stated on page 11 of the Sustainability Report 2018, including:

- the alignment of its policies to the ten ICMM Sustainable Development Principles and Position Statements (ICMM Subject Matter 1);
- the approach that it has adopted to identify and prioritise its material sustainable development risks and opportunities, described on pages 12–13 of the Sustainability Report 2018 (ICMM Subject Matter 2)

- the existence and status of implementation of systems and approaches used to manage and report its material sustainable development risks and opportunities (ICMM Subject Matter 3) and associated select key performance indicators, presented in Table 1 below (ICMM Subject Matters 4); and
- its self-declaration of preparing the Report in accordance with the Global Reporting Initiative (“GRI”) Standards at a core level, as stated in the Sustainability Report 2018 and in the Databook and GRI References 2018 (ICMM Subject Matter 5)

### Reporting Criteria

The above Subject Matter has been assessed against the criteria provided in the *ICMM Sustainable Development Framework Assurance Procedure* and the definitions and approaches in the *GCP Database Guidance Document, version 3*, dated 29 March 2019 (“Glencore’s Reporting Criteria”), which is available to users upon request.

### Our assurance conclusion

Based on our procedures described in this report, nothing has come to our attention that causes us to believe that the selected Subject Matter, stated above and on the indicated pages of the Sustainability Report 2018 and Databook and GRI References 2018, for the year ended 31 December 2018, have not been prepared, in all material respects, in accordance with the Reporting Criteria.

Table 1: ICMM Subject Matters 3 and 4

Material risks and opportunities	Report Page <sup>1</sup>	Key performance indicators	Assured figure
Catastrophic hazard management	19	Total number of major (Category 4) and catastrophic (Category 5) spills	0
Workplace health and safety	25	Total number of Fatalities (employee and contractor)	13
		Total Recordable Injury Frequency Rate (employee and contractor) (injuries per million working hours)	3.18
		Total Lost Time Injury Frequency Rate (employee and contractor) (injuries per million working hours)	1.06
Climate change	31	Total direct and indirect energy consumption (PJ)	208
		Total Scope 1 GHG emissions (million tonnes of CO <sub>2</sub> e)	18.5
		Total Scope 2 GHG emissions – location-based (million tonnes of CO <sub>2</sub> )	11.8
		Total Scope 3 GHG emissions – losses from transmission and distribution of electricity (million tonnes of CO <sub>2</sub> e) <sup>2</sup>	0.93
		Total Scope 3 GHG emissions from the use of sold products (million tonnes of CO <sub>2</sub> e)	296
Water and effluents	37	Total water withdrawal (million m <sup>3</sup> )	1,020
		Total water discharge (million m <sup>3</sup> ) <sup>2</sup>	709
Waste and air emissions	43	No reported KPIs in scope of assurance	
Human rights and grievance mechanisms	49	No reported KPIs in scope of assurance	
Community engagement and social commitment compliance	55	Total amount of Payments made to Governments (million USD)	5,739
Product stewardship	61	No reported KPIs in scope of assurance	
Our people	65	No reported KPIs in scope of assurance	

<sup>1</sup> Page references are provided to the Sustainability Report 2018.  
<sup>2</sup> KPIs will be reported in the Databook and GRI References 2018.

### Respective responsibilities of Directors and independent assurance provider

The Directors are responsible for the preparation of the sustainability information and statements contained within Glencore's Sustainability Report. They are responsible for determining Glencore's sustainability objectives and for establishing and maintaining appropriate performance management and internal control systems from which the reported information is derived.

Our responsibility is to express a conclusion on the selected subject matter based on our procedures. We conducted our engagement in accordance with the International Standard on Assurance Engagements (ISAE) 3000 (Revised) *Assurance Engagements other than Audits or Reviews of Historical Financial Information* issued by the International Auditing and Assurance Standards Board. This standard requires that we comply with the independence and ethical requirements and to plan and perform our assurance engagement to obtain sufficient appropriate evidence on which to base our limited assurance conclusion. We performed the engagement in accordance with Deloitte's independence policies, which cover all of the requirements of the International Federation of Accountants' Code of Ethics and in some areas are more restrictive. The firm applies the International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

The evidence gathering procedures for a limited assurance engagement are more limited than for a reasonable assurance engagement which is akin to a financial audit, and therefore less assurance is obtained than for a reasonable assurance engagement.

### Work performed

Our limited assurance procedures included, primarily:

- Making enquiries of management and senior executives to obtain an understanding of the overall governance and internal control environment, risk management, materiality assessment and stakeholder engagement processes relevant to the identification, management and reporting of Glencore's material sustainable develop issues, and associated selected key performance indicators
- Evaluation of the design of controls and functionality of the Group sustainability information management and reporting database ("GCP database") at a corporate level
- Analytical Reviews and trend analysis of reported data per commodity department for selected key performance indicators
- Conducting physical reviews at a sample of assets, selected on a judgmental basis on materiality of contribution to reported group KPI data, geographic coverage (Africa (Mutanda – conducted remotely), South Africa, Australia and South America) and commodity coverage (Coal, Copper, Ferroalloys, Nickel, and Zinc). This work was performed to:
  - corroborate consistency in understanding and application of Glencore Reporting Criteria; and
  - identify systemic challenges to sustainability management and data measurement, collection, reporting and control processes, or issues pervasive to region, department and/or group, for the selected subject matter

We believe that our evidence obtained is sufficient and appropriate to provide a basis for our limited assurance conclusion.

### Inherent limitations

Inherent limitations exist in all assurance engagements due to the selective enquiry of the information being examined. Therefore fraud, error or non-compliance may occur and not be detected. Additionally non-financial information, such as that included in Glencore's Sustainability Report 2018, and "Our Approach to Sustainability" document is subject to more inherent limitations than financial information, given the nature and methods used for determining, calculating, and sampling or estimating such information.

Our work has been undertaken so that we might state to the Company those matters we are required to state to them in this report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than Glencore for our work, for this report, or for the conclusions we have formed.

While we acknowledge that this report will be published on the Glencore website, the maintenance and integrity of that website is the responsibility of the Directors of Glencore. The work that we carried out does not involve consideration of the maintenance and integrity of that website and, accordingly, we accept no responsibility for any changes that may have occurred to this report and Glencore's Reports since they were initially presented on the website.

### Deloitte LLP

London, United Kingdom  
15 April 2019

# Important notice regarding compilation of report

Important notice concerning this document including forward looking statements.

This document contains statements that are, or may be deemed to be, “forward-looking statements” which are prospective in nature. These forward-looking statements may be identified by the use of forward-looking terminology, or the negative thereof such as “outlook”, “plans”, “expects” or “does not expect”, “is expected”, “continues”, “assumes”, “is subject to”, “budget”, “scheduled”, “estimates”, “aims”, “forecasts”, “risks”, “intends”, “positioned”, “predicts”, “anticipates” or “does not anticipate”, or “believes”, or variations of such words or comparable terminology and phrases or statements that certain actions, events or results “may”, “could”, “should”, “shall”, “would”, “might” or “will” be taken, occur or be achieved. Such statements are qualified in their entirety by the inherent risks and uncertainties surrounding future expectations. Forward-looking statements are not based on historical facts, but rather on current predictions, expectations, beliefs, opinions, plans, objectives, goals, intentions and projections about future events, results of operations, prospects, financial condition and discussions of strategy.

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