GLENCORE

Our purpose

Responsibly sourcing the commodities that advance everyday life

Sustainability Report

20
19

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Responsibility is one of our core values. We are committed to operating in a transparent and responsible manner. We recognise that we will only deliver shareholder value through robust financial performance underpinned with a positive contribution to society.

Our sustainability communications

Our Sustainability Report 2019 forms part of Glencore's annual corporate reporting suite. It expands on the information provided in our Annual Report 2019, 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, an environment, social and governance (ESG) data book, Payments to Governments report, a standalone human rights report and Modern Slavery Statement as well as making regular updates on our activities via our website and social media platforms.

Find us on:

Case studies

Throughout this report, we have included a number of case studies that highlight the progress our assets make on-the-ground. We are proud of the positive benefits our business delivers.

Assuring our tailings storage facilities
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Implementing supply chain due diligence
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2019 performance overview[1]

Fatalities at managed operations

Year	Value
2015	11
2016	16
2017	9
2018	13
2019	**17**

Strategic priority:
zero fatalities

New occupational disease cases

Year	Value
2015	127
2016	89
2017	46
2018	32
2019	**106**
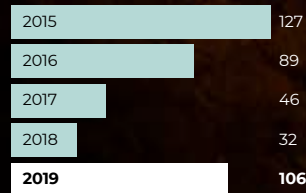
Strategic priority:
year-on-year reduction in number of new cases of occupational diseases

Carbon emissions intensity
(tGHG/tCu)
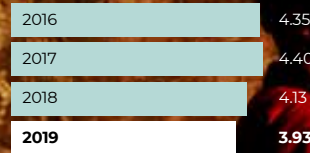
Year	Value
2016	4.35
2017	4.40
2018	4.13
2019	**3.93**

Strategic priority:
reduce carbon emission intensity by at least 5% on 2016 levels by 2020

Community investment spend
(US$ million)

Year	Value
2015	93
2016	84
2017	90
2018	95
2019	**90**

Strategic priority:
continue to invest in community initiatives to deliver sustainable socio-economic benefits

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

Year	Value
2015	4.35
2016	4.05
2017	3.08
2018	3.18
2019	**2.86**

Strategic priority:
50% reduction of Group TRIFR by the end of 2020 against 2014 baseline[2] of 5.02

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

Year	Value
2015	1.34
2016	1.40
2017	1.02
2018	1.06
2019	**0.99**

Strategic priority:
50% reduction of Group LTIFR by the end of 2020 against 2015 baseline[2] of 1.34
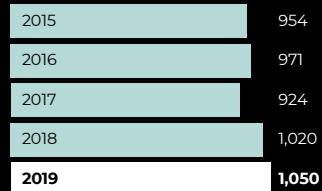
Adjusted EBITDA Industrial

Adjusted EBITDA Industrial
- Metals and minerals
- Energy

Metal and energy
US$9.0bn
(2018: US$13.3bn)

Adjusted EBITDA Marketing

Metal and energy
US$2.6bn
(2018: US$2.5bn)

Water withdrawn
(million m³)

Year	Value
2015	954
2016	971
2017	924
2018	1,020
2019	**1,050**

Strategic priority:
industrial sites to implement water management guideline

Total energy use
(petajoules)

Year	Value
2015	236
2016	225
2017	201
2018	209
2019	**210**

Strategic priority:
ongoing operational efficiency improvements to reduce energy usage

Non-current assets by region[3]
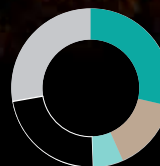
US$75.9bn
(2018: US$78.0bn)

Revenue[4] by region and segment 2019
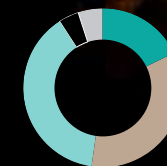
Region
- The Americas
- Europe
- Asia
- Africa
- Oceania

US$215bn
(2018: USUS$220bn)

1 2015–2016 data includes Glencore Agriculture; 2017–2019 data excludes Glencore Agriculture.
2 Baseline figures include Glencore Agriculture.
3 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 2019.
4 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 2019.

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Key:
- ● Industrial sites
- ● Head office
- ● Marketing office/other
- ○ Grouped assets

Who we are

We are one of the world's largest natural resource companies. We fulfil our purpose through our strategy to be active at multiple stages of the commodity supply chain. Our diversity by geography, product and activity, maximises the value we create for our business and its diverse stakeholders.

Living 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 heart of our culture and the way we do business. They are the fundamental basis of our sustainability management system along with our Code of Conduct and our Group policies.

Safety
We never compromise on safety. We look out for one another and stop work if it's not safe.

Integrity
We have the courage to do what's right, even when it's hard. We do what we say and treat each other fairly and with respect.

Responsibility
We take responsibility for our actions. We talk and listen to others to understand what they expect from us. We work to improve our commercial, social and environmental performance.

Openness
We're honest and straight-forward when we communicate. We push ourselves to improve by sharing information and encouraging dialogue and feedback.

Simplicity
We work efficiently and focus on what's important. We avoid unnecessary complexity and look for simple, pragmatic solutions.

Entrepreneurialism
We encourage new ideas and quickly adapt to change. We're always looking for new opportunities to create value and find better and safer ways of working.

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At a glance

What makes us different?

- **Wide diversification by commodity, geography and activity**
- **A major supplier of energy and mobility transition materials**

- **Portfolio containing well-capitalised, low-cost, assets**
- **A unique marketing business that extracts value across the entire supply chain**

- **A conviction to create value**
- **Significant cash flow generation and distribution potential**
- **Flexibility and economies of scale**

Global scale

35 countries

150 sites

30 offices

160,000 people

Highly diversified

90+ commodities

2 business segments

Business segments

Industrial

Marketing

Active at multiple stages of the commodity supply chain

1 Exploration, acquisition and development

2 Extraction and production

3 Processing and refining

4 Blending and optimisation

5 Logistics and delivery

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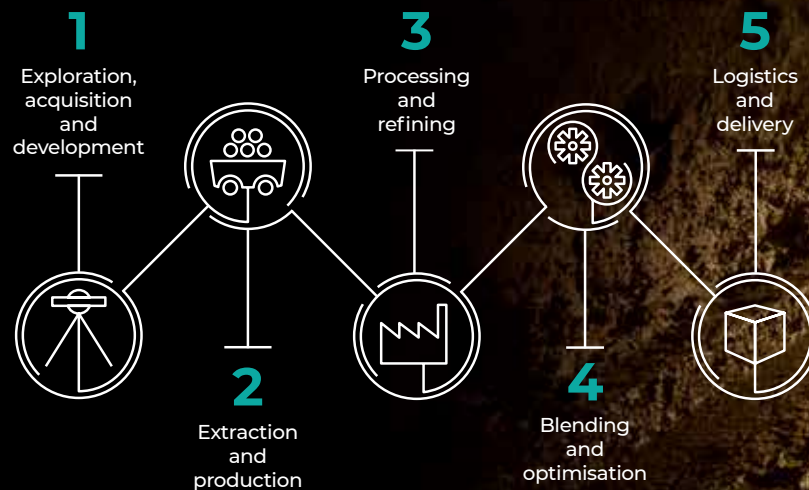
Chairman's introduction

We have surpassed our target of reducing our Scope 1 and 2 emissions intensity by 5% by 2020 against a 2016 baseline.

I am pleased to introduce our 2019 Sustainability Report. Our approach to reporting on our sustainability performance and activities reflects our mission to ensure Glencore fulfils its purpose through our established culture and strategy. As in previous years, this report focuses on the areas that we have identified as being material to Glencore, its assets and both its internal and external stakeholders.

Safety
The Board is deeply saddened to report that during 2019 seventeen people lost their lives at our managed operations. All loss of life is unacceptable. Every member of our workforce should arrive and leave their workplace fit and healthy. We are determined to eliminate fatalities across our business.

For each fatality, the relevant commodity department gives a presentation on the incident, remedial actions and learnings to the Board's HSEC Committee, on which I sit. The HSEC Committee reviews and comments on the action plan.

In addition, the HSEC Committee received and reviewed extensive safety briefings from our Kazzinc operation in Kazakhstan and Mopani Copper Mines in Zambia. Kazzinc and Mopani's safety performance were not meeting our expectations or standards. Towards the end of the year, Kazzinc underwent a corporate-led, multi-disciplinary, cross-commodity fatality intervention. The intervention team visited every location in every operation while accompanied by site general managers, with the objective of reviewing operating processes and, if necessary, closing work activities with deemed unsafe conditions or acts.

Responding to climate change
I chair Glencore's cross-commodity, multi-disciplinary climate change working group. The working group supports the delivery of our public commitments on climate change through reviewing, developing and progressing the Group's strategic approach to climate change.

In 2017, we set a target of reducing our Scope 1 and 2 emissions intensity by 5% by 2020 against a 2016 baseline. I am pleased to announce that we have surpassed this target and to date we have reduced our emissions intensity by 9.7%. We achieved this reduction through a range of measures including abatement and production changes at our operations.

As our 2020 target ends, we have committed to establish a new, longer-term target that supports the Paris Goals. During 2019, we furthered our work on developing this target by identifying and quantifying our operations' carbon reduction opportunities through marginal abatement cost curves. We intend to publish this new longer-term target towards the end of 2020.

Tony Hayward,
Chairman

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Our culture, purpose and values

Our culture
We fulfil our purpose and deliver on our strategy in a manner that reflects our values of safety, integrity, responsibility, openness, simplicity and entrepreneurialism. Only by actively living and breathing these values are we able to ensure our culture is conducive to fulfilling our purpose and delivering on our strategy.

Our purpose
Glencore's purpose is to responsibly source the commodities that advance everyday life. We do so through our strategy of sustainably growing total shareholder returns while maintaining a strong investment grade rating and acting as a responsible operator.

Our values
Our values reflect our purpose, our priorities and the beliefs by which we conduct ourselves and carry out our business activities. 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.

For more on Our Values, go to page 4

During 2019, we undertook our first review of our membership in relevant trade associations to ensure their activities and statements align with those of Glencore and do not undermine our support for the Paris Goals.

We reported on our approach to the review, and its findings, in our *Review of our industry organisations' positions on climate change*. We will review annually the activities and positioning of our relevant trade associations on the topic of climate change, acknowledging that trade associations represent industry across multiple policy areas.

In early 2020 we became one of the first extractive companies to publish a Scope 3 emissions projection for our business. Our projection indicates an absolute Scope 3 reduction of 30% by 2035, which includes the natural depletion of our oil and coal resource base over time.

Governance
During 2019, a revised corporate governance code came into force for UK-listed companies. At its heart is a focus on ensuring alignment between a company's purpose, values, strategy and culture. This has coincided with a considerable debate on both sides of the Atlantic as to whether corporations should focus solely on shareholder returns or whether they should take a broader view of their purpose.

Glencore has long recognised that to maximise shareholder returns, we need a broad licence to operate. We will only achieve this through delivering sustainable benefits for all of our stakeholders, transparency in our payments to national governments and a commitment to operate in a responsible manner.

During the year, we established a new Board committee, the Ethics, Compliance and Culture (ECC) Committee, which I chair, to oversee and report to the Board on key stakeholder engagement matters and the implementation of our ethics and compliance programme. In addition, the ECC Committee assesses and monitors our culture to ensure alignment with Glencore's

> ## 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.

purpose and values. In 2019, the Board designated three Non-Executive Directors to engage with our workforce specifically on this purpose.

I am pleased to welcome Mr Kalidas Madhavpeddi to the Board as an independent non-executive director. Kalidas has over 30 years of experience in the international mining industry, including over 10 years as the chief executive officer of China Molybdenum Company. His experience and insights will be a great benefit to Glencore.

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.

The US DoJ investigation, as well as those launched by the US Commodity Futures Trading Commission and UK Serious Fraud Office, remain a priority for the Board's Investigations Committee, which I chair. We continue to cooperate with the relevant authorities.

Going forward
As we publish this report, the world is plunged into uncertain times due to the impact of the COVID-19 pandemic. The virus has affected

Glencore, with the majority of our office-based employees working from home and, with the closure of national borders and lockdowns announced by governments, the moving of a number of our assets to care and maintenance.

We are conscious of the disruption and uncertainty that this pandemic is having on our workforce, communities, operating regions, customers and suppliers. We will operate only when we can keep our people safe and healthy, while safeguarding jobs and providing support to our local communities.

The Board and I thank all of those working at Glencore for their efforts and commitment to drive the success of our company.

Tony Hayward
Chairman

12 May 2020

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Chief Executive Officer's review

The diversity of our commodity portfolio underpins our ability to respond to changing market conditions and generate value for our various stakeholders.

Business overview
During 2019, global economic growth slowed in response to rising trade tensions, which in turn exacerbated cyclical and structural slowdowns in China and other commodity-consuming nations.

While the prices of our key commodities were largely lower year-on-year, underlying market fundamentals remained reasonably healthy. In particular, the copper, nickel and zinc markets were tightly balanced and Asian thermal coal demand continued to grow.

The diversity of our commodity portfolio underpins our ability to respond to changing market conditions and generate value for our various stakeholders.

Safety
Our safety performance during the year was unacceptable. We are saddened by the loss of seventeen lives at our operations during 2019. The introduction of SafeWork has led to fatality reductions in many parts of our business. However, due to varying levels of implementation by assets, SafeWork is not yet preventing fatalities at all of our assets.

The senior management team and Board are actively involved in the Group's renewed focus on safety and SafeWork. We are determined to turn our performance around and we recognise that we will only establish a strong safety culture through robust and visible leadership. In addition to each head of our commodity departments spearheading safety campaigns and interventions within their assets, I participated in our annual HSEC safety summit and a workshop on the management of our tailings storage facilities.

We remain committed to our ambition to establish a fatality and injury-free workplace.

Supporting the transition to a low-carbon economy
As one of the world's largest diversified resource companies, we have a role to play in enabling the transition to a low-carbon economy. For some of our products, we expect increasing demand to come from the forecasted substantial growth in mobility electrification and battery-backed energy storage systems that support meaningful growth in market share by renewable energy.

Ivan Glasenberg,
Chief Executive Officer

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Over the medium to longer term, we are rebalancing our portfolio towards those commodities that are integral to the transition and that will support the delivery of our climate objectives as part of a Paris consistent strategy. Our capital expenditure in 2019 reflects our investment to grow those assets that support the production of battery and conductive metals required to support the expected changes in energy supply and mobility.

We continue to believe that high-quality coal will be part of the overall energy mix well into the future. Global energy requirements over the coming decades are likely to increase in response to population growth, urbanisation and rising living standards. Our modelling shows the need for affordable and stable baseload power generation will underpin coal demand growth, primarily in Asia.

In February 2020, we announced that our projected reduction in our Scope 3 emissions, those arising from the sale and use of our own products, notably oil and coal, would be around 30% by 2035[1] . We are the first mining company to publish Scope 3 projections.

Management of our tailings storage facilities

Following the catastrophic failure of a tailings storage facility (TSF) in Brumadinho, Minas Gerais, Brazil, a group of around 100 institutional investors wrote to nearly 700 extractive companies, including Glencore, requesting greater disclosure on their management of TSFs and called for the development of an independent, public standard for TSFs based upon consequences of failure.

In response to requests by institutional investors for resources companies to increase transparency on tailings management, we were one of the first companies to launch a microsite that provides detailed information on our TSFs.

The TSF microsite is available on our website at www.glencore.com/sustainability/Tailings. We anticipate that our investors and other financial stakeholders will use the microsite, as well as it providing important information to our local communities.

Human rights

Artisanal and small-scale mining (ASM) represents an important livelihood and income source for many poverty-affected populations around the world. ASM is particularly prevalent near our operations in the Democratic Republic of the Congo (DRC).

In June 2019, a tragic incident at an area outside of our operational control at our Kamoto Copper Company (KCC) operation in the DRC resulted in multiple fatalities and injuries of trespassing ASM miners who were operating illegally at KCC. KCC's emergency rescue team provided personnel and equipment to locate and transport injured people to the company's medical clinic where they received medical treatment and to support the recovery of the bodies that did not survive the collapse. We understand from the local authorities that this incident tragically led to 30 fatalities.

Further details on this incident are available in the copper section on page 65.

During 2019, we published our first human rights report. The report detailed our approach to human rights and our key activities and learnings during 2018. It also provides an overview of the human rights risks that are salient to Glencore, and how we manage those risks.

Going forward

As we release our 2019 Sustainability Report, global commodity markets are responding negatively to the COVID-19 pandemic. We recognise the uncertainty caused by the current environment and endeavour to support our workforce and local communities, as appropriate.

> " In response to requests for resources companies to increase transparency on tailings management, we were one of the first companies to launch a microsite that provides detailed information on our TSFs. "

We are prioritising the health and wellbeing of our people and our local communities. For those offices and industrial assets that are continuing to operate, we have implemented various precautionary measures to protect our workforce.

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

Ivan Glasenberg
Chief Executive Officer

12 May 2020

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1   When assessing the long-term projections for our Scope 3 emissions arising from the use of some of our products, we found an intensity metric is a less useful measure than absolute emissions. On this basis, and to support greater transparency, we report a projection of our absolute Scope 3 emissions.

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Sustainability governance

As a global producer and marketer of commodities, our geographic presence, products and activities make us unique. Integrating our marketing and industrial businesses 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.

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 presence in the countries in which we operate.

Our Board HSEC committee sets the strategic direction for our sustainability activities and oversees the development and implementation of strategic sustainability programmes.

Oversight and ultimate responsibility for our Group sustainability strategy and framework as well as its implementation across the Group rests with our senior management team. This includes our CEO, CFO, Chief Legal Counsel and Head of Industrial Assets, as well as the heads of our

commodity departments. They take a hands-on approach to monitoring and managing sustainability activities around the Group.
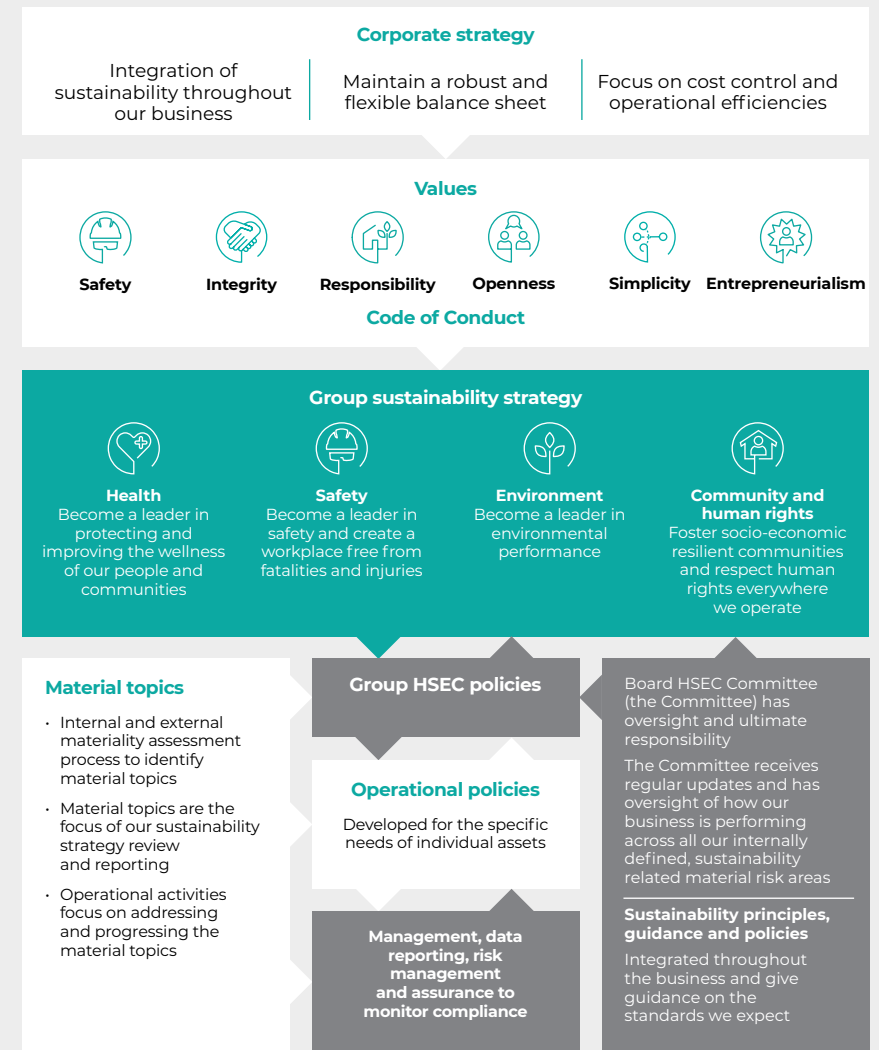
Sustainability at our independently operated joint ventures (JVs)

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 (44% interest) and the Hunter Valley coal operations in Australia (49% interest).

Independent management committees operate these non-controlled JVs. Along with our JV partners, we are active participants in these committees and we use our role to influence them 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.

Sustainability framework

Corporate strategy
- Integration of sustainability throughout our business
- Maintain a robust and flexible balance sheet
- Focus on cost control and operational efficiencies

Values
- Safety
- Integrity
- Responsibility
- Openness
- Simplicity
- Entrepreneurialism

Code of Conduct

Group sustainability strategy

Health — Become a leader in protecting and improving the wellness of our people and communities

Safety — Become a leader in safety and create a workplace free from fatalities and injuries

Environment — Become a leader in environmental performance

Community and human rights — Foster socio-economic resilient communities and respect human rights everywhere we operate

Material topics
- Internal and external materiality assessment process to identify material topics
- Material topics are the focus of our sustainability strategy review and reporting
- Operational activities focus on addressing and progressing the material topics

Group HSEC policies

Operational policies
Developed for the specific needs of individual assets

Management, data reporting, risk management and assurance to monitor compliance

Board HSEC Committee (the Committee) has oversight and ultimate responsibility

The Committee receives regular updates and has oversight of how our business is performing across all our internally defined, sustainability related material risk areas

Sustainability principles, guidance and policies
Integrated throughout the business and give guidance on the standards we expect

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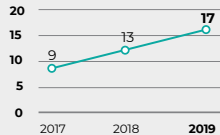
Performance dashboard

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

Fatalities at managed operations

Performance

We are saddened to report that during 2019, seventeen people lost their lives at our operations, compared to thirteen during 2018.

2015-2020 strategic priority:

Zero fatalities

New occupational disease cases

Performance

We recorded an increased number of 106 new cases of occupational diseases (2018: 32) due to improved reporting on, and identification of, occupational diseases, particularly malaria.

2017	46
2018	32
2019	**106**
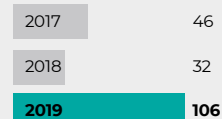
2015-2020 strategic priority:

A year-on-year reduction in the number of new cases of occupational diseases

Lost time injury frequency rate (LTIFR)

Performance

During the year, our LTIFR was slightly lower than in 2018 at 0.99 (2018: 1.06).

(per million hours worked)
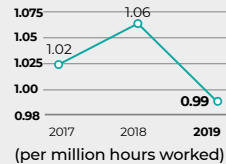
2015-2020 strategic priority:

50% reduction of Group LTIFR by the end of 2020 against a 2015 baseline[1] of 1.34

Total recordable injury frequency rate (TRIFR)
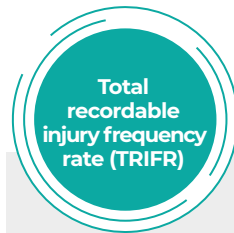
Performance

In 2019, our TRIFR was slightly lower than in 2018 at 2.86 (2018: 3.18).

(per million hours worked)
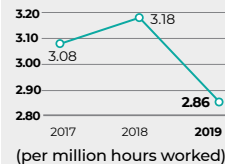
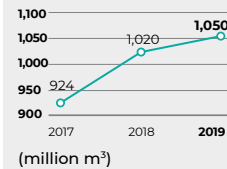**2015-2020 strategic priority:**

50% reduction of Group TRIFR by the end of 2020 against a 2014 baseline[1] of 5.02
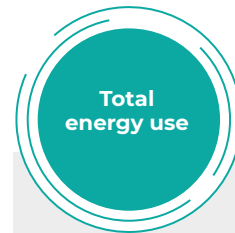
Water withdrawn

Performance

In 2019, we withdrew 1,050 million m^3 of water (2018: 1,020 million m^3). The modest increase is due to improved reporting and significantly increased precipitation at some assets.

(million m^3)

2015-2020 strategic priority:

Industrial sites to implement water management guideline

Total energy use

Performance

During 2019, our total energy use of 210PJ was a slight increase on the 209PJ reported in 2018, primarily due to the acquisition of Astron.

2017	201
2018	209
2019	**210**

(petajoules)

2015-2020 strategic priority:

Ongoing operational efficiency improvements to reduce energy usage

Carbon emissions intensity (tGHG/tCu)
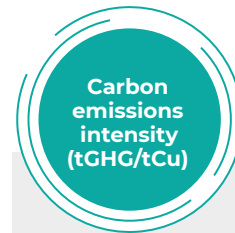
Performance

We are on track to exceed our target to reduce greenhouse gas emission intensity by 5% in 2020 compared to a 2016 baseline. To date, we have reduced our Scope 1 and 2 emissions intensity by 9.7%

-9.7%

2015-2020 strategic priority:

Reduce carbon emission intensity by at least 5% on 2016 levels by 2020

Community investment spend

Performance

During the year, we spent US$90 million on community development programmes (2018: US$95 million).

2017	90
2018	95
2019	**90**

(US$ million)

2015-2020 strategic priority:

Continue to invest in community initiatives to deliver sustainable socio-economic benefits

1   Baseline figures include Glencore Agriculture.

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About this report

Further information about our general approach and position on various sustainability issues is available at glencore.com/sustainability

This sustainability report has been prepared in accordance with the Global Reporting Initiative (GRI) Sustainability Reporting Standards, core option, including the metals and mining sector supplement. Our online ESG Data Book and GRI Index 2019 provides further details: glencore.com/sustainability/reports-and-presentations.

Deloitte LLP has independently assured this report's GRI compliance (see the 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 & 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, ports and other small non-producing sites, 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, health and safety data.

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.

Starting from 2019, we will report GHG emissions from our time-chartered vessels as Scope 3 emissions, as opposed to Scope 1 emissions, as Glencore does not have operational control of these vessels.

The report contains data for the full year 2019. Acquisitions are only included if they were integrated before 1 July 2019. 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 2019.

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 referenced 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 2019, we published the following standalone reports that are connected to our sustainability activities:

- Glencore Modern Slavery Statement 2019
- Payments to Governments Report 2019
- ESG Data Book and GRI Index 2019
- Human Rights Report 2019
- Water Report 2019
- Our Approach to Sustainability

There is a list of Glencore's publicly available policy documents at glencore.com/who-we-are/governance.

There is also a list of our current associations and memberships at glencore.com/sustainability/reports-and-presentations.

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PERFORMANCE IN BRIEF | MATERIAL TOPICS | COMMODITIES REPORT | ADDITIONAL INFORMATION

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

Material topics

Our reporting on our sustainability performance and progress focuses on the topics we identify as material to Glencore's performance and progress, as well as to our future prospects.

Every two years, we undertake a materiality assessment to establish these focus areas. Its findings guide our health, safety, environment and community and human rights (HSEC) strategic review and our reporting disclosures.

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

At each of its meetings, the Board HSEC Committee receives an update on our progress on the management of the identified material topics.

Our material topics for 2019 and 2020 are:

Catastrophic hazard management
Catastrophic events 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. We are actively identifying, monitoring and mitigating the catastrophic hazards within our business.

Workplace safety and health
We prioritise the safety and health of our employees and contractors and recognise that the success of our business is dependent on a safe and healthy workforce and this is our top priority. We take a preventative approach towards health and safety to establish a proactive safety culture.

Climate change and energy
As one of the world's largest diversified resource companies, we have a role to play in enabling the transition to a low-carbon economy. We seek to lower the carbon footprint of our own operations, and to support national programmes to achieve the goals of the Paris Agreement.

Water
Water is a shared and finite resource. We are conscious of the increasing concerns of our local stakeholders and other local water users regarding the availability and quality of water, security of access and the potential for impacts on water supply. We aim to minimise any potential water-related impacts.

Land stewardship
Our assets around the world have direct and indirect impacts on the land. We work to minimise our potential impact, complying with or exceeding relevant regulations. We look for ways to improve our land stewardship, reduce our impact on landscapes and enable sustainable land use following the closure of our operations.

Responsible sourcing
Our business purchases commodities, goods and services from around the world. We are committed to integrating ethical, social and environmental considerations, including human rights, into our purchasing decisions.

Human rights
We recognise the potential to impact on human rights directly through our operations, or through our relationships with joint ventures, contractors and suppliers. We are committed to respecting human rights and actively support our employees, business partners and others to understand and meet this commitment.

Responsible citizenship
Our goal is to be a valued and trusted member of society by managing our negative impacts, listening to the views of others and incorporating them into our decision-making and making a meaningful contribution to employment, taxes and royalties, local businesses, environmental stewardship and socio-economic development.

Our people
Attracting and retaining entrepreneurial, focused and dedicated people is fundamental to our future success. We thrive by having a workforce from different backgrounds, cultures and beliefs. This diversity brings the new ideas, innovation and different ways of working that are a core part of who we are at Glencore.

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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.

Our workforce and labour unions

Through developing and building a cohesive workplace culture that encourages all of our people to focus on the same goals, we can deliver our strategic priorities. We have a group-wide internal communications programme for our SafeWork initiative. We make available to all of our employees and contractors access to our Raising Concerns platform as a means to express any grievances. We uphold our workers' rights to freedom of association, to unionise and to collective representation, regardless of their location or duties. At many of our assets, unions play an active role in safety committees. We take an honest and open approach to working with labour unions and undertake negotiations in good faith.

Key concerns in 2019
- Fatalities
- Occupational health and safety
- Company culture and reputation
- Compensation and career opportunities
- Negotiations of workplace agreements
- Industrial relations and potential site closures

Governments

We develop and maintain 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. Engagement activities may include individually, collectively with other companies or organisations, or as part of an industry association. When dealing 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 2019
- Tax and royalty payments
- Climate change
- Operational environmental management
- Community socio-economic development projects
- Occupational health and safety
- Security and engagement with civil society

Communities

Our asset-based community engagement teams build relationships within local communities and decision-making authorities. They meet and engage with the communities living around our operations to share information about our activities that may affect them, key risks and control measures, and to help us understand their views and address any concerns raised. We adapt our approach to reflect the operational and cultural environment and it can include open-house sessions, formal engagements, face-to-face discussions and local grievance mechanisms.

Key concerns in 2019
- Local employment and procurement opportunities
- Local socio-economic development projects
- Environmental management
- Potential site closure
- Operational impacts
- Tailings storage facilities
- Security and engagement with civil society

NGOs and civil society

We engage with NGOs, think tanks and business associations that share our interests and concerns. Topics of discussion include broad policy issues with a global or national reach, as well as 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 to their concerns to increase understanding.

Key concerns in 2019
- Human rights
- Tailings storage facilities
- Social incidents
- Public health
- Operational and environmental management
- Socio-economic development projects
- Transparency in payments to government
- Industrial relations
- Security and engagement with civil society
- Legal compliance

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Stakeholder engagement

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 2019
- Financial performance
- Operational performance
- Integration of sustainability
- Transparency in payments to government
- Bribery and corruption
- Climate change
- Tailings storage management
- Human rights
- Industrial relations

Business partners and customers

We maintain good relationships with our suppliers, partners and customers, engaging regularly with them to understand their views, expectations and perspectives. We undertake risk-based 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 industry initiatives, 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 2019
- Procurement spend
- Responsible sourcing and supply
- Bribery and corruption
- Human rights
- Legal compliance

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 2019
- Occupational health and safety
- Public health
- Climate change
- Tailings storage management
- Transparency in payments to government
- Land management, site closure and water
- Security and engagement with civil society

Participation in external initiatives

We participate in a wide range of external initiatives, including global, national and regional organisations. Our participation supports our commitment to ongoing improvement in our approach and performance.

Our activities in these organisations varies, ranging 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.

We recognise that robust, respectful and two-way relationships with our stakeholders are essential for our assets to continue to operate. Through building constructive and transparent relationships with our stakeholders, we can strengthen our approach locally and globally and improve our operating processes and performance.

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

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Catastrophic hazard management

Catastrophic events 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.

Performance

Zero major or catastrophic environmental incidents.

0

2018: 0
2017: 0

Sustainable development goals

3 GOOD HEALTH AND WELL-BEING

15 LIFE ON LAND

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

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Our strategy

Our approach
Recognising the exceptional nature of catastrophic events, our approach is to prevent them through critical control management supported by 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 the International Council on Mining & Metals' guidance.

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

Highlights

- Rolled out updated protocols for tailings storage facilities (TSF) management, ground/strata failure (as well as slope stability monitoring decision-making tools), energy isolation, working at height and electrical safety

- Launched a publicly available TSF microsite

- Held geotechnical and TSF workshops

Performance
We describe catastrophic events as those that have the potential to have severe consequences that could cause loss of life, significant environmental, social/community consequences or major reputational or financial damage for Glencore.

During 2019, we achieved our strategic priority of zero major or catastrophic environmental incidents (see 'incident classification' in the glossary for classification details).

Risk management
We are committed to eliminating catastrophic incidents at our assets.

Our approach supports a consistent application of standards across the business for the identification and management of catastrophic hazards. We require all departments to conduct regular verification of the implementation of critical controls, which is reviewed through quarterly reporting.

The corporate team monitors through to closure the outstanding actions relating to controlling catastrophic hazards identified by the HSEC audit team during site visits. The HSEC audit team also return to sites around 8-12 months later to verify that corrective actions are adequately addressed and closed.

Our Board HSEC Committee reviews the status and results of these reports.

Catastrophic hazard protocols
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 continue to enhance these protocols on a risk-based priority.

During 2019, we updated and rolled out our Ground/Strata Failure Protocol and slope stability monitoring decision-making tools. The Protocol contains additional details on governance and technical requirements, and references detailed guidelines.

Geotechnical strata control
In February 2019, around 60 of our geotechnical specialists from around the world participated in an underground geotechnical workshop, to complement a surface mine geo-technical workshop held in 2018. A key outcome from the workshop was an updated version of our Strata Control Protocol that further strengthens our approach to the management of ground conditions and underground safety.

Assuring our tailings storage facilities

During our catastrophic hazard assurance process, we identified 17 tailings storage facilities (TSFs) with potential stability issues during extreme weather or seismic events. These events are not necessarily characteristic of the TSFs' locations and as this testing is highly hypothetical, extreme events are not an immediate risk for all of the identified TSFs.

We are actively progressing our work programme to upgrade these facilities to meet Canadian Dam Association guidelines and leading practices.

During 2019, we neared completion of engineering works to strengthen two Kazzinc TSFs in Kazakhstan and we are finalising extreme flood mitigation works at our Volcan zinc operations in Peru. In South Africa, Glencore Alloys have commenced strengthening works at Kroondal, which will complete during 2020. Engineering works are also underway at Glencore Alloys' Rhovan Vanadium. In Zambia, work is ongoing at the Mopani copper mine, which will improve the dam's stability during potential extreme earthquake events.

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Group Tailings Storage Facility (TSF) management

Our assets generate tailings (residues of mineral processing) that are stored in purpose-built tailings storage facilities (TSFs). We are committed to aligning the design, operation and closure of our TSFs with international best practices. We continually review and strengthen our TSF management system through our catastrophic hazard evaluation programme.

As part of our ongoing approach to manage our TSFs safely from design through to closure, we strengthened our Group-wide TSF Management Protocol in 2019.

In September 2019, we convened a global TSF workshop, during which 70 of our senior management and technical professionals engaged with external experts to progress our efforts on TSF management. Our Chief Executive Officer, Ivan Glasenberg, and Head of Industrial Operations, Peter Freyberg, joined the participants to reinforce the importance of this area of work.

The TSF Management Protocol was discussed during the workshop and the updated document approved by the Board HSEC Committee. The revised Protocol reflects learnings from across the business and consultations with internal and external experts. It aligns with the recommendations of the ICMM and requires all our TSFs to meet the Canadian Dam Association's Dam Safety Guidelines, which is currently considered one of the leading international guidelines for tailings dam design, operations and management.

Transparent TSF reporting

Following the catastrophic TSF failure in Brumadinho, Minas Gerais, Brazil, a group of around 100 institutional investors established the Tailings Safety Roundtable, in which we were an active participant from the outset. In response to the Roundtable's concerns about transparency on TSFs, we were one of the first companies to launch a microsite that provides detailed information on our TSFs.

The TSF microsite can be accessed at www.glencore.com/sustainability/Tailings. It includes an overview of our approach towards managing TSFs and provides details on a total number of 215 individual tailings dam walls representing approximately 126 TSFs.

We anticipate that the microsite will be used by our investors and other financial stakeholders, as well as providing important information to our local communities.

External engagement

In 2019, the International Council on Mining & Metals (ICMM), the United Nations Environment Programme (UNEP) and the Principles for Responsible Investment (PRI) co-convened an independent global tailings review (GTR) to establish an international standard for the safe management of TSFs.

Through our membership of the International ICMM, we are actively participating in the development of the new standard.

Following an extensive multi-stakeholder consultation process, we expect the global tailings review to finalise the standard in 2020.

Next steps

- Complete the work programme to upgrade those TSFs identified with potential stability issues during extreme weather or seismic events

For further information, visit www.glencore.com/sustainability

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Workplace health and safety

In line with our company values, our first priority in the workplace is to protect the health and wellbeing of all of our people. Our goal is continuous improvement in the prevention of occupational disease and injuries. While we have group-wide safety and health standards, our diversity, in terms of geographical locations, production processes, workforces and cultures means that behavioural safety activities must be tailored to be appropriate and relevant to the local context.

Performance

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

0.99 ↓

2018: 1.06
2017: 1.02

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

2.86 ↓

2018: 3.18
2017: 3.08

High potential risk incidents (HPRIs)

576 ↑

2018: 432
2017: 368

New occupational disease cases

106 ↑

2018: 32
2017: 46

Sustainable development goals

3 GOOD HEALTH AND WELL-BEING

8 DECENT WORK AND ECONOMIC GROWTH

Further information on our management of safety and health is available in Our Approach to Sustainability.

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Our strategy

Our approach

The health and safety of our people is our top priority and we believe 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.

Highlights

- CEO-led internal safety leadership communication campaign

- Fatality reduction interventions at Mopani and Kazzinc

- A deep dive review of SafeWork at our challenging assets group-wide

Performance

Our safety performance for both our employees and contractors over the past two years has been intolerable. We are saddened to report that during 2019, seventeen people lost their lives at our operations, compared to thirteen during 2018. All loss of life is unacceptable and we are determined to eliminate fatalities across our business.

During the year, both our lost time injury frequency rate[1,2] (LTIFR) and total recordable injury frequency rate[3] (TRIFR) were slightly lower than the previous year at 0.99 (2018: 1.06) and 2.86 (2018: 3.18) respectively.

In 2019, our high potential risk incidents (HPRIs) rose to 576 (2018: 432). The reporting of HPRIs represents a positive part of our strategy to reduce fatalities and, as such, we do not target a reduction in this metric. They support the identification of activities that we need to prioritise in order to advance further our learning and safety performance.

We recorded an increased number of new cases of occupational disease, 106 cases (2018: 32), due to improved reporting on and identification of occupational diseases, particularly malaria.

Risk management
Addressing our safety performance

We are taking a number of immediate actions to address our safety performance. These include major fatality reduction interventions at Mopani Copper Mines in Zambia and Kazzinc in Kazakhstan, which are not meeting our safety expectations and standards. The interventions establish a safety performance baseline to identify opportunities to improve processes and behaviour.

At our ten assets with the poorest safety performance, we are undertaking a corporate-led deep dive assessment on the implementation of our group-wide initiative SafeWork.

Reflecting Kazzinc and Mopani's poor safety performance, our zinc and copper departments presented safety cases to the Board's HSEC Committee. A safety case is a clear description, supported by evidence, of the safety management system that is in place to identify and understand hazards and risks and effective and consistent application of controls.

In addition to immediate actions and building on our existing comprehensive SafeWork programme, we are developing a group-wide fatality reduction programme to deliver a step-change in safety performance.

The programme comprises the following elements:

1. Accelerating SafeWork's implementation
2. Improving the quality of investigations and the process for sharing learnings across the Group
3. Presenting safety cases to the Board HSEC Committee by poor-performing commodity departments. If required, the corporate HSEC team will lead interventions
4. Improving reporting to the Board HSEC Committee on fatal and catastrophic risk assurance

Addressing poor performance

The operations of Kazzinc, a major, fully-integrated zinc producer, are located in the eastern region of Kazakhstan and consist of six mines and four smelters producing zinc, lead, copper, gold and silver. Kazzinc employs approximately 20,000 employees.

Tragically, during 2016 to 2019, nine people lost their lives at Kazzinc's operations, including three people during 2019.

At the end of 2019, the corporate HSEC team initiated a new approach to address our safety performance – a multi-disciplinary, cross-commodity fatality intervention at Kazzinc. The intervention team visited every location in every operation while accompanied by site general managers, with the objective of reviewing operating processes and, if necessary, closing activities with unsafe conditions and/or act.

The fatality intervention has already resulted in safer plant, equipment and behaviours and has created a shared understanding of how to deliver safe and stable operations and a clear action plan to take forward.

Further details on our approach at Kazzinc are available on page 88.

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1   Lost time injuries (LTIs) 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.
2   The lost time injury frequency rate (LTIFR) is the total number of LTIs recorded per million working hours.
3   The total recordable injury frequency rate (TRIFR) is the sum of fatalities, lost time injuries (LTIs), restricted work injuries (RWIs) and medical treatment injuries (MTIs) per million hours worked. The metric represents all injuries that require medical treatment beyond first aid.

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A disproportionate number of our fatalities and HPRIs related to electrocution. Recognising this trend, we required all commodity departments to review their operational electrical standards and equipment and undertake training on the 'stop and correct' approach. We also included a review of electrical standards within SafeWork's assurance site inspections, as well as updating our Electrical Safety and Energy Isolation Protocol.

We will continue to drive the changes necessary for the progressive improvement required to achieve our long-term goal of a fatality and injury-free workplace.

Reviewing SafeWork
The introduction of SafeWork has led to fatality reductions in many parts of the business. However, due to varying levels of implementation at asset level, SafeWork is not yet preventing fatalities at all of our assets.

We have a number of assets that are still not achieving the standards we expect. At these assets, we are reviewing the core aspects of their implementation of the SafeWork programme.

A group-wide review of SafeWork identified gaps and improvement opportunities in three core areas:

• SafeWork leadership: corporate team-led reviews, through one-on-one interviews and site visits, of each site's safety performance, individual accountabilities and leadership effectiveness

• Compliance to Fatal Hazard Protocols (FHPs): assessing performance against our FHPs for mobile equipment, electrical and energy isolation, and working at heights and looking at the FHP owners' knowledge and understanding of its requirements

• Assurance and verification: reviewing the quality of internal and third-party assessments, the effectiveness of addressing findings and the progress of completing close-out actions

Following the review, each site is required to develop management and technical action plans that addresses the review's findings. The corporate team are monitoring the progress of the action plans for those sites audited.

Occupational health
Our health working group continues to identify ways in which to strengthen the implementation of our occupational health expectations and standards across our diverse portfolio. This includes improving the sharing of knowledge between our commodity businesses.

In addition, the working group tracks and responds to increased regulatory pressures to reduce exposure levels and greater stakeholder expectations on consistent management of employee health and well-being across operating jurisdictions.

During the year, each commodity department was required to demonstrate its progress against the Group's health strategy, its assurance processes and performance. The strategy requires the completion of a health risk assessment and the development, where absent, of health management plans.

Utilising technology
We have established a Mining Technology Steering Team (MTST). The MTST is an internal, cross-departmental, technology working group to investigate how technology can reduce the health and safety risks faced in our operations. We are focusing on technologies related to mobile equipment and ground/strata failure and are developing guidelines for using collision avoidance technology.

Glencore's vehicle interactions technical working group has established a database of approved vendors with a track record of implementing proximity detection systems. It has also launched a knowledge hub to support group-wide information exchange and discussions. The work has considered the technological challenges of stopping a vehicle autonomously in response to the breaching of its proximity detection threshold.

The working group contributed to the review of our Mobile Equipment Fatal Hazard Protocol.

External engagement
During the year, we continued to participate with industry peers in the ICMM's safety and health working groups. The focus of these groups during 2019 was critical control management in the prevention of fatalities and contractor management. In December, we also took part in ICMM's workshop in Australia on diesel particulate matter management and the application of critical controls to workplace health exposures by control at the source.

We are continuing to take a leading role in the ICMM's Initiative for Safer Cleaner Vehicles (ISCV) at governance and technical levels. The programme aims to promote collision avoidance technology, capable of eliminating fatalities from vehicle interactions, so that it is available to mining companies by 2025. In 2019, the ISCV defined the programme's core initiatives with its industry members. During 2020, the ISCV will focus on education and information distribution initiatives to broaden its reach across the wider industry.

We are active in ICMM's diesel particulate matter (DPM) working group, which has an objective of promoting operational and technological innovations to minimise the impacts to underground mining operations from emissions of DPM by 2025.

In 2020, ICMM will launch knowledge hubs on ISCV and DPM to enable open access to technical material and topic specific guidance.

We are participating in Eurometaux's Human Health Taskforce, which focuses on occupational exposure and regulatory developments.

We believe all Glencore operations can be fatality-free. Confronting and overcoming location, complexity and maturity challenges is core to Glencore's strategy. Maintaining fatality-free operations is a non-negotiable expectation of all our leaders and we are not satisfied with the current level of performance.

Next steps

• Develop and roll-out a group-wide fatality reduction programme to deliver a step-change in safety performance

• Monitor progress against action plans following site-level reviews of SafeWork

For further information, visit www.glencore.com/sustainability

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Climate change and energy

As one of the world's largest diversified resource companies, we have a role to play in enabling the transition to a low-carbon economy. We do this through our well-positioned portfolio that includes the commodities that underpin energy and mobility transformation, as well as through supporting emission-reducing technology such as CCUS.

We seek to decarbonise our own operational footprint and support national programmes that strive to achieve the goals of the Paris Agreement. In early 2020, we provided an update on our climate change programme, which included a projected decrease of our Scope 3 emissions – emissions arising from the use of our products – by 30% by 2035.

Performance

CO_2e Scope 1 emissions (million tonnes)

18.3 ↓
2018: 18.8
2017: 21.8

CO_2 Scope 2 location based emissions (million tonnes)

10.9 ↓
2018: 11.8
2017: 11.5

Total energy use (petajoules)

210 ↑
2018: 209
2017: 201

CO_2e Scope 3 emissions (million tonnes)

343 ↑
2018: 313
2017: 290

Carbon Scope 1 and Scope 2 location based intensity (GHG/tCu)

3.93 ↓
2018: 4.13
2017: 4.40

Sustainable development goals

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

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Our strategy

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 Articles 2.1(a)[1] and 4.1[2] of the Paris Agreement (the Paris Goals); and supporting the United Nations Sustainable Development Goals, which include universal access to affordable and clean 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 low-carbon economy. We are also taking steps to decarbonise our own operational footprint.

Our ambition

To provide commodities that are essential to the transition to a low-carbon economy in a manner consistent with the goals of the Paris Agreement. 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 fully integrate the management of climate change-related risks and opportunities into all systems across our business.

Performance

In line with the Greenhouse Gas Protocol, we divide our operational emissions into Scope 1 and Scope 2 (location-based) emissions, measuring both the direct and indirect emissions generated by the industrial activities, entities and facilities where we have operational control.

Scope 1 (measured in CO_2e) includes emissions from combustion in owned or controlled boilers, furnaces and vehicles/vessels and coal seam emissions (direct emissions). Scope 2 location-based emissions (measured in CO_2) applies the grid emission factor to all our purchased electricity, regardless of specific renewable electricity contracts (indirect emissions).

During 2019, we emitted 18.3 million tonnes CO_2e of Scope 1 (direct emissions) from our consumed fuel (2018: 18.8 million tonnes). This figure includes emissions from reductants used in our metallurgical smelters. It also includes CO_2e of methane emissions from our coal and oil operations, which is around 22% of our Scope 1 emissions. The reduction in Scope 1 emissions was mainly due to the closure of an underground coal operation in Australia and the divestment of a coal operation.

In 2019, we emitted 10.9 million tonnes CO_2 of Scope 2 location-based (indirect emissions) (2018: 11.8 million tonnes). The reduction of our Scope 2 emissions mainly reflects reduced ferroalloys smelter operations in South Africa.

In addition to Scope 1 and 2 GHG emissions, our activities include Scope 3 emissions. These relate to the indirect GHG emissions across our value chain. These include upstream emissions associated with the products and services we purchase from suppliers and downstream emissions that include emissions resulting from our customers' use of the fossil fuels that we produce, their processing of our metals and concentrates, and the emissions resulting from time-chartered vessels.

Our total Scope 3 emissions were 343 million tonnes CO_2e, an increase on the 313 million tonnes CO_2e in 2018. The increase was primarily based on the contribution of our recently acquired Australian coal operations. The most significant contributor to our Scope 3 emissions was our customers' usage of the fossil fuels we produced; this totalled 326 million tonnes CO_2e (2018: 296 million tonnes CO_2e). Emissions resulting from customers' use of the oil products refined at our oil refinery are excluded from our Scope 3 emissions total.

We have refined the reporting of our oil department's shipping activities, which previously partially included energy consumption and associated GHG emissions for all of their vessels as Scope 1 emissions. For 2019 data onwards, their reporting will consistently exclude vessels not owned by the oil department, ie time-chartered vessels. We will now report emissions from these vessels as Scope 3, as they stem from activities outside of our operational control.

In our 2019 ESG Data Book, we provide a full disclosure on all of the Scope 3 categories that are relevant and material to our activities.

Our 2019 Carbon Scope 1 and Scope 2 location-based intensity, measured in terms of tonnes of greenhouse gases emitted per tonne of copper equivalent industrial production (tGHG/tCu), is 3.93tGHG/tCu (2018: 4.13tGHG/tCu; 2017: 4.40tGHG/tCu; 2016: 4.35tGHG/tCu).

We are on track to exceed our target to reduce our greenhouse gas emission intensity by 5% in 2020 compared to the 2016 baseline. To date, we have reduced our Scope 1 and 2 emissions intensity by 9.7% compared to a 2016 baseline, achieved by a range of measures including abatement and production changes at our operations, as well as lower coal seam emissions due to the closure of a coal underground operation in Australia.

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.

During 2019, our total energy use of 210PJ was a slight increase on the 209PJ reported in 2018, primarily due to the acquisition of Astron Energy operations in South Africa and Botswana. The increase was slightly offset by the reclassification to Scope 3 of emissions from non-operated vessels, as well as the divestment of a number of vessels during the year.

Renewable energy sources deliver 12.5% of our total energy needs (2018: 11.7%). The primary contributors are the Bukhtarma hydro power plant in Kazakhstan, which we operate, and the low-carbon, hydropower electricity suppliers to our operations in eastern Canada and the DRC.

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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, recognizing 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, recognizing 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."

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Highlights

- Published a review of our industry organisations' positions on climate change
- Aligned our material capital expenditure with the Paris Goals
- Reduced our operational carbon emissions by 9.7%, intensity-based, compared to 2016
- Reduced our operational carbon emissions by 4.8%, absolute-based, compared to 2018

Risk management

We recognise that the effective and strategic management of climate change-related risks across all aspects of our business is vital to ensure our growth and to provide greater certainty to all stakeholders. We integrate risk management throughout our business through a structured risk management process that establishes a common methodology for identifying, assessing, treating and monitoring risks.

We recognise the importance of disclosing to investors how we are ensuring that our material capital expenditure and investments align with the Paris Goals. This includes each material investment in the exploration, acquisition or development of fossil fuel (including thermal and coking coal) production, resources and reserves, as well as in resources, reserves and technologies associated with the transition to a low-carbon economy.

Going forward, we will be taking further steps to roll-out site-specific climate change risk assessments.

Developing a longer-term emission reduction target

As our 2020 target ends, we have committed to establish a new, longer-term Scope 1 and 2 target that support the goals of the Paris Agreement. We will publish this target during 2020.

To develop this target, we developed a group-wide model Marginal Abatement Cost Curve (MACC) to capture existing and possible GHG reduction opportunities across our portfolio. Through a bottom-up approach, we are validating the MACC model through a quantified list of options to support decision making that will drive longer-term reductions.

We are also identifying opportunities to deliver substantial emissions reductions from sourcing more power from low-carbon sources and delivering operational improvements that enhance efficiency.

We are seeking to capture the majority of our current emissions profile in our modelling of reduction opportunities. This will be a key input into our target setting.

Supporting lower-carbon solutions

Our assets undertake a range of measures to reduce and mitigate their emissions profiles.

For example, in Australia, our McArthur River Mine is revegetating disturbed land. This enhances the carbon stored in the soil and vegetation, which continuously increases as the vegetation grows. This will potentially save 70,000 tonnes CO_2e each year.

Glencore's wholly-owned subsidiary, the Carbon Transport and Storage Company Pty Ltd (CTSCo), is continuing to progress its carbon capture and storage (CCUS) project in Queensland's Surat Basin. During 2019, CTSCo completed a front-end engineering and design study for the CO_2 capture plant with a final investment decision on major infrastructure scheduled for 2020. Further details are available on page 55.

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In April 2018, Prodeco signed Colombia's first direct multi-year purchase of carbon certificates from REDD+ projects of 20 ethno-territorial communities of the Pacific region of Colombia. Prodeco entered the carbon credits transaction market to contribute towards national GHG mitigation objectives and to compensate for its emissions from its mining and port operations. In 2018-2019 Prodeco purchased 106,132 credits, neutralising that same amount of CO_2e tonnes from its fuel consumption (Scope 1) emissions.

In 2019, our Raglan Mine in northern Canada began to integrate its second wind turbine, constructed in 2018, into its power network. A major element has been the addition of batteries to the second wind turbine. Through storing the wind-generated power, the batteries are addressing any capacity loss from the two wind turbines without affecting Raglan Mine's power network. Further details are available on page 77.

Glencore Alloys' Wonderkop and Lion smelters in South Africa are utilising variable speed drive fans in their bag houses to displace the same volume of gas as when the ducts are fully open. This is saving around 70,000 tonnes per annum of emissions.

External engagement

During the year, we have engaged with a range of 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.

We were an early supporter of the voluntary guidance on consistent climate-related financial disclosures produced by the Taskforce on Climate-related Financial Disclosures (TCFD). Our reporting on climate change in our annual report included a section addressing the TCFD guidelines. We expect to further our alignment over the coming years.

We are participating in ICMM's climate change working group, which identifies opportunities to reduce GHG emissions across its membership. The programme considers how to promote operational and technological innovation to reduce net GHG emissions from mobile mining equipment to increase energy efficiency and introducing GHG-free surface mining vehicles by 2040. In March 2020, ICMM will launch a knowledge hub to enable open access to technical material and specific guidance on this topic.

Further information

We publish further information on our progress in climate change matters in our annual report (a standalone, climate change chapter, as well as content integrated into the business strategy). Our *2017 Climate Change Considerations for our Business* details our portfolio's resilience against three climate change scenarios. We will update its findings in 2021 following the release of governments' revised Nationally Determined Contributions.

Next steps

- Develop and publish longer-term Scope 1 and 2 carbon reduction target
- Update and publish our portfolio resilience analysis
- Identify and implement opportunities to reduce our operational carbon emissions
- Progress our climate change risk assessment

For further information, visit www.glencore.com/sustainability

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Our performance against our 2019 position statement

In February 2019, Glencore published its climate change position statement (our position statement) *Furthering our commitment to the transition to a low-carbon economy*, which is available on our website.

Our position statement recognises that to deliver a compelling investment case to our financial stakeholders, we should prioritise our capital investment in assets that, most likely, will be resilient to regulatory, physical and operational risks related to climate change. In addition, we aim to prioritise our capital investment to grow production of commodities essential to the energy and mobility transition and maintain a cap on our coal production.

1. Paris-consistent strategy/capital discipline
Extract from position statement

As we rebalance our portfolio towards commodities supporting the transition to a low-carbon economy, we expect the intensity of our Scope 3 emissions to decrease. Starting in 2020, we will start disclosing our longer-term projections for the intensity reduction of Scope 3 emissions, including mitigation efforts.

We recognise the importance of disclosing to investors how we ensure our material capital expenditure and investments align with the Paris Goals. This includes each material investment in the exploration, acquisition or development of fossil fuel (including thermal and coking coal) production, resources and reserves, as well as in resources, reserves and technologies associated with the transition to a low-carbon economy.

Starting in 2020, we intend to report publicly on the extent to which, in the Board's opinion, this was achieved in the prior year and the methodology and core assumptions for this assessment.

These disclosures will be made in our annual reports.

Performance during 2019

Our portfolio is well-positioned to support the transition to a low-carbon economy, while also meeting the need for universal access to reliable energy. Our business will continue to evolve over time as we look to deliver on our climate objectives as part of a Paris consistent strategy. At present, our projection indicates a reduction of our Scope 3 emissions – those arising from the sale and use of our own products, notably oil and coal – of approximately 30% by 2035[3].

We expect the depletion of our coal resource base in Colombia, and to a lesser extent South Africa and Australia, to contribute to this reduction. Our Australian operations are expected to maintain a longer and flatter production profile and will continue to produce high quality coal, which will be required to meet expected levels of global steel production and energy demand in Asia.

Our capital expenditure reflects significant current investment towards growth in production of battery and conductive metals required for the transition to a low-carbon economy. During 2019, our capital expenditure was predominantly spent on our key metals' growth projects, including the development of Katanga (copper/cobalt) in the DRC, Mopani (copper) in Zambia, the Zhairem project (zinc) in Kazakhstan and new nickel mines in Canada, one of which will be one of the first fully electric mines in the world. When complete, Katanga is expected to produce approximately 30,000 tonnes of cobalt per annum, helping supply a market that is expected to grow substantially to more than 200,000 tonnes per annum by 2025.

Global energy demand has grown at 1.4%[4] per annum from 2010 to 2018 and scenarios reflecting stated policy objectives indicate energy demand shall continue to grow through 2035. We believe that coal, as a reliable and cost competitive form of energy, will continue to have a role in meeting future energy demand, particularly in developing countries, with carbon, capture, utilisation and storage (CCUS) adoption playing an increasingly important role in achieving emissions abatement[5]. In 2019, our capital expenditure on coal-related projects was mainly for maintaining existing assets, including the required accounting for capitalisation of mine development costs (both surface and underground operations), where benefits are expected to be realised beyond 12 months.

When identifying, assessing and ranking coal projects for development, we consider a range of indicators including the financial payback period, based on a range of future coal price assumptions. We prioritise shorter payback investment periods.

During the year, the New South Wales state government approved brownfield extensions for Mt Owen and the United Wambo joint venture project.

The Mt Owen and United Wambo approvals will provide continued employment for more than 750 people, additional employment for 370 people, create additional important State and Federal tax and royalty sources, and increase the Gross Regional Product in the respective regions by an estimated A$2.4 billion and Gross State Product by an estimated A$3.3 billion, through supporting local businesses and employment opportunities.

We remain committed to our coal production cap of approximately 150 million tonnes.

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3   When assessing the long-term projections for our Scope 3 emissions arising from the use of some of our products, we found an intensity metric is a less useful measure than absolute emissions. On this basis, and to support greater transparency, we report a projection of our absolute Scope 3 emissions.
4   IEA WEO 2019
5   See IPCC SR1.5 sect 2.4. More information on our CCUS project is available at http://ctsco.com.au/

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2. Scope 1 and 2 targets
Extract from position statement

In 2017, we announced our first target of reducing our greenhouse gas emissions intensity by 5% by 2020 compared to a 2016 baseline. We are currently on track to meet this target.

Glencore recognises 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, and intend to make these public in our annual report in 2020. We will report annually on our progress.

Performance during 2019

We are on track to exceed our target. To date, we have reduced our Scope 1 and 2 emissions intensity by 9.7% compared to the 2016 baseline, achieved by a range of measures including abatement, use of renewable energy sources and production changes at our operations.

As our 2020 target ends, we have committed to establish a new, longer-term target that supports the Paris Goals. During 2019, we furthered our work on developing this target by identifying and quantifying our operations' carbon reduction opportunities through marginal abatement cost curves (MACCs).

Through this work, we are identifying opportunities to deliver substantial emissions reductions by sourcing more power from low-carbon sources and delivering operational improvements that enhance efficiency.

We will communicate our longer-term target in 2020.

3. Review of progress
Extract from position statement

We are committed to transparency and report annually on our progress in meeting our climate change objectives. We include this disclosure in our annual report and provide further details in our annual sustainability reports. In addition, we publish data on our performance on our website, including disclosure of our Scope 3 emissions.

We will give consideration to how our climate change objectives can be reflected in the design of the relevant schemes for executive management.

Every three years, we review changes to the Nationally Determined Contributions (NDCs) in line with the Paris Goals mechanism, and other relevant policy, economic and technology developments to assess societal progress in energy transition and to update our scenario-based portfolio assessment.

Performance during 2019

Details of our approach to climate change are included on our website, and in our annual and sustainability reports. We disclose our performance annually, including data on our Scope 1, 2 and 3 emissions. We were pleased to receive the ranking of 4, the highest level, by the Transition Pathway Initiative for our approach to the management and disclosure of climate-related risks.

We continuously monitor the policy landscapes and steps countries are taking to support achievement of the goals of the Paris Agreement. We are expecting the publication of revised Nationally Determined Contributions (NDCs) during the course of 2020, and will use these to update our own scenarios.

4. Alignment with the Taskforce on Climate-related Financial Disclosures (TCFD) recommendations
Extract from position statement

We were an early supporter of the voluntary guidance on consistent climate-related financial disclosures produced by the TCFD. We are pleased to support the TCFD guidance and have started to implement its recommendations in our annual reporting.

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

Performance during 2019

We continue to implement the recommendations of the TCFD in our annual reporting. Details of our Scope 1, 2 and 3 emissions are available on page 23.

We monitor risks and opportunities related to climate change and, going forward, will be taking further steps to roll-out site-specific risk assessments. We also continue to incorporate climate change into operational planning: for instance, our new Tailings Storage Facilities (TSF) Management Protocol, adopted in 2019, requires operations to assess the impact of climate change on the design, operation, maintenance and closure of TSFs.

Further details on the risks we have identified in relation to climate change are included in the Principal Risks and Uncertainties section of our Annual Report 2019.

In 2017, we developed our scenarios regarding global responses to climate change; these took into account energy market projections developed by organisations such as the IEA and World Energy Council (WEC), leading climate science projections from the IPCC and likely shifts in policy and other conditions corresponding to scientific technology and economic changes.

We believe that national policies play a critical role in shaping the response to climate change. National commitments and climate pledges are required to be updated in 2020 and we will use these to update our scenarios for achieving the goals of the Paris Agreement and test the resilience of our business.

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5. Corporate climate change lobbying
Extract from position statement

We believe that it is appropriate that 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 that our membership in relevant trade associations does not undermine our support for the Paris Goals.

Performance during 2019

During 2019, we undertook our first review of our membership in relevant trade associations to ensure their activities and statements align with those of Glencore and do not undermine our support for the Paris Goals.

We reported on our approach to the review, and its findings, in our report Review of our industry organisations' positions on climate change. We will review annually the activities and positioning of our relevant trade associations on the topic of climate change, acknowledging that trade associations represent industry across multiple policy areas.

Stakeholder engagement

We hold regular meetings with our investors, banks, governments and customers on topics related to climate change. We engage constructively with the Climate Action 100+ initiative and the Transition Pathway Initiative. These conversations help us continue to update our approach to climate change to reflect evolving stakeholder expectations, changing policy landscape and developments in low emission technologies.

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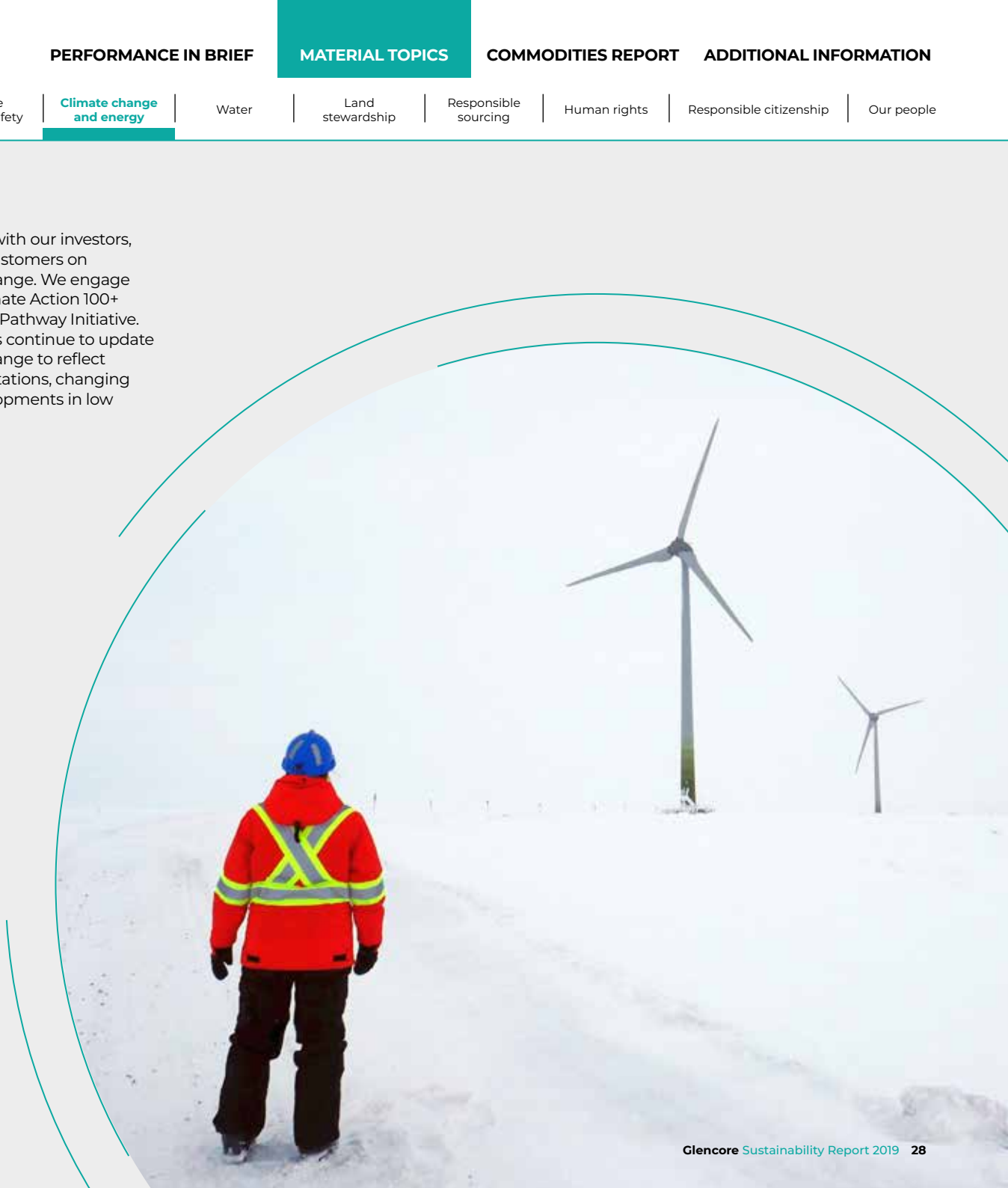
Water

Water is an essential resource for many of our industrial activities. During the life of our assets, their operational changes require adaptation of water management to maximise the efficient management of natural resources. Some of our assets are located in areas with high to extremely high water baseline stress and share access to water with other local water users. Other assets manage surplus water that may involve dewatering activities and flood protection measures.

Performance

Water withdrawn
(million m³)

1,050 ↑
2018: 1,020
2017: 924

Share of sites that have implemented the water management guideline by the end of 2019
(%)

80 ↑
2018: n/a
2017: n/a

Sustainable development goals

6 CLEAN WATER AND SANITATION   14 LIFE BELOW WATER

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

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Our strategy

Our approach

We recognise access to safe and clean water and sanitation as a human right. We seek to fully understand and minimise our water-related impacts and, in particular, we ensure that we manage our activities in a way that protects shared water sources. 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. 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 water users.

Performance

In 2019, we withdrew 1,050 million m^3 of water (2018: 1,020 million m^3). The modest increase in water withdrawal is due to improved reporting by some assets and significantly increased precipitation at certain operations.

We had one 'moderate' water-related environmental incident (2018: three moderate incidents) – see 'incident classification' in the glossary for classification details.

The incident, at our Mopani asset in Zambia, related to the detection of low pH levels in two community drains following a release of diluted sulphuric acid. Mopani took immediate action to neutralise and remediate both drains.

During the year, we received 16 water-related community complaints, a 30% reduction to the 23 received in 2018. We investigate all complaints and, where appropriate, work with local authorities to address any operational impacts on water sources.

We received 18 water-related fines totalling around US$841,000 (2018: 24 fines totalling US$1.5 million). The majority of fines, around US$752,000, were for incidents at Volcan that occurred prior to our control.

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. By the end of the year, 80% of our sites had implemented the Guideline.

Working together for a secure water supply

In Canada, our Horne copper smelter uses the same water source, Dufault Lake, and pumping distribution system as the Rouyn-Noranda city, with a population of around 40,000 people. The shared water resource was a key factor for selecting Horne Smelter to run a pilot study on implementing a catchment-based water management approach. Through this initiative, Rouyn-Noranda council and Horne Smelter are collaborating on a risk analysis of Dufault Lake's watershed, to identify potential risks that could cause deterioration in water quality or available volumes.

While the core part of the study has yet to start, Horne Smelter has already initiated several actions to improve its identification and understanding of the water risks related to its operations.

Through working together, Rouyn-Noranda council and Horne Smelter hope to ensure a secure water supply for the local population and the smelter.

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Highlights

- Continued to implement group-wide our Water Management Guideline
- Completed the assessment of medium risk assets with focus on those with identified reputational issues
- Launched a campaign for the review of our assets' provision of WASH services
- Continued our pilot study on implementing ICMM's catchment-based approach

Risk management
Understanding our water footprint
We continued to work on improving our understanding of our water footprint by analysing our site-specific water balances and conducting focused water risk assessments.

During the year, we ran risk assessments for the seven sites we identified as having a medium water-related risk, with a focus on those with identified reputational issues. The risk assessments found that the assessed sites had implemented or are in the process of implementing measures to mitigate the identified risks, where required.

Implementing our Water Management Guideline
With the group-wide implementation of our Water Management Guideline we are emphasising our prioritisation of efficient water use, water reuse/recycling, responsible waste water disposal and maintaining any equipment that may pose a hazard to water quality. We engage with local water users to avoid material adverse impacts on the quality and quantity of water sources or compromising their access to water.

Provision of water
A number of our assets are located in remote locations, where drinking water comes from on-site treatment or is delivered by trucks. In these areas, water access, sanitation and hygiene (WASH) facilities are not always available.

During 2019, we reviewed site-level provision of WASH services. While all our assets provide these services, we identified some inconsistent performance. We are installing additional toilets at locations where mining activities had moved away from existing facilities (including underground), reviewing and improving signage to differentiate between drinking and non-drinking water and increasing communications advocating good hygiene practices.

Some of our assets provide drinking water and sanitation facilities for their local communities. This may be as treated water, drilling bore holes, upgrading or building treatment plants and infrastructure such as pipelines.
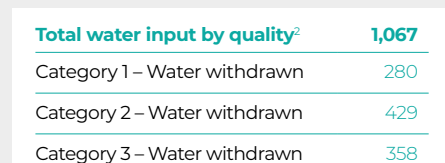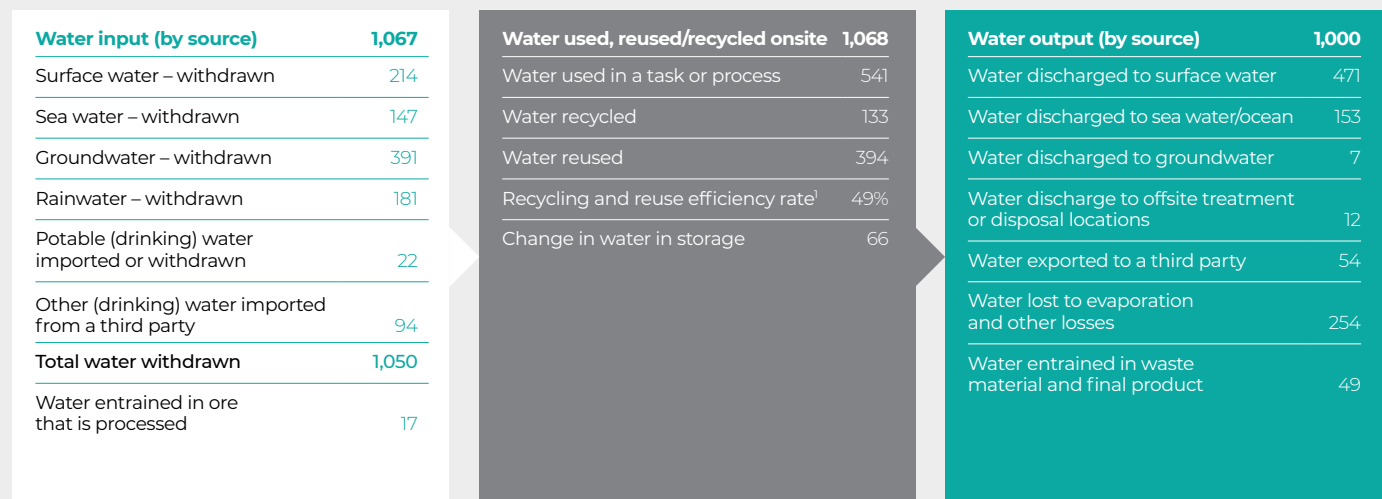
External engagement
We have continued to pilot the ICMM's catchment-based approach at our Horne Smelter in Canada. The pilot study is progressing and we expect to complete the project in 2021/22.

We developed a materiality-based method to assess the risks associated with our supply chain. Our work showed that water-related risks from our supply chain was low relative to the risks within our production profile. As such, we will continue our work on resource-use efficiency at our assets.

During 2019, we participated in the CDP Water Security assessment, scoring A-.

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Water balance

Water input (by source)	1,067
Surface water – withdrawn	214
Sea water – withdrawn	147
Groundwater – withdrawn	391
Rainwater – withdrawn	181
Potable (drinking) water imported or withdrawn	22
Other (drinking) water imported from a third party	94
Total water withdrawn	1,050
Water entrained in ore that is processed	17

Water used, reused/recycled onsite	1,068
Water used in a task or process	541
Water recycled	133
Water reused	394
Recycling and reuse efficiency rate[1]	49%
Change in water in storage	66

Water output (by source)	1,000
Water discharged to surface water	471
Water discharged to sea water/ocean	153
Water discharged to groundwater	7
Water discharge to offsite treatment or disposal locations	12
Water exported to a third party	54
Water lost to evaporation and other losses	254
Water entrained in waste material and final product	49

Diversions and water transferred to others	90
Surface water diversions	26
Aquifer interception diverted	40
Water supplied to others	23

Total water input by quality[2]	1,067
Category 1 – Water withdrawn	280
Category 2 – Water withdrawn	429
Category 3 – Water withdrawn	358

Total water output by quality[2]	1,000
Category 1 – Water discharged	409
Category 2 – Water discharged	448
Category 3 – Water discharged	144

☐ Water input   ■ Water use   ■ Water output   ■ Water diversion / transferred to others

1   Recycling and reuse efficiency rate = Total water recycled/reused divided by sum of Total water used in a task or process + Total water recycled/reused.
2   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.

Next steps

- Further implementation of our Water Management Guideline.

For further information, visit www.glencore.com/sustainability

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Land stewardship

Our assets around the world have direct and indirect impacts on the land. We work to minimise our potential impact, complying with or exceeding relevant regulations. We look for ways to improve our land stewardship and reduce our impact on landscapes and to enable sustainable land use following the closure of our operations.

Performance

Land rehabilitated[1] in 2019
(hectares)

2,113

2018: 2,688
2017: 1,779

Land disturbed in 2019
(hectares)

3,205

2018: 6,189
2017: 3,823

1   In 2019 and 2018, we disturbed 171 and 116 hectares respectively of land previously rehabilitated; the disturbed rehabilitated land is reflected in the 2018 and 2017 totals. The land was disturbed in areas re-mined at deeper levels.

Sustainable development goals

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

15 LIFE ON LAND

Further information on our management of land stewardship is available in Our Approach to Sustainability.

GLENCORE

PERFORMANCE IN BRIEF   MATERIAL TOPICS   COMMODITIES REPORT   ADDITIONAL INFORMATION

Materiality and stakeholder engagement | Catastrophic hazard management | Workplace health and safety | Climate change and energy | Water | **Land stewardship** | Responsible sourcing | Human rights | Responsible citizenship | Our people

Our strategy

Our approach
We require our industrial assets to implement land stewardship management systems that include standard elements such as an environmental policy, measuring, recording, evaluating and continuous improvement. Our assets maintain these plans based on risk management reviews. These include considerations such as maintaining the integrity of our facilities to avoid environmental incidents that could impact the land, efficient resource use, preserving protected areas and biodiversity and closure planning and rehabilitation (including financial provisions).

Our ambition
To become an industry leader in land stewardship and biodiversity management.

Highlights

- 90% of our operations requiring biodiversity management plans (according to biodiversity assessments, approval applications, etc) have implemented plans. Work is underway to progress the remaining 10% of plans.

Performance
We are a large landowner and currently own, lease or manage over 2 million hectares, our activities have disturbed around 6% of this land (126,471 hectares). During 2019, we disturbed 3,205 hectares and rehabilitated nearly 2,113 hectares (2018: 6,189 hectares disturbed and 2,688 hectares rehabilitated). Of the total land disturbed, we have rehabilitated 25% (32,096 hectares), with 94,375 hectares requiring rehabilitation. We tailor our rehabilitation efforts to reflect the local landscape and community needs. Where possible, rehabilitation takes place as mining activities cease in an area.

Risk management
Many of our assets are undertaking robust and effective land stewardship and biodiversity programmes, which we detail in the commodity reports section of this report. To improve performance group-wide, we are developing a Land Stewardship and Biodiversity Management Standard, which we will begin to roll-out during 2020.

The Standard will support a consistent performance at all our assets in the following:

- Collecting robust environmental baseline data for new project areas, as well as effective data management and trends analysis for all phases of an asset's lifecycle
- Minimising our physical disturbance footprint through effective and efficient project design and planning of operational activities
- Developing effective targets and monitoring performance
- Taking into consideration traditional knowledge on local land stewardship and biodiversity management
- Applying where possible the principles and indicators of ecosystem services
- Implementing progressive rehabilitation in areas where activities have ended
- Identifying opportunities for collaboration, research and partnerships
- Improving assurance processes

Protected areas and biodiversity
We own, lease or manage 83,550 hectares adjacent to protected areas and 188,285 hectares adjacent to high biodiversity areas.

Mining activities directly impact their surrounding land, flora and fauna throughout their lifecycle; our goal is to minimise and manage those impacts. We require our assets to have land stewardship and biodiversity management plans, which can include measures for preliminary clearing works, habitat relocation, flora and fauna conservation, weed and pest control and fire and grazing management. Where possible, our plans support the continuation of existing land practices, including of grazing and other agricultural activities.

Where relevant, our biodiversity and land management plans include legal commitments in relation to size and management of biodiversity offset areas, rehabilitation and measures to mitigate potential impacts to the land surrounding our assets.

Actively managing closed sites
In 2019, the Glencore North American Closed Sites group completed active remediation and site restoration efforts at the former site of Noranda Metals Industries in Newtown, Connecticut. Noranda Metals Industries acquired the 12-acre site in 1970. On closure of the site, we discovered tetrachloroethylene (TCE), a compound commonly used as an industrial solvent and degreaser, from historic activities, had contaminated soils and groundwater. We undertook detailed studies and remediation trials to find an effective solution.

Between 2007 and 2009, the group submitted and the Connecticut Department of Energy and Environmental Protection approved remediation plans. From 2010 to 2017, we undertook activities to remediate TCE in the soil and groundwater below the water table. By 2018, we had fully remediated source areas at the site.

Today, the effective remediation activities mean that treatment is no longer necessary. Monitoring will continue as natural processes continue to break down the small amounts of residual constituents to below regulatory limits.

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PERFORMANCE IN BRIEF   MATERIAL TOPICS   COMMODITIES REPORT   ADDITIONAL INFORMATION

Materiality and | Catastrophic | Workplace | Climate change | Water | **Land** | Responsible | Human rights | Responsible citizenship | Our people
stakeholder engagement | hazard management | health and safety | and energy | | **stewardship** | sourcing

Rehabilitation

We recognise that we are custodians of the land on which we operate and are committed to responsible land ownership and meeting community expectations.

Where feasible, we conduct progressive rehabilitation on previously disturbed areas once active operations have completed. Rehabilitation leads to an improved visual appeal of the landscape, reduces dust, erosion and sedimentation and reflects our considerations for our neighbours and future land users.

Our Rolleston Open Cut coal operation's progressive rehabilitation and mine closure plan incorporates environmental objectives into its mine planning cycle. Further details are available on page 58.

Closure

Unlike many other industrial uses of the land, mining is temporary and transitions to post-mining land use at the end of its operational lifecycle. At the end of 2019, we had 29 assets in care and maintenance or closure. In addition to managing environmental risks, our approach to closure includes planning and stakeholder engagement on the development of robust social transition plans that minimise impacts on our workforce, local suppliers and communities.

Over the next five years, closure-planning activities across our business will bring new and challenging risks, including increased community and government expectations. Our planning is conducted in compliance with regulatory requirements and we engage with experts, our communities and global associations to identify opportunities to more effectively manage closure-related issues.

At our Macquarie coal complex in New South Wales, Australia, a decision to reduce the mine life by several years accelerated the development of a detailed mine closure plan. The plan takes a holistic approach to support the transition from mining through to rehabilitation and the final steps of relinquishing the mining tenements. Further information on the closure plan is available on page 59.

Through mergers and acquisitions, Glencore has acquired a number of older mines and legacy operations. In terms of environmental monitoring, we assess assets prior to acquisition and during their lifecycle. Where we become aware of issues at the point of purchase or subsequently, we addressed them through appropriate remedial action.

While every site is unique, one of the key elements we continue to manage post-closure is our closed tailings facilities. We regularly inspect our facilities and external experts conduct independent inspections and reviews.

For example, Brenda and Gaspe are decommissioned mine sites located in Canada. Reclamation at both sites is advancing well with established grassy vegetation on the surface of the tailings and tailings dams. In 2019, we participated in academic research related to the formation of biological soil crusts and their relevance in the reclamation of mine tailings.

The research used the advanced reclamation of the tailings surfaces at Brenda and Gaspe as reference sites to evaluate what microbial communities exist within biological soil crusts that have developed naturally on reclaimed tailings surfaces and their role in improving substrate stability.

External engagement

We actively participate in local, national, and global associations to monitor and adopt improvements in closure-related science and technologies.

We are active members of the ICMM's mine closure working group. In February 2019, the ICMM released its Integrated Mine Closure Good Practice Guide. Closure and land stewardship continues to be a priority area for ICMM's members. We are undertaking a mapping exercise of our current practices against the guide and we will incorporate its recommendations into our Land Stewardship and Biodiversity Management Standard. We will roll-out communications and training to support our global business in achieving consistent improvements.

Next steps

- Review and enhance our global land stewardship and biodiversity governance
- Identify and encourage constructive partnerships to advance integrated land stewardship and biodiversity projects that align with the UN's Sustainable Development Goals

For further information, visit *www.glencore.com/ sustainability*

GLENCORE

PERFORMANCE IN BRIEF   MATERIAL TOPICS   COMMODITIES REPORT   ADDITIONAL INFORMATION

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

Responsible sourcing and supply

In addition to operating responsibly, we seek to incorporate social, ethical and environmental considerations in our relationships with suppliers and customers. In particular, we are committed to understanding and addressing the risk of human rights violations in our supply chains.

Performance

Screening on environmental criteria (number of suppliers)

5,579 ↑
2018: 5,086
2017: 4,838

Screening on social criteria (number of suppliers)

5,680 ↑
2018: 5,022
2017: 4,663

New suppliers (number of suppliers)

10,431 ↑
2018: 9,890
2017: 9,089

Sustainable development goals

3 GOOD HEALTH AND WELL-BEING
8 DECENT WORK AND ECONOMIC GROWTH
12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Further information on our management of responsible sourcing and supply is available in Our Approach to Sustainability.

GLENCORE

PERFORMANCE IN BRIEF | MATERIAL TOPICS | COMMODITIES REPORT | ADDITIONAL INFORMATION

Materiality and stakeholder engagement | Catastrophic hazard management | Workplace health and safety | Climate change and energy | Water | Land stewardship | **Responsible sourcing** | Human rights | Responsible citizenship | Our people

Our strategy

Our approach
As a vertically integrated commodity supplier with a diverse commodity mix, we have a unique perspective on supply chains and make a valuable contribution across a range of responsible sourcing initiatives.

Our responsible sourcing strategy considers production, sourcing of metals and minerals and procuring goods and services. Our policy and standards framework captures our commitments and expectations. We work collaboratively with experts, industry consortia, our peers and customers to understand fully the properties and potential impacts of our products throughout their supply chains and lifecycles.

Our ambition
To understand and address social, ethical, environmental and human rights risks in our supply chains in line with our values.

Highlights

- Published our Supplier Standards

- Secured long-term supply contracts for cobalt due to our responsible operator credentials

- Became an upstream member of the Responsible Minerals Initiative

- Joined the Responsible Sourcing Blockchain Network

Performance
In 2019, we screened 10,432 new suppliers following a risk-based approach. We assessed 5,579 suppliers against environmental criteria and 5,680 suppliers on social criteria.

During the year, we became a member of the Responsible Minerals Initiative (RMI). The RMI is a respected resource for its 380 member companies, who seek to address responsible mineral sourcing issues in their supply chains.

In late 2019, we signed up to the Responsible Sourcing Blockchain Network (RSBN) to support our efforts on responsible cobalt sourcing. We are pleased to join the RSBN, a pioneering initiative of the metals supply chain, which looks at ways of applying blockchain to commodity sourcing.

Risk management
Producing responsibly
We are committed to extracting and producing metals, minerals, and energy products that meet our stakeholders' social, ethical, environmental and human rights expectations. This commitment has led to the agreement of long-term supply agreements with some of our key cobalt customers during 2019 and in early 2020.

A number of these agreements include annual independent audits against the RMI's Cobalt Refinery Supply Chain Due Diligence Standard.

Our Murrin Murrin nickel operation in Australia is nearing completion of its first RMI audit and our KCC operation in the DRC will participate in an RMI pilot audit programme for crude refiners in 2020.

In 2018, our Prodeco coal asset in Colombia participated in a BetterCoal audit. The audit identified 27 action points, of which 20 were completed during 2019. The outstanding actions relate to mine closure, the environmental management system, updating the human rights policy and developing an epidemiological study. The next audit is scheduled for 2023.

Implementing supply chain due diligence

Our supply chain due diligence (SCDD) process reflects the values embedded in our Code of Conduct and is designed to identify ethical, environmental and human rights risks in our supply chain.

We recognise the challenges in responsibly sourcing minerals. Our SCDD process aligns with the recommendations of the OECD Due Diligence Guidance. We use international tools for ethical and responsible business, as set out in our Supplier Standards, to help us evaluate the business practices of our suppliers. Our approach supports the identification, prevention and mitigation of potentially adverse impacts that could negatively impact people, environment or company reputation.

In 2019, we trialled our SCDD process through pilot assessments with some of our cobalt and ferrochrome suppliers. We utilised the learnings from these pilot assessments to further develop our risk-based approach and to collaborate with our suppliers in addressing and managing the potential issues the trial identified.

Going forward we will be globally rolling out the risk-based SCDD process to our marketing departments in 2020.

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PERFORMANCE IN BRIEF   **MATERIAL TOPICS**   COMMODITIES REPORT   ADDITIONAL INFORMATION

Materiality and stakeholder engagement | Catastrophic hazard management | Workplace health and safety | Climate change and energy | Water | Land stewardship | **Responsible sourcing** | Human rights | Responsible citizenship | Our people

Responsible sourcing of metals and minerals

We seek to purchase metals and minerals for processing at our own operations or for our trading activities that meet stakeholder expectations for responsible production. Our Supplier Standards require risk-based due diligence of current and potential suppliers.

While we source the majority of our cobalt from our own operations, we also purchase cobalt from a select group of third-party suppliers. Recognising the heightened human rights risks for cobalt, we prioritised rolling-out our enhanced due diligence process to our cobalt purchasing activities during 2019 and found no potential areas of concern.

We will continue to refine our processes and roll-out the programme in 2020.

Utilising blockchain

Traceability is an important enabler for the promotion of responsible practices in supply chains, and blockchain technology offers an effective platform for this purpose.

Joining RSBN required us to demonstrate that our cobalt sourcing practices are aligned with the OECD's Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas. In addition, the assessment considered additional responsible sourcing good practice standards and compliance verifications and those enshrined by key industry bodies, including the RMI.

During the year, we became one of seven leading mining and metals companies to join forces to accelerate responsible sourcing of raw materials with the World Economic Forum. The Mining and Metals Blockchain Initiative will explore the building of a blockchain platform to address transparency, the track and tracing of materials, the reporting of carbon emissions or increasing efficiency.

The initiative aims to be a neutral enabler for the industry, addressing the lack of standardisation and improving efficiency and trust between upstream and downstream partners.

Responsibly sourcing goods and services

Recognising the increased demands for responsible sourcing and supply chain due diligence throughout the commodity value chain, we published Supplier Standards in March 2019. These Standards apply to any individual, organisation or company that provides, sells or leases materials directly to Glencore companies, including goods and services. We intend supplier contracts to reference our Supplier Standards.

As part of the Supplier Standards' roll-out, we are implementing group-wide an enhanced risk-based supply chain due diligence process that aligns with the OECD Due Diligence Guidance. During 2020, we will explore opportunities for synergies in the process between our commodity departments.

External engagement

During the year, we continued to engage with our internal and external stakeholders to drive the development of and alignment with practical, performance-driven responsible sourcing initiatives, standards and frameworks.

Working with the Cobalt Institute

Early in 2019, we worked with the Cobalt Institute on its Cobalt Industry Responsible Assessment Framework (CIRAF). This framework strengthens the ability of cobalt producers and buyers to assess, mitigate and report on responsible production and sourcing risks in their operations and supply chain. The CIRAF also enables a more coherent and consistent approach to cobalt due diligence and reporting by the cobalt industry.

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| Materiality and stakeholder engagement | Catastrophic hazard management | Workplace health and safety | Climate change and energy | Water | Land stewardship | **Responsible sourcing** | Human rights | Responsible citizenship | Our people |

Ongoing engagement with the London Metal Exchange

In October, the London Metal Exchange (LME) launched its responsible sourcing requirements, which align with the OECD Due Diligence Guidance, on which we engaged. The approach looks at the supply chain's transparency and custody. The LME expects refineries to establish frameworks that comply with this requirement by mid-2022.

The LME also requires registered brands to undergo a number of assessments, including independent third-party audits of supply chain due diligence and ISO 14001 and OHSAS 18001/ ISO 45001 certifications, or equivalent, by the end of 2023.

Engaging with our peers

Throughout the year, we continued to participate in the ICMM's Responsible Sourcing Working Group. This is an opportunity to engage with peers and to identify opportunities for a coordinated approach in demonstrating responsible supply chains.

We have strong relationships with a number of industry organisations, including the International Copper Association, RMI and LME. Our participation in these entities allow us to engage with our peers and downstream users of our products, as well as providing an opportunity to contribute to the development of industry standards.

In early 2020, Glencore joined the Global Battery Alliance, a public-private collaboration that is dedicated to sustainable battery value chains.

During the year, we engaged on our approach for responsible production and sourcing, as well as its challenges and opportunities, at several multi-stakeholder forums. These included the 2019 OECD forum on responsible mineral supply chains in Paris, the cobalt conference in Hong Kong and the RMI annual conference in Santa Clara. During these presentations, we provided an update on our work within the CIRAF.

Regulatory compliance

In 2019, 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).

In 2021, the European Union's conflict minerals legislation comes into force. Our approach incorporates this legislation for tin and gold. In addition, the London Bullion Market Association regulations certify our gold and silver refiners.

We track regulatory developments with a potential to affect our products and their production processes, transport/storage and marketing. Europe continues to have a strong regulatory focus on the production and use of metals. Working with industry organisations, we engage in regulatory processes that focus on strengthening health and environmental standards for our products to enable society to continue to benefit from metals and its applications.

Next steps

- Develop a global platform to support our supply chain due diligence process
- Fully implement enhanced human rights due diligence across our industrial assets and marketing departments
- Prepare and assist our listed refiners to comply with the LME responsible sourcing requirements

For further information, visit *www.glencore.com/sustainability*

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Human rights

We recognise that we have the potential to impact on human rights directly through our operations, or through our relationships with joint ventures, contractors and suppliers. We are committed to respecting human rights and actively support our employees, business partners and others to understand and meet this commitment.

Performance

Serious human rights incidents

0

2018: 1
2107: 0

Community complaints

1,149

2018: 1,057
2017: 1,063

Sustainable development goals

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

8 DECENT WORK AND ECONOMIC GROWTH

Further information on our management of human rights is available in Our Approach to Sustainability.

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PERFORMANCE IN BRIEF   **MATERIAL TOPICS**   COMMODITIES REPORT   ADDITIONAL INFORMATION

Materiality and stakeholder engagement | Catastrophic hazard management | Workplace health and safety | Climate change and energy | Water | Land stewardship | Responsible sourcing | **Human rights** | Responsible citizenship | Our people

Our strategy

Our approach

We are committed to upholding and respecting human rights. We seek to apply relevant international standards to understand, control and mitigate our impacts. Our polices and practice align with the Universal Declaration of Human Rights, the United Nations (UN) Guiding Principles, the UN Global Compact and International Labour Organization's core conventions and we articulate these in our Code of Conduct and Group Human Rights Policy. In addition, we operate in accordance with the Voluntary Principles on Security and Human Rights, International Finance Corporation's Standard 5 and ICMM's position statement on Free and Prior Informed Consent.

Our ambition

To uphold and promote respect for human rights within the Group and throughout our value chain to enable the enjoyment of people's basic rights and freedoms.

Highlights

- Reviewed and updated our guidance materials on grievance and complaint mechanisms in line with new ICMM guidance

- Conducted workshops on security and human rights covering leadership and technical skills

Performance

In 2019, we reported zero serious human rights incidents, compared to one in 2018.

During the year, we received 1,149 complaints that mainly related to access to property (26%) primarily associated with our Chad operation, noise (21%) primarily related to our Mangoola and Mt Owen operations and odour or fumes (18%) primarily reported by our Horne, Mount Isa and Pasar operations. We take all complaints seriously and continuously look for new ways to minimise our impacts.

In Chad, the majority of complaints related to stormwater flooding onto neighbouring farmland. On investigation, a large number of these complaints were found to be invalid.

Both Mangoola and Mt Owen have comprehensive noise management plans and all complaints are dealt with by supervisors, who review real-time monitoring and adjust operations as necessary, sometimes making operational changes even when the site is within compliance levels.

Risk management
Human rights in commodity trading

In 2017 and 2018, we participated in a Swiss government-led multi-stakeholder advisory group that developed guidance for the commodity sector on implementing the UN Guiding Principles. In 2019, building on this work, Glencore was invited to participate in a pilot initiative to identify, discuss and address challenges and opportunities in human rights reporting, a key element of the UN Guiding Principles, in the commodity sector.

In December 2019, we hosted a workshop with representatives from the Swiss government, civil society, banking, trading companies and our colleagues from our responsible sourcing and communications teams. The participants engaged in a constructive discussion on the challenges of human rights reporting in commodity trading and provided feedback and recommendations on Glencore's 2018 Human Rights Report.

We continue to support the EITI and transparency in the industry. We participate in the Extractive Industries Transparency Initiative's commodity trading working group. Work during 2019 has focused on developing reporting guidelines for companies purchasing oil, gas and minerals from resource-rich countries.

Working in partnership for peace and sustainable development

Since 2016, Prodeco has worked in partnership with its local administrative authority on the Cesar Development and Peace Program. The partnership promotes projects that contribute to improving the socio-economic standards in the communities living in mining regions.

Through the partnership, Prodeco supports two villages on various projects that encourage peace, human rights, democratic governance, integral and sustainable development, education and culture.

Further information is available on page 57.

GLENCORE

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Grievance mechanisms

All our operations are required to have in place local complaints and grievance processes that are legitimate, accessible, predictable, equitable, transparent and rights-compatible and in line with the Guiding Principles effectiveness criteria. These processes encourage people to raise concerns with us without fear of recrimination. Our commitment is to investigate the concerns and take necessary actions to ensure rights are being respected.

In November 2019, the ICMM published new guidance, *Handling and Resolving Local-level Concerns and Grievances.* We reviewed and updated our internal guidance to align with this and are preparing an internal campaign for 2020 to improve awareness of both guidance materials and to reinforce our expectations.

Resettlement

We seek to avoid resettlement wherever possible. When unavoidable, 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.

In 2010, the Colombian government passed a resolution that required the three mining companies operating in the Cesar region to resettle the populations of Plan Bonito, El Hatillo and Boquerón. The resettlement process began in 2011, in line with relevant international standards.

- The Plan Bonito population was resettled in 2014.
- In 2018 the El Hatillo community signed a resettlement action plan (RAP). To date, 305 families, of the 366 affected have signed individual contracts and six families have moved to new homes.

- Since 2011, we have worked with the Boquerón community to agree a resettlement process and work continues on the RAP. Prodeco has worked with the community on social programmes to improve their quality of life.

During 2019, Glencore Coal South Africa (GCSA) continued to manage resettlement projects at three of its operations:

- Goedgevonden: GCSA commissioned the construction of houses for the remaining six families. As the families have selected a rural relocation, GCSA has ongoing discussions with Eskom, the electricity public utility, to connect the houses to the electrical grid. GCSA anticipates that construction will complete by mid-2020.
- Zonnebloem: GCSA completed construction of houses for the resettlement of the Zonnebloem community in 2019 and 12 of the 13 families have taken occupation. The remaining family is yet to take occupation, as it is not currently residing at Zonnebloem. GCSA has completed a baseline survey for an additional family, who will need relocating by 2027. The family has requested a rural relocation and the operation is currently investigating possible land options.
- Impunzi: GCSA is continuing its engagement with the affected families and has completed a baseline assessment. The two families have asked for an urban relocation and GCSA is identifying suitable options.

In 2018, Glencore Alloys in South Africa purchased a farm bordering its Kroondal Mine ahead of a future extension of mining operations. In 2019, the five families living on the farm received compensation and support in relocating to destinations of their choice.

Artisanal and small-scale mining

Artisanal and small-scale mining (ASM) represents an important livelihood and income source for many poverty-affected populations around the world. The sector is largely un-mechanised and informal in nature so it often presents significant safety and human rights risks. A key issue is the participation of children in the sector. A further issue occurs when artisanal miners illegally trespass on the property of large-scale mines, which introduces security and safety challenges.

ASM is particularly prevalent near our operations in the Democratic Republic of the Congo (DRC), where people mine cobalt. Due to the link between child labour and artisanal mining, our customers require assurance that our product does not contain ore sourced from artisanal mining.

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.

In June 2019, a tragic incident at our Kamoto Copper Company (KCC) operation in the DRC resulted in multiple fatalities and injuries of trespassing ASM miners who were operating illegally at KCC. Further details on this incident are available in the copper section on page 65.

KCC implements a number of educational and alternate livelihoods programmes that seek to reduce the negative impacts of artisanal mining and help transition people into safer and more productive income generation activities.

During 2019, through our school holiday camps, over 16,300 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.

In addition, we supported over 198 agricultural cooperatives with over 5,350 members with the intent of the cooperatives becoming independent and sustainable in the longer term. One of the small businesses that we initiated and developed is now supplying vegetables to our Katanga mine-site canteen and another business is preparing meals for a local mining company. In 2019, 591 individuals were trained to improve their skills for job opportunities and self-employment.

Indigenous people

Wherever our mining projects are located on lands traditionally owned by, or under customary use of, Indigenous people, we operate in alignment with the ICMM's Position Statement on Indigenous Peoples and Mining, which is based on respect for Indigenous people's rights, interests, special connections to lands and waters, and perspectives. We engage in open and continuous dialogue with these communities to understand their culture, views and aspirations and incorporate these into our decision-making.

We have formal agreements with Indigenous people at a number of our assets, including Indigenous Land Use Agreements in Australia and Impact Benefit Agreements in Canada. These agreements include details on social and labour plans, community development and compensation packages.

In both Australia and Canada, we have designed pathways that enable Indigenous people to take up employment opportunities with us.

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In Australia's Northern Territory, our McArthur River Mine (MRM) achieved 19.9% Indigenous employment during 2019 through its recruitment and development programmes. MRM's targeted local Indigenous trainee programme matches young people's existing skills with different work areas and it leads to a structured 12-month, on-the-job traineeship programme. The programme has been running successfully for three years and has led to many of the trainees securing permanent employment and upskilling through nationally recognised qualifications.

In 2019, MRM added formal mentors to support with the transition to employment. To further supplement the traineeship programme, MRM hired six Indigenous people through the apprenticeship programme and another eight through its trainee truck programme.

In northern Canada, our Raglan Mine celebrated the eleventh 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 2019, Raglan Mine's 251 Inuit employees represented more than 22% of the workforce.

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.

Similar reporting requirements are now in place in Australia. We used this as an opportunity to make Australia a priority region for embedding our Supplier Standards. Most of our commodity departments have assets in Australia and implementing the Supplier Standards was core to our compliance with Australia's new Modern Slavery Act. The presence of multiple commodity departments also created an opportunity for a coordinated roll-out that minimised impacts on our regional suppliers.

Working with security providers

There are 68 Glencore assets either with direct security employees and/or private security contractors. In some instances, our sites have also developed relationships with public security forces.

In line with the Voluntary Principles for Security and Human Rights and our own Security Protocol, we provide human rights training for our private security teams. We are also clear about our expectations when we engage with public security, and our preference is to document these expectations in a Memorandum of Understanding.

During 2019, we held two three-day regional workshops in South Africa and Colombia to review the implementation of our Security Protocol and to improve understanding of human rights considerations in decision making and management processes. The workshops were cross-functional with participants from security, community relations, legal and HSEC functions. The workshop in South America included teams from our assets in Argentina, Brazil, Chile, Colombia, Mexico and Peru, while in South Africa, our teams from Chad, DRC, South Africa and Zambia participated.

The participants identified a number of ways in which to improve performance consistency across Glencore, including improving the flow of information between corporate and sites, establishing networks for knowledge sharing and reviewing and updating Glencore's Security Failure Fatal Hazard Protocol, as well as revising guidance for its supporting activities.

Next steps

- Review and update the Group Human Rights Policy
- Review and update Glencore's Security Protocol
- Strengthen a consistent approach to human rights impact assessment through development of a global framework

For further information, visit *www.glencore.com/sustainability*

GLENCORE

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Responsible citizenship

Mining activities can make a significant contribution to the national, regional and local economies in which they operate through the provision of employment and training, tax and royalty payments to governments for essential services, local procurement, social development and environmental stewardship. Our aim is to minimise any negative impacts from our activities and to build partnerships to support sustainable development and growth.

Performance

Tax and royalty payments
(US$ billion)

7.7 ↑

2018: 5.7
2017: 4.1

Community investments
(US$ million)

90 ↓

2018: 95
2017: 90

Sustainable development goals

8 DECENT WORK AND ECONOMIC GROWTH

10 REDUCED INEQUALITIES

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

Further information on our management of responsible citizenship is available in Our Approach to Sustainability.

GLENCORE

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Our strategy

Our approach

Through meaningful stakeholder engagement and integration of our social programmes into our core business, we support the advancement of the interests of both our host communities and our assets. Some of our businesses operate in challenging contexts but we are committed to working with others to help find and implement solutions to social issues and to build resilient and peaceful communities.

Social investment forms part of our contribution to the communities in the regions where we operate. We support programmes in community development, enterprise and job creation, health, education and the environment.

Our ambition

To be an active and valued participant in all the communities that host us. To understand and manage our negative impacts and identify where we can make the most effective positive contribution.

Highlights

- US$90 million spent on community development programmes

Performance

During the year, our payments to governments totalled US$7.7 billion, reflecting the value we contribute through the taxes and royalties we pay in our operating countries for our marketing and industrial activities. This was an increase on 2018 (US$5.7 billion) mainly attributable to our investments in oil assets and increased corporate income tax payments in some jurisdictions due to profitability in 2018.

In 2019, we spent US$90 million on community development programmes (2018: US$95 million).

Socio-economic contribution

We measure our social impact through assessments and 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:	Achieve resilience, as measured by:
• Levels of community support and community perceptions	• Measurable outputs, outcomes or impacts
• 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	• Reduced dependency on the asset
• Incidents of societal unrest	• Diversified economy

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

Stakeholder group	Value flows	2019 results
Employees	• Wages and benefits	• 96% of our workforce is local to the country where we operate
Suppliers and contractors	• Procuring goods and services • Skills and enterprise development	• 75% of our global procurement spend is with suppliers and contractors local to the countries where we operate • More than 160,000 people benefited from our enterprise development and economic diversification investments
Local communities	• Community development • Use of shared public-use infrastructure • Skills and enterprise development	• US$90 million spent on programmes supporting local community development, including about US$12 million on enterprise development and economic diversification of local entrepreneurs • Around 3.4 million people living near to our assets have benefited from our community investment activities, including environmental initiatives, healthcare facilities, education programmes and enterprise development • US$1.3 million spent on infrastructure for water processing and distribution, including more than 20 kilometres of pipework and infrastructure for the processing of almost 24 ML of water per day • US$2.2 million spent building or maintaining around 100 kilometres of roads
Local and national governments	• Taxes and royalties • Shared public-use infrastructure	• US$7.7 billion paid to host governments in taxes and royalties • In total, we spent over US$9 million on public infrastructure such as water, sewage and power networks and roads

GLENCORE

PERFORMANCE IN BRIEF   **MATERIAL TOPICS**   COMMODITIES REPORT   ADDITIONAL INFORMATION

Materiality and stakeholder engagement | Catastrophic hazard management | Workplace health and safety | Climate change and energy | Water | Land stewardship | Responsible sourcing | Human rights | **Responsible citizenship** | Our people

Risk management
Addressing community concerns

In Peru, country-wide activism fuelled by a lack of access to education and health services and water and santitation infrastructure in rural areas leads to social unrest. Our operations work with their local communities on employment and training opportunities as well as identifying how they can contribute to public projects.

In South Africa, an often weak education system and high unemployment rate, especially for younger people, presents serious challenges to businesses and society in general. Our ferroalloys assets operate in an area of escalating community tension, regular hijacking of vehicles, road blockades and threats to staff.

Other mining companies in the area are facing similar issues.

In response, the industry has escalated the matter to senior levels of the government, and is working jointly on a collaborative approach to developing high-impact social projects, with involvement of community and government leadership. In addition, Glencore is carrying out focused training, skills development and farming projects amongst its communities.

Community fatalities

We were deeply saddened by a fatal accident indirectly associated with our Mutanda Mining Sarl (Mumi) copper asset in February 2019 in the Kabwe village, located in the DRC. The incident

Economic value added in 2019[1]

US$ million	Group	Africa	Australia	North America	South America	Rest of the World
Revenues[2]	255,261	10,307	12,478	31,768	10,339	190,371
Payments to suppliers (operating costs)[3]	237,656	9,715	8,003	30,431	7,927	181,579
Economic value added	**17,605**	**592**	**4,474**	**1,336**	**2,412**	**8,791**
Royalties, duties and taxes[4, 5]	7,674	2,288	2,922	326	1,087	1,051
Employee wages and benefits[6]	4,616	973	1,307	634	465	1,237
Sum of payments to providers of capital[7]	3,141	695	595	-217	133	1,936
Community investments	90	34	7	3	17	30
Sum of capital expenditure	4,511	1,491	765	556	760	938
Economic value retained/ contributed	**-2,427**	**-4,889**	**-1,122**	**34**	**-50**	**3,599**

1 For presentation purposes, all figures in this table are rounded to the nearest unit.
2 Revenues include sales, intercompany sales and other income.
3 Operating costs include 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 US$1.345 million.
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 US$626 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 principals.

Supporting emerging enterprises and suppliers

Many of Glencore Alloys' local communities are located in rural areas where it is difficult to gain experience in running businesses. In these areas, Glencore Alloys has established local emerging enterprise incubation hubs (LED hubs) where it offers accredited business management training, underwrites credit applications and encourages future business opportunities.

The LED hubs promote entrepreneurship and local enterprise development with an objective to foster a vibrant and diverse SME community.

Further information is available on page 71.

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involved a sub-contracted tanker loaded with sulphuric acid destined for Mumi, which hit two stationary vehicles and rolled over. The contractor is an independent trucking company operating in the DRC that supplies acid to mining companies.

Tragically, twenty-one people lost their lives due to this incident and others have life-changing injuries. In addition, the associated spill affected crops growing nearby. Following the incident, Mumi assisted the contractor in the rescue operation with equipment and personnel. Mumi also provided guidance and technical support during the remediation activities.

Mumi worked with the contractor and relevant government agencies to identify the root causes of the accident. The learnings were captured and measures put in place to avoid a repeat of this incident.

Internally, the incident prompted a review of our *Road Transportation Protocol*. We convened two workshops for approximately 80 experts across the business to ensure our requirements are clear and fit for purpose. The workshops identified a series of improvements and we will be rolling out the updated protocol in 2020.

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 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.

Our highest payments, excluding VAT, made to governments in 2019 were:

Country	US$ million
Australia	2,922
South Africa	1,287
Democratic Republic of the Congo	843
Kazakhstan	495
Peru	320
Canada	277
Mexico	228
United Kingdom	226
Colombia	214
Chile	154

Next steps

- Develop a Social Investment Guideline

For further information, visit *www.glencore.com/sustainability*

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PERFORMANCE IN BRIEF   MATERIAL TOPICS   COMMODITIES REPORT   ADDITIONAL INFORMATION

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Our people

Our success relies on our ability to attract, develop and retain the best talent, at every level. We have a highly capable, entrepreneurial and engaged workforce that brings a diverse range of experience and perspectives to the organisation.

Performance

Workforce
(employees and contractors)

159,345 ↑

2018: 158,508
2017: 145,977

Employee diversity
(% female)

16% ↑

2018: 15%
2017: 14%

Senior manager[1] diversity
(% female)

18% ↑

2018: 16%
2017: 17%

1   A senior manager as defined in section 414C of the UK Companies Act 2006 to include members of the management team and Glencore appointed directors on the boards of subsidiaries. This definition is only relevant to this data and does not apply to other references of "senior management" that are included in this Sustainability Report.

Sustainable development goals

8 DECENT WORK AND ECONOMIC GROWTH

10 REDUCED INEQUALITIES

Further information on our people is available in Our Approach to Sustainability.

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PERFORMANCE IN BRIEF   MATERIAL TOPICS   COMMODITIES REPORT   ADDITIONAL INFORMATION

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

Our strategy

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 and to foster an environment that supports and encourages different backgrounds, cultures and beliefs.

Highlights

- 38,523 employees and contractors completed our Code of Conduct e-Learning

- 29,481 employees and contractors completed e-Learning training on our Anti-Corruption Policy

Performance

In 2019, 38,523 employees and contractors (2018: 33,944) completed our Code of Conduct e-Learning. In addition, 29,481 employees and contractors (2018: 27,510) completed e-Learning training on our Anti-Corruption Policy, which includes guidance on important topics such as facilitation payments, the giving and receiving of gifts and entertainment and dealings with public officials.

In both Australia and Canada, we have pathways that enable Indigenous people to take up employment opportunities with us. In Australia, our McArthur River Mine achieved 19.9% Indigenous employment during 2019 through its recruitment and development programmes. In northern Canada, our Raglan Mine celebrated the eleventh anniversary of its Tamatumani (second start in Inuktitut) programme. Raglan Mine's 251 Inuit employees represent more than 22% of the workforce. Further information on Indigenous employment is available on page 42.

Risk management
Supporting workforce development

Glencore aims to engage and offer opportunities to all workers. Our workforce is multi-generational, with each generation adding value to our business. The rapid pace with which our business and technology is developing requires Glencore to actively prepare our employees for the future of work.

Working ethically

We are committed to maintaining a culture of ethics throughout Glencore. To support this, we have a Group Ethics and Compliance programme that includes risk assessments, policies, standards, procedures and guidelines, training and awareness, monitoring and investigations.

Employees access our compliance policies, standards, procedures and guidelines through various channels, including the Group and local intranets. Our managers and supervisors are responsible for ensuring employees understand and comply with the policies, standards and procedures.

We monitor and test their implementation on a regular basis. Employees with access to a work computer must confirm their awareness and understanding of our compliance requirements when they begin working at Glencore and annually thereafter.

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

In 2019, 268 dismissals relating to a breach of the Code of Conduct occurred (2018: 333 dismissals).

Increasing our internal engagement

Reflecting Glencore's geographical and cultural diversity, it is important for us to engage with and listen to our people. During the year, the Board recognised that establishing processes to strengthen workforce engagement would take time and require regular refreshing. Supported by designated non-executive directors, this process began with culture surveys carried out in all of our marketing offices and at our Australian industrial operations, as well as focus groups and

Sustaining Digital Futures

Glencore Coal Australia's 'Sustaining Digital Futures' project provides customised, intensive training in foundation and intermediate digital skills for its employees. We recognise that this is urgently needed as our industry becomes an increasingly automated environment. The project provides a valuable contribution to workforce planning by identifying the skills needed to further prepare a workforce that is being disrupted by the rapid advancement of a range of digital technologies. Our Clermont mine will pilot the programme.

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town-hall style meetings at a number of assets, offices and our Swiss headquarters.

Around 16,000 employees were invited to participate in the surveys, which were designed to improve our understanding of the extent to which our culture and our values are embedded in our business. The findings from the surveys, meetings and interviews, while being broadly positive, have been consolidated and the Board, with management.

Supporting employees' wellbeing
Recognising the increased risk, awareness and acceptance of mental health considerations, we are investing in our employees' mental health.

In Australia, our coal and zinc businesses are working with our industry peers and the national charity Mates in Construction to establish the "Mates in Mining" initiative. The initiative offers programmes developed specifically for mineworkers, building on leading international practice in community-based suicide prevention. Currently, Glencore Coal Australia is conducting pilot programmes at our Clermont and Glendell assets to help establish an industry-wide model.

Promoting diversity
As a global organisation, diversity and inclusion are integral to our success. We believe that employing people from different cultures, countries, races, ethnicities, genders, abilities, beliefs and backgrounds is essential to our culture. Diversity brings new and innovative ideas that allow us to advance our business and continue to improve. Our diversity and inclusion agenda aims to ensure our workforce reflects our local communities.

Like many of our peers, we are trialling a number of approaches to improve gender diversity in our business. Our Australian coal operations run a successful women's mentoring programme and participate in the WeLead Circle initiative.

The WeLead Circle initiative is a professionally facilitated programme that guides female leaders through six carefully selected leadership areas, focusing on the next steps needed to advance their leadership journey.

The programme also provides a network of women who provide advice, insight, experience and skills.

We also take part in #SheRocks, which recognises the women who "rock" our industry in South Africa. This group of women mentor and support the next generation of women, encouraging them to enter the mining industry, allowing our industry to grow and become more inclusive. The campaign serves to challenge the myths and gender bias of mining by offering honest insights into the experiences of women at different stages in their careers.

We are a partner of Women in Mining, a non-profit organisation dedicated to promoting and progressing the development of women in the mining and minerals sector.

A number of our diversity programmes are starting to yield results. Mopani's Central Training Centre in Kitwe, Zambia, experienced a significant increase in the number of female students this year – rising from a previous average of seven women per intake to 36. Mopani hosts annual career days for students of local public secondary schools. The career days encourage and support female students to take up technical courses at tertiary education institutions, paving the way for future employment within the mining industry.

Developing our talent pipeline
Attracting and developing entry-level graduate engineering talent is part of our wider set of talent initiatives, which also includes bursaries, summer vacation placements, internships and apprenticeship programmes.

We are committed to strengthening the capability of our workforce. Our South African operations have career development programmes for high-potential employees and succession-planning candidates. These programmes include leadership and management development programmes at various levels including, but not limited to, a Master in Business Leadership.

Industrial relations
We uphold the International Labour Organization (ILO) Declaration on Fundamental Principles and Rights of Work. We recognise and uphold the rights of our colleagues to a safe workplace, freedom of association, collective representation, collective bargaining, just compensation, job security and development opportunities. We believe in managing union relationships locally, where issues are considered part of the responsibility of our local management teams.

Members of United Steelworkers Union at our Brunswick lead smelter in Canada initiated industrial action in April 2019 over a contract dispute. During our 2019 AGM, representatives from the union raised an additional number of allegations. Throughout the year, we undertook ongoing engagement with the union to address their concerns.

In November, Glencore announced the permanent closure of the Brunswick smelter due to economic considerations. The local team are working with the municipality and provincial government on the closure plan. Employees received redundancy packages and relocation opportunities, where appropriate.

External engagement
Glencore continued to engage regionally and globally with the IndustriALL, a global union federation representing over 50 million people and that has been in ongoing dialogue with Glencore, particularly in relation to our DRC operations.

In March 2019, we hosted a visit by representatives from IndustriALL to our DRC assets, Katanga and Mutanda. During the visit, our local teams hosted IndustriALL on-site tours, visiting the operating areas requested by IndustriALL. The visit provided an opportunity for frank and honest discussions on working conditions with a particular focus on safety, medical benefits and discrimination.

We are committed to ongoing dialogue with IndustriALL and its affiliates.

Next steps

- Continue to investigate opportunities to improve gender diversity

For further information, visit *www.glencore.com/sustainability*

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

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.

📖 **Read more on page 52**

Metals and minerals

Copper

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

📖 **Read more on page 63**

Metals and minerals

Ferroalloys

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

📖 **Read more on page 69**

Metals and minerals
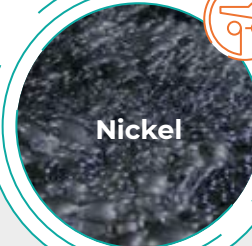
Nickel

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

📖 **Read more on page 73**

Energy products

Oil

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 on page 80**

Metals and minerals

Zinc

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 on page 86**

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

Coal production was 8% higher than in 2018, mainly reflecting the full-year effects of the acquisitions of Hunter Valley Operations (acquired in May 2018) and Hail Creek (August 2018). Prodeco's year-on-year contribution reflected a period of additional mine development in the base period, while Cerrejón's 2019 production was constrained by dust emissions control requirements.

Own sourced coal production
(mt)

139.5
2018: 129.4

Marketing volumes sold
Thermal coal and coke (mt)

87
2018: 95

KPIs	2019	2018	2017
Fatalities at managed operations	1	1	0
Lost time injury frequency rate (LTIFR) (per million hours worked)	0.99	1.39	1.21
Total recordable injury frequency rate (TRIFR) (per million hours worked)	2.09	2.65	2.74
New cases of occupational diseases	27	15	11
CO_2e Scope 1 (million tonnes)	6.7	6.9	10.0
CO_2 Scope 2 – location based (million tonnes)	1.0	1.2	1.2
Total energy use (petajoules)	45	40	38
Water withdrawn (million m^3)	114	102	114
Community investment spend (US$ million)	7.88	6.17	5.04
Number of employees and contractors	24,835	23,826	23,258
Proportion of female employees (%)	16%	16%	15%

Key
1. Prodeco
2. Cerrejón[1]
3. Goedgevonden
4. Tweefontein
5. iMpunzi
6. Izimbiwa
7. Collinsville
8. Newlands
9. Hail Creek
10. Oaky Creek
11. Rolleston
12. Clermont[2]
13. Ulan
14. Mangoola
15. Hunter Valley Operations[3]
16. Liddell
17. Mount Owen
18. Ravensworth
19. Integra
20. Bulga

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

Safety and health

Participating in a safety reset

During 2019, there were six fatalities in the Queensland (QLD) mining and quarrying sector; none occurred at Glencore operations. The QLD Government, in discussion with mining companies, identified a need for the industry to stop work, review and reset its current operational practices.

Glencore Coal's Australian assets' (GCAA) health and safety team worked with its 17 QLD and New South Wales (NSW) coal operations to organise 189 safety reset sessions that involved over 10,000 employees.

Each site's Operations Manager introduced the safety reset with a presentation on:

- The fatalities that took place in QLD and NSW's coal operations during 2019
- Site-specific HPRI performance and learnings
- Each employee's role in delivering a robust safety culture and responsibilities when responding to an unsafe situation
- How to raise concerns and the role of Glencore's Code of Conduct

Facilitated workshops followed the presentations, during which participants worked within functional groups to identify the fatal hazard protocols applicable to their work area and existing critical controls, to rate the controls' effectiveness (from satisfactory, improvement needed to action required), and to come up with solutions to improve performance where required.

Each site assigned fatal hazard champions to lead a review of the identified hazards and their existing controls, as well as identifying and assigning appropriate improvement action if needed.

The safety resets provided GCAA with an opportunity to stop and reflect on workplace fatal hazards and the required controls for their management and mitigation. All sites were committed to delivering successful safety resets.

Implementing Vivo Seguro (I live safe)

In early 2019, Prodeco launched Vivo Seguro (I live safe) to support its efforts to establish an effective and sustainable workplace safety culture.

Vivo Seguro builds on Prodeco's previous safety programme, Trabajo Seguro (I work safe) through establishing a 'total safety culture' approach and empowering employees to address unsafe behaviours. Prior to introducing Vivo Seguro, Prodeco's management told workers how to behave and the rules and procedures they needed to follow. Vivo Seguro develops the workforce to make the right decisions, moving their actions from 'doing' to 'being'.

Over a three-year period, Vivo Seguro's ambition is to shift workforce safety culture, through:

- Focusing on outcomes to focusing on behaviours
- Moving from top-down control to bottom up involvement
- Shifting from an individual approach to interdependent teamwork
- Moving from fault finding to fact identifying
- Encouraging proactive planning rather than reactive responses
- Changing from quick fixes to a commitment to continuous improvement

By the end of 2021, Prodeco hopes the Vivo Seguro will embed safety as a core value throughout its operations.

Safety and health continued...

Raising our contractors' health and safety performance

Prodeco is supporting its contractor companies to raise their health and safety standards and achieve compliance with both Colombia's legal requirements and Prodeco's operating standards.

Prodeco's health and safety team evaluates contractors initially at the selection phase and during the operational phase. This leads to an action plan to improve standards, as well as workshops to strengthen performance and address weak areas.

Prodeco is developing its contractor companies' leadership capacity through encouraging participation in weekly meetings, during which they present initiatives, share good practices and address health and safety concerns. Through coaching, Prodeco is working with its contractor companies to improve risk identification and the quality of incident investigations.

The contractor companies participate in Prodeco's incident prevention activities, which take a strategic approach to workplace safety through teamwork. In addition, Prodeco works with its contractor companies to prepare for emergency events through joint exercises.

During 2019, the programme resulted in a 22% decrease in absenteeism from work, as well as an increase in health-impacted workers being reassigned roles within Prodeco.

Utilising technology to reduce the risk of vehicle interactions

In 2019, 54% of Glencore's HPRIs involved mobile equipment interactions with personnel, light vehicles and heavy equipment. To manage and mitigate this significant risk, our coal department undertook a programme to evaluate and implement technological solutions to equip its workforce with the tools to reduce or eliminate mobile equipment interactions.

Glencore Coal has established 'awareness and warning' technology at its operations in Australia, South Africa, and at Prodeco in Colombia.

Fatigue is also a key focus area and Glencore Coal is evaluating and installing fatigue detection and monitoring technology in its trucks. In May 2019, Prodeco selected and began to install a fatigue monitoring system, which went live in September. The project involved strong workforce engagement and a commitment that the information from the system was used to prevent incidents, rather than for disciplinary measures.

Following the technology's installation in nearly 330 pieces of mining equipment, Prodeco has experienced a significant reduction in fatigue-related incidents, with no fatigue or distraction-related HPRIs for mining trucks, contrasting to eight HPRIs during October 2018 to October 2019.

Through the technology's ability to identify signs of fatigue and alert the operator, the number of 'micro-sleep' incidents has considerably reduced. Following the implementation of the technology at Calenturitas, one of Prodeco's mines, these micro-sleep incidents have decreased by 85%, driven by changing operators' behaviour once they have seen a video clip of their fatigue levels, as well as by the technology enabling Prodeco to intervene earlier and support fatigued operators.

Climate change and energy

Supporting research into low emission technology

Glencore's wholly-owned subsidiary, the Carbon Transport and Storage Company Pty Ltd (CTSCo), is continuing to progress its carbon capture, utilisation and storage (CCUS) project in Queensland's Surat Basin. The International Energy Agency regards CCUS as a "key technology"[1] in the global transition to a low-carbon economy.

The CTSCo Project, which began in 2010, is located in central Queensland and comprises both a proposed carbon dioxide (CO_2) storage site in the southern Surat Basin and a CO_2 capture plant situated at a nearby existing High-Efficiency Low Emission (HELE) power station. The project has received grant funding from the Australian black coal industry via the Coal 21 Fund and the Commonwealth government.

According to the Australian government's CCUS Storage Atlas, the Surat Basin in Queensland is one of the most prospective locations in Australia capable of storing industrial-scale volumes of CO_2, making it a priority area for conducting detailed CCUS studies and demonstration projects at scale.

Since the project's inception, CTSCo has brought together a range of scientific and technical experts from Universities of Queensland, Melbourne and Texas to review independently detailed modelling, testing and analysis to determine the suitability of storing CO_2 deep underground. The project is subject to rigorous government environmental assessments and approvals.

During 2019, CTSCo completed a front-end engineering and design study for the CO_2 capture plant and in 2020, there will be a final investment decision on major infrastructure. In late 2019, CTSCo secured the required exploration tenement from the Queensland government to carry out appraisal of the southern Surat Basin. Successful evaluation of this tenement will lead to a CO_2 injection trial to demonstrate the safe, effective and sustainable deployment of CCUS technology in the region.

CTSCo has continued its partnership with the China Huaneng Group (CHG) on the development of CO_2 capture technology for existing power stations. CHG has been successfully operating HELE technology, including post-combustion capture for over 10 years in China.

Glencore's CTSCo Project will lay the foundation for commercial-scale onshore CCUS from industrial processes and power generation in Queensland's Surat Basin. It will also provide a technology pathway for materially reducing Australia's overall carbon footprint, help federal and state governments achieve their stated emissions reductions targets, and provide a pathway for many of our international end-use customers to reduce CO_2 emissions.

For more information about CTSCo, visit *www.ctsco.com.au*

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1   "Transforming the entire energy system will require progress across a much wider range of energy technologies, including efficiency, CCUS, hydrogen, nuclear and others." – International Energy Agency, World Energy Outlook 2019: Introduction, p28.

   "Another key technology is carbon capture, utilisation and storage (CCUS)." – International Energy Agency, World Energy Outlook 2019: Overview and key findings, p47.

   "There are also large, capital-intensive undertakings that are essential to the shift to a low-emissions future: CCUS, nuclear (in some countries), hydrogen, integrated smart-city infrastructure and many more." – International Energy Agency, World Energy Outlook 2019: Overview and key findings, p78.

   "CCUS needs to be more widely deployed in order to capture an annual average of 1.5 Gt CO_2 between 2019-50 to put the world on track to meet the objectives of the Paris Agreement." – International Energy Agency, World Energy Outlook 2019: Energy and Sustainable Development Goals, p103.

   "In the Sustainable Development Scenario, the deployment of CCUS and improvements in plant efficiencies result in coal-related CO_2 emissions falling faster than coal demand." – International Energy Agency, World Energy Outlook 2019: Outlook for coal, p223.

   "CCUS retrofits are most attractive for young and efficient coal-fired power plants that are located near places with opportunities to use or store CO_2, including for enhanced oil recovery and where alternative generation options are limited." – International Energy Agency, World Energy Outlook 2019: Outlook for electricity, p288.

Responsible sourcing

Undertaking supply chain due diligence

In 2018, Prodeco appointed the NGO Foundation Ideas para la Paz (FIP) to undertake a risk-based due diligence exercise with ten of its critical contractors. Following the exercise, Prodeco agreed with the contractors to carry out formal human rights training to support the implementation of improved human rights management systems within the contractor companies.

FIP ran monthly training sessions to strengthen the contractors' understanding of the relationship between business and human rights. The training focused on raising the contractors' awareness of respecting human rights, relevant international standards and guidelines and identifying opportunities to strengthen their management of human rights.

At the end of the training, around 30 people received proficiency diplomas.

Building on the training, FIP tasked the participants with promoting the knowledge acquired during the sessions with colleagues. This initiated reflection and a multiplying process, as well as building awareness of human rights within each company.

The contractor companies organised internal sessions on human rights and their relationship with business activities. These sessions resulted in 10 companies updating or establishing grievance mechanism and human rights management systems. Most contractor companies now have human rights risk analysis processes in place.

Human rights

Working in partnership for peace and sustainable development

Since 2016, Prodeco has worked in partnership with local government and the Cesar Development and Peace Program (PDPC) in the promotion of projects that contribute to improving the socio-economic standards in the communities living in mining regions.

Also involved in this partnership are the presidential human rights office, the offices of the local governor and mayors and the Agency for the Renewal of the Territory.

Through the partnership, Prodeco is supporting two villages in the Cesar department, La Victoria de San Isidro and Estados Unidos, on various projects that encourage peace, human rights, democratic governance, integral and sustainable development, education and culture.

During 2017, in La Victoria de San Isidro, Prodeco initiated a process to strengthen organisational and business skills and to encourage increased community participation. The process created two community organisations, who in 2018 signed a 'trust pact' with Prodeco to symbolise the parties' commitment to strengthen entrepreneurship initiatives, rebuild values, and support for peaceful coexistence.

Since 2018, Prodeco has supported the strengthening of community associations of the Estados Unidos village. This resulted in a 2018-2040 Strategic Development Plan, which includes stakeholder engagement, planning and public management of the territory.

During 2019, the PDPC's work focused on two rural districts affected by conflict. It successfully implemented a number of sustainable livelihood projects, strengthen the communities' capacities in project management and supported local authorities' public projects. As a result of the work undertaken by the PDPC, both communities generated strategic development plans that will be included in the municipalities' four-year plans.

Identifying and responding to human rights risks

Glencore Coal's South African business (GCSA) is committed to fostering socio-economic resilient communities and respect for human rights everywhere that it operates.

During 2017, GCSA undertook an internal human rights risk assessment and had its approach externally assessed. Building on the findings, GCSA adapted its approach to identifying and addressing human rights risks to prioritise those affecting people rather than its business.

It identified human rights-related issues linked directly and indirectly to GCSA, for example employment opportunities, traffic safety and noise and issues. There were also human rights-related issues not linked to mining activities but where the community expected GCSA to provide a response, such as crime, education and availability of basic services.

GCSA also updated its grievance mechanism to reflect the findings, offering a community toll-free number. However, despite extensive promotion, it received a low number of complaints.

During 2018, GCSA conducted an awareness campaign on the grievance mechanism with employees, contractors and communities and explored alternative platforms such as WhatsApp. GCSA also conducted internal training sessions and campaigns to support a greater understanding within its business of the identified issues, as well as building human rights awareness with its senior management team.

GCSA rolled out a free Wi-Fi initiative to local communities, which supported addressing a number of the community-identified issues by facilitating access to GCSA's enterprise and supplier development portal, employment opportunities and information on health programmes, as well as supporting learners' access to educational programmes.

GCSA developed a human rights risk assessment action plan that identified key risks and their effect on local communities. It incorporated these risks into the business risk register, which drives internal awareness and supports proactive responses to identified issues.

In 2019, the grievance mechanism was further assessed to effectively manage repeat, multiple and vexatious complaints. GCSA also enabled community members to lodge complaints directly via the free Wi-Fi portal. During the year, GCSA prioritised reviewing and updating its human rights risk register, which included reassessing risk ratings to reflect mitigation measures.

Going forward, findings from an internal audit on the effectiveness of the work undertaken on the induction module and various human rights awareness campaigns will assist to further improve GCSA's approach to human rights.

Land stewardship

Optimising Lakenvlei's wetland rehabilitation offset

As part of Glencore Coal South Africa's (GCSA) rehabilitation commitments for the Goedgevonden Complex, it identified the Lakenvlei wetlands, in the Mpumalanga Province, as an offset opportunity.

The provincial authorities classify Lakenvlei as an irreplaceable area for biodiversity, recognising that the wetlands provide valuable ecosystem services that include water supply and quality maintenance, streamflow regulation, flood attenuation and erosion prevention. Lakenvlei also provides crucial habitats for a number of endangered flora and fauna, including all three of South Africa's crane species and the critically endangered white-winged flufftail.

The area's thriving tourism industry relies on the wetlands to maintain local biodiversity.

Unfortunately, a number of the wetlands are at risk of degradation. Typical wetland rehabilitation involves 'hard engineered' structures such as concrete weirs with large machinery. Lakenvlei's wetland rehabilitation design was optimised to use a 'soft engineering' approach, installed by the local community.

The Lakenvlei wetland offset project exceeds 1,100 hectares, and is the first of its kind for the South African coal mining industry, as well as the first to use the soft-engineering approach.

The project's design supports the reducing erosion with minimal impact on the wetland. A local contractor, using workers from the local community, is carrying out the construction work, creating local awareness of the wetland's rehabilitation and upskilling local people.

Planning for the project began in 2015-2016, when the South African government issued new offset guidelines. As part of the planning process, GCSA engaged with local authorities and interested stakeholders, including engineering and wetland specialists, environmental committees, government representatives including the Department of Environmental Affairs, the Endangered Wildlife Trust, Bird Life South Africa, the Mpumalanga Parks and Tourism Agency and the Lakenvlei Landowners association.

In 2018 and 2019, GCSA undertook design work and construction started in December 2019. The offset area consists of seven wetland clusters. Construction is currently underway and will cost ZAR5 million to complete.

Achieving rehabilitation certification at Rolleston Open Cut

In recent years in Australia, mine rehabilitation and closure planning have become increasingly important with interest from industry, government, stakeholders and communities. Rolleston Open Cut's progressive rehabilitation and mine closure planning incorporates environmental objectives into the mine planning cycle.

At Rolleston Open Cut, the journey toward achieving rehabilitation certification and successful post-mining land use began before mining commenced. Prior to mining, much of the land was used for grazing cattle and, following government certification, cattle have been reintroduced.

The Progressive Rehabilitation and Closure Plan (the Plan) runs for the life of the operation and

Land stewardship continued...

includes consideration for and the development of the most appropriate post-mining land use. Government, stakeholders and communities are involved in the Plan.

Once the Plan identified post-mining land use, a risk management strategy identified and developed the final landform with considerations for both environmental and mine planning outcomes. The process saw several iterations as theories and options were tested, maintained or discarded following practical, financial and sustainable assessment under both Glencore Standards and government legislation.

The Queensland government certified areas of rehabilitated mined land as being complete in 2018 (220 hectares) and 2019 (166 hectares).

Successfully closing West Wallsend mine
Glencore's Macquarie coal complex is located in the Lake Macquarie region of New South Wales (NSW). The site encompasses West Wallsend Underground, the former Macquarie Coal Preparation Plant, the former Westside Open Cut Mine and the former Teralba Colliery Northgate and Southgate sites.

In 2015, Glencore and its joint venture partners agreed to reduce the underground operation's mine life by several years. This led to accelerating

the development of a detailed mine closure plan that, prior to closure works commencing, would meet stakeholder expectations, receive government regulator's approval and be endorsed by Glencore and its joint venture partners.

The development of such a detailed plan was regionally unique. The first objective was to 'begin with the end in mind' meaning to set a final land use and identify steps to get there. The plan was developed as a 'reverse environmental impact statement', which included a detailed risk assessment with the objective to be holistic in supporting the transition from mining to rehabilitation and the final steps to relinquish the mining tenements.

The detailed mine closure plan included various technical studies, such as a socio-economic analysis of the impacts of the closure, long-term ground water predictions, long-term seismic analysis to assess tailings dam stability, contamination testing, land rezoning objectives, mining tenement relinquishment plan and land form modelling including 3D visualisations.

In 2016, with the end of mining at West Wallsend Underground operation, the complex completely closed ending almost 100 years of mining across the complex. Since then, we have made significant progress on various mine closure works, including shaft and drift filling, building demolition, subsidence remediation, contaminated land management, various earth works and tailings dam rehabilitation. The plan will run until 2030.

Few examples exist within NSW where mines have successfully closed without ongoing management issues. Macquarie Coal believe the development of the detailed mine closure plan and rehabilitation works to date will lead to this successful mine closure outcome. The approach demonstrates to stakeholders that mine closure can be successful and has reduced stakeholder concern that mine sites are long-term legacies affecting local community.

The detailed mine closure plan is publicly available, supporting the sharing of its learning with stakeholders through site tours and conference presentations.

Responsible citizenship

Responsible citizenship in South Africa

Glencore Coal South Africa (GCSA) takes an active role in the communities living close to its operations through a wide variety of initiatives.

Its E-Learning Programme connects urban schools with rural and underperforming schools using interactive smartboards, desktop sharing and audio/video streaming. A wireless system connects the schools, which are sometimes located over 50-100km from one another. The system transmits mathematics and science lessons to grade 11 and 12 learners. To date, GCSA has connected 19,985 learners based in 21 rural schools, with a significant impact on pass rates.

Capacity building and skills development initiatives that supports community training in mining and non-mining related fields is part of GCSA's efforts to develop its workforce pipeline. The training links to the mining industry's needs, as well as other portable skills to reduce dependency on the sector.

Through upskilling, community members increase their employment options across a broad range of sectors. Since 2014, GCSA has upskilled nearly 1,000 community members in various transferable skills. In 2019, an additional 421 learners participated in skills development initiatives.

In 2017, GCSA and the South African Council of the Blind initiated an eye screening initiative in schools. Since then, the initiative has screened around 11,600 learners in 18 different schools. The screening has resulted in 431 children receiving glasses, 2,500 receiving treatment for minor ailments and 22 cases referred to the state ophthalmologist. The initiative has allowed these children the opportunity to excel at school through being able to see clearly.

In 2019, GCSA collaborated with Operation Smile South Africa, a non-profit, volunteer medical services organisation that provides free reconstructive surgery to children and adults born with cleft lips and/or cleft palates. The affected children experience significant emotional and social consequences and are often ostracised by their communities. Operation Smile can restore a child's dignity and ensure a brighter, happier future.

GCSA rolled out its free Wi-Fi initiative to a number of communities in the Mpumalanga province. The initiative includes 15 hotspots that allow access for up to 250 users and each user receives 500Mb per day. On average, there are 540 users on the network, using around 187GB every day. The majority of the users are between 18 and 34 years of age and are either students or unemployed people seeking work.

In eMalahleni, GCSA started to renovate the Phola Taxi Rank in 2017. Since then, the rank has been equipped with roofing, an administration block with three kiosks for small entrepreneurs and a toilet block. Previous participants of GCSA's skills initiatives are working in the facilities serving local commuters. GCSA has also provided a free Wi-Fi hotspot for commuters to access while waiting for transport.

Responsible citizenship continued...

Supporting farmers to become sustainable businesses

At the end of 2017, Prodeco signed a cooperation agreement with Corporación Vital and Compass Group, the food service administrators at the mining operations. The agreement strengthened local production and established a supply chain for the mines' cafeterias.

During the agreement's first year, the agreement supplied 300 tonnes of food, with 39 different products, to La Jagua and Calenturitas mines' cafeterias. This equalled a value of more than 550 million pesos. Over 350 local producers benefited from training programmes to strengthen agricultural activities, improve access to markets and achieve fair market prices.

The programme also implemented *'Farmer's Markets: from the farm to the table'*, which supports local producers selling their products directly to neighbouring communities. Today, each day over 40 local producers sell more than 60 products, such as eggs, raw cane sugar, coffee, cheese, vegetables, honey and others.

The Colombian-British Chamber of Commerce recognised the programme in the category *best management programme for stakeholders*, which identifies projects that assist and support vulnerable communities to improve in a sustainable manner their quality of life.

Strengthening social licence to operate

In 2018, GCSA commissioned world-renowned stakeholder engagement specialist, Dr Robert Boutilier, to assess its social licence to operate (SLO). This included an extensive interview process with community representatives, NGOs, civic organisations and government departments.

Following the completion of the report, GCSA developed its SLO Strategy in 2019. GCSA's vision is to improve its image and reputation by making a recognised difference in the communities in which it operates. The strategy includes seven key target areas for improvement: communications and relationship building, human resources, capacity building, local economic development, local employment, local procurement and contractor management.

In 2019, GCSA successfully rolled out the first phase of this strategy. This included stakeholder mapping, re-establishing community consultative forums that provides platforms for community engagement and launching asset-based engagement platforms with local communities. As part of its efforts to make meaningful impacts in host communities, GCSA continued to collaborate with peers in the Minerals Council of South Africa.

In 2019, GCSA launched a commitment register as a means of building trust with communities. The register holds GCSA personnel accountable for community related commitments. GCSA also updated its local procurement plan to build, develop and support local businesses, as well as small medium and micro enterprises.

GCSA has consistently engaged with its core contractors on its expectations for community engagement, employment, procurement as well as benefiting local communities through collaborative initiatives.

Our people

Increasing the participation of Indigenous Australians in our business

In Glencore's Australian coal assets, the Cultural Heritage Pathways Programme (the Programme) seeks to provide real employment connections for Indigenous Australians associated with the geographies of our operations.

Indigenous people are currently under-represented in Australia's workforce, including in the resource sector. The Programme provides the opportunity to address that gap, specifically targeting unemployed Indigenous people or those actively seeking employment.

The Programme evolved from various existing initiatives. Over 26 weeks, it takes a holistic approach towards providing opportunities to secure employment, as well as covering personal and lifestyle choices in its pre-employment, and work experience phases. Its objective is for participants to secure permanent employment. A key component is the participation of Indigenous mentors from Glencore Coal's workplaces and external cultural mentors from the aboriginal communities.

Glencore Coal consulted with Traditional Owners, other Aboriginal groups and Elders on the structure and content of the Programme, who strongly endorsed the approach. There has also been strong support from the Department of Aboriginal and Torres Strait Islander Affairs, the Queensland government's lead agency with regard to Indigenous engagement.

During 2018 and 2019, a pilot run by the Oaky Creek coal operation demonstrated how the Programme could lead to a new normal, enabling positive lifestyle changes and work attitudes. The pilot had 12 participants, eight of which secured permanent employment at the end of the training period with employers associated with Oaky Creek.

In 2020, two Queensland programmes are supporting 20 participants and 15 are in the Upper Hunter programme. Site-based and external mentors assist participants over the full 26 weeks.

Copper

We mine and process copper ore and have a sizeable smelting and refining capacity. We have assets in all the major copper-producing regions. We are one of the world's largest copper suppliers and its third largest producer of mined copper. We are one of the largest producers of cobalt, a by-product created by our DRC copper assets.

Operating highlights

Own sourced copper production was 6% lower than in 2018. Approximately half of this related to the African copper assets, with Katanga's ramp-up partially offsetting Mutanda scaling down to temporary care and maintenance and Mopani's smelter refurbishment shutdown. The remainder primarily comprised relatively minor portfolio changes and maintenance

Own sourced copper production (mt)

1,371.2
2018: 1,453.7

Copper metal and concentrates marketing volumes sold (mt)

4.1
2018: 4.5

KPIs	2019	2018	2017
Fatalities at managed operations	9	4	1
Lost time injury frequency rate (LTIFR) (per million hours worked)	0.43	0.39	0.38
Total recordable injury frequency rate (TRIFR) (per million hours worked)	2.90	2.89	2.34
New cases of occupational diseases	63	7	20
CO_2e Scope 1 (million tonnes)	1.6	1.7	1.9
CO_2 Scope 2 – location based (million tonnes)	1.5	1.7	1.8
Total energy use (petajoules)	40	44	45
Water withdrawn (million m^3)	371	369	394
Community investment spend (US$ million)	37	39	38
Number of employees and contractors	48,420	50,843	56,762
Proportion of female employees (%)	9%	8%	8%

Key
1. Horne smelter
2. San José Recycling
3. CCR refinery
4. Rhode Island Recycling
5. Blue Oak Recycling
6. Antamina[1]
7. Antapaccay
8. Collahuasi[1]
9. Lomas Bayas
10. Altonorte
11. Alumbrera
12. Katanga
13. Mopani
14. Mutanda
15. Pasar
16. Ernest Henry Mining
17. Mount Isa Mines
18. CSA mine
19. Townsville Copper refinery

1   Independent JV

Safety and health

Intervening to improve performance

During the first three months of 2019, our Mopani Copper Mine in Zambia experienced three incidents that resulted in the deaths of six people. This performance is unacceptable.

In April 2019, Glencore's copper department led a major fatality reduction intervention to address Mopani's safety performance.

The intervention took a three-phase approach to establish a performance baseline that identifies opportunities to improve processes and behaviour. It started with an immediate response phase, which involved audits across all work areas, the fatal hazard protocols and critical controls. This first phase reviewed competency and training and identified immediate remedial actions.

The next phase focused on accelerated change. A team, led by the regional HSEC lead for our Australian assets and including representatives from across our copper commodity department's global assets, assessed and realigned leadership, supported a third-party verification process and identified gaps as well as quick wins.

The final phase, the sustain phase, takes place over a 12 to 18 month period and continues to work on improving the operational discipline, workforce capacity building, safety leadership coaching and contractor management. The aim of this phase is to grow and sustain habits that deliver a step change in safety performance.

Since the intervention process started, we have established a new management team at Mopani, which has led to an improved leadership focus on behaviour and working conditions, as well as a visible senior leadership commitment to safety.
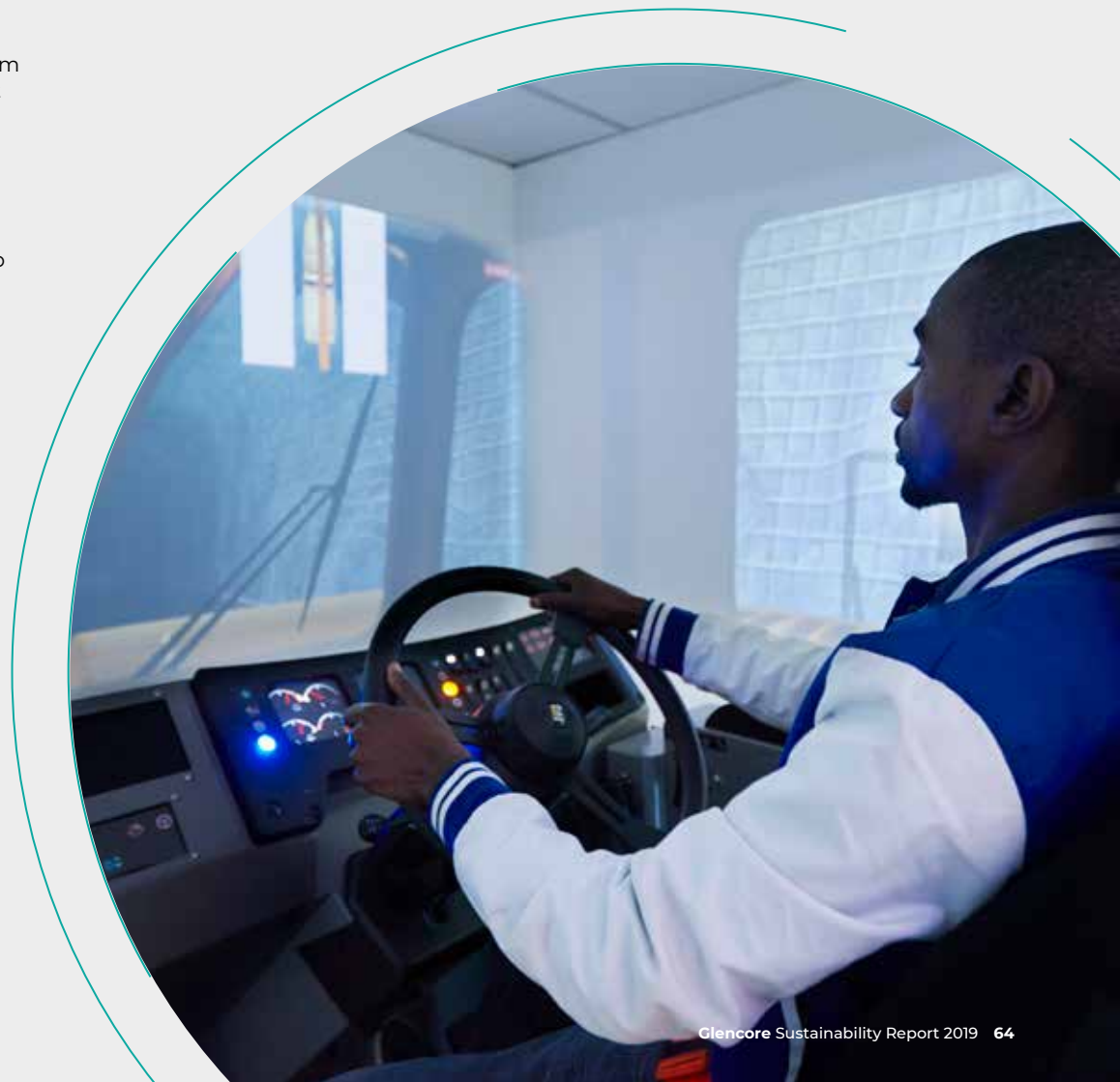
Human rights

Addressing artisanal mining

Artisanal and small-scale mining (ASM) represents an important livelihood and income source for many poverty-affected populations around the world. The sector is largely un-mechanised and informal in nature so it often presents significant risks for safety and human rights, including child labour.

Some ASM activity takes place near our operations in the Democratic Republic of the Congo (DRC), where people mine cobalt. Due to the link between child labour and artisanal mining, our customers require assurance that our product does not contain ore sources from artisanal mining.

From the end of 2018 into 2019, our Kamoto Copper Company (KCC) operation observed a growing presence of trespassing artisanal miners throughout its industrial mining concessions in the Kolwezi area. This resulted in daily intrusions onto its concession by on average 2,000 trespassing artisanal miners each day and presenting a significant risk to its employees, operating equipment and the trespassing artisanal miners themselves. KCC maintained ongoing engagement with local government, as well as with local communities to the risks of trespassing and illegal mining, including through meetings, radio communication and visual signposting.

In June 2019, a tragic incident at an area outside of our operational control resulted in multiple fatalities and injuries of trespassing ASM miners who were operating illegally at KCC. These miners had developed and were working two galleries (underground tunnels) in benches overlooking the extraction area. Two of these galleries caved in. There was no link between these incidents and KCC's activities.

KCC's emergency rescue team provided personnel and equipment to locate and transport injured people to the company's medical clinic where they received medical treatment and to support the recovery of the bodies that did not survive the collapse. We understand from the local authorities that this incident led to 30 fatalities.

In July 2019, KCC publicly confirmed that the armed forces of the DRC (FARDC) had moved into its operating area. KCC did not request the presence of FARDC in its operating area; the FARDC was not, nor is, stationed on KCC's mining concession.

In line with our Group Human Rights Policy, KCC is committed to being a responsible operator and to upholding respect for human rights in accordance with the Voluntary Principles on Security and Human Rights.

KCC recognised the challenges of having the FARDC on or near its mining concession. KCC communicated its expectations to the FARDC to exercise restraint and operate in accordance with Voluntary Principles, Glencore's Group Human Rights Policy and international human rights standards; including the principles relating to the use of proportionate force and provision of medical aid.

In response to this incident, KCC is working with a specialist ASM institution to develop a plan that considers the additional actions it can take to address risks associated with ASM activities, which includes strengthening perimeter controls to prevent intrusions, and to continue to operate programmes focusing on provision of alternative livelihoods.

Human rights continued...

Addressing security performance

At the end of 2018, we recorded a security incident at Glencore's Antapaccay copper mine in the Espinar Province of Peru. This related to a confrontation that took place between a local family group, Antapaccay's security personnel and the employees of its private security contractor.

Glencore and Antapaccay regret this incident and are committed to respecting human rights in line with the United Nations' Guiding Principles on Business and Human Rights (Guiding Principles). Glencore and Antapaccay do not condone violence and are committed to transparent and constructive community engagement.

We engaged external human rights experts to undertake an independent human rights review to build an understanding of stakeholder perceptions and concerns about Antapaccay. In the spirit of transparent engagement and reflecting Glencore and Antapaccay's commitment to operate responsibly in line with the Guiding Principles, we published a summary of the results of the human rights experts' review on our website.

The key components of Antapaccay's action plan are:
• Identifying and addressing skills and knowledge gaps, both for Antapaccay's management team and its security personnel and contractors
• Reviewing and strengthening internal social and human rights incident reporting processes
• Building and improving trust in Antapaccay through community engagement activities that demonstrate Antapaccay's commitment to respect human rights, as well as explain and promote the grievance processes and mechanisms available to community members
• Improving communication with local communities and other relevant stakeholders

Glencore will report on Antapaccay's progress on implementing the action plan in its 2020 Human Rights report.

Following the incident, we convened a two-day workshop in Lima with representatives from our corporate, department and local Antapaccay teams to explore options to improve the integration of human rights into the asset's operational management. At the workshop, the external human rights experts provided an overview of the socio-economic and political context in Peru and the implications for demonstrating respect for human rights at our operations. A workshop outcome was a plan of short- and longer-term actions that should enable Antapaccay to improve community confidence and continue to deliver a positive impact in the region.

Responsible citizenship

Improving and expanding irrigation infrastructure

During 2019, Antapaccay, our copper operation in Peru, pursued an initiative that aligns with Sustainable Development Goal 6: clean water and sanitation.

The communities surrounding Antapaccay operations lack the water infrastructure required to support agriculture and livestock activities, causing low agricultural productivity.

Antapaccay has initiated a project to benefit rural communities through installing an irrigation system for managing water for agricultural purposes as well as constructing a reservoir to collect and distribute rainwater. Antapaccay is also investigating opportunities to train local people on irrigation systems and water management.

The construction stage will support job opportunities for local labour and, once constructed, maintenance activities will sustain local employment. Greater agricultural production will increase local incomes leading to improved living conditions.

Throughout the project, Antapaccay is engaging with the Provincial Municipality of Espinar, the Ministry of Agriculture and Irrigation, the 10 affected communities and local authorities. The Mayor of Espinar, officials from the Ministry of Agriculture and Irrigation (MINAGRI), civil society organisations such as Fredemice, Quetara and Cañipía Basin and local community representatives have publicly recognised the project.

> " We are very grateful because we are looking forward and we want this project a lot because it will allow the development of the agricultural sector in the areas surrounding the basin by allowing us to irrigate hundreds of hectares of our jurisdiction. "
>
> **Jorge Taype Meza,** president of the Cañipía Basin.

Improving drinking water and sanitation services

Antapaccay is responding to the local population's need for improved drinking water and sanitation services. Currently, these services are available for many residents for just two to four hours per day.

Antapaccay is supporting a project to improve an existing dam and the existing Potable Water Treatment Plant, as well as expand water catchment structures by constructing four reservoirs and optimising two existing ones.

For sanitation services, the project will ensure the adequate collection and disposal of waste water and sewage through the renewal of pipework and expanding connections to residential properties.

Currently, feasibility studies are underway and Antapaccay expects construction to begin in 2021 and complete in 2023. The project will improve the living conditions for over 57,000 inhabitants.

Our people

Encouraging Indigenous employment

In Australia, our copper and zinc assets, Mount Isa Mines, Ernest Henry Mine and George Fisher Mine have established an Indigenous Employment Program (IEP) to provide a structured pathway to skilled, long-term employment in the mining industry for Indigenous people, while providing culturally appropriate support.

The IEP provides education and training, with employment outcomes as one of its success measures. It is making a significant improvement to the aspirations of local Aboriginal people through:

- Delivery of appropriate "pathway to employment" programmes
- Improving workplace understanding of Aboriginal culture and practices
- Active engagement in reducing barriers to indigenous employment
- Commitment to offering real jobs
- Ensuring Indigenous employees have access to mentor support

The first part of the IEP is a work-readiness component, where participants spend 12 weeks at a vocational training and employment centre. Here, they undergo a medical, physical fitness and emotional wellbeing assessments. The centre also addresses and resolves personal or family issues that may interfere with a participant's ability to work.

On completion of the first part, a steering committee, made up of a network of local organisations, chooses participants to progress through to the second 12-week stage. During this stage, the participants become paid contractors in our surface and underground operations.

A Glencore supervisor assigned to the group takes responsibility for providing experiences in as many areas as possible to support skills development across a wide variety of departments.

We also embedded a mentoring programme designed to identify and resolve challenges (both within the work environment and more broadly from a social-cultural community perspective) that are potential obstacles for full and meaningful engagement of Indigenous employees in our workplace.

Glencore's assets have offered IEP graduates permanent, short-term and casual jobs. It is an advantage for the assets, as the graduates are site-ready and familiar with the work and procedures. Graduates who progress into full-time positions also build their confidence and leadership skills by mentoring new participants in the IEP.

The copper and zinc teams have passed on their learnings to Glencore's Australian coal business who have now started their own IEP at a few sites.

Glencore is part of a partnership with the Queensland Resource Council and Queensland government to increase Indigenous participation in the state's resource sector. The partnership recognises the resources sector as uniquely placed to make a significant socio-economic contribution to Indigenous communities.

Since its inception in 2014, 212 people have completed the first stage, a 93% completion rate, and 114 of those have completed the second stage. We have invested about AUD6.75 million in the IEP.

> "Glencore's IEP has provided training and employment opportunities to over 210 local Indigenous people in the past five years. Without these opportunities, 210+ people would not have been provided with real exposure and upskilling for the mining industry. This programme provides a unique, tailored experience to all involved with exceptional outcomes. There is no other delivered mining industry programme that gives the results the Glencore IEP has. This programme exemplifies Glencore's commitment to Indigenous employment and developing a local workforce."

Katie Owens, Training and Employment Services Manager at Rainbow Gateway Ltd (RGL).

Ferroalloys

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

KPIs	2019	2018	2017
Fatalities at managed operations	1	1	2
Lost time injury frequency rate (LTIFR) (per million hours worked)	1.50	1.18	1.05
Total recordable injury frequency rate (TRIFR) (per million hours worked)	2.91	3.09	3.51
New cases of occupational diseases	2	1	4
CO_2e Scope 1 (million tonnes)	4.1	4.4	4.7
CO_2 Scope 2 – location based (million tonnes)	5.7	6.3	6.1
Total energy use (petajoules)	29	31	34
Water withdrawn (million m^3)	12	12	19
Community investment spend (US$ million)	6	10	4
Number of employees and contractors	16,708	16,876	13,533
Proportion of female employees (%)	18%	17%	9%

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

Operating highlights
Attributable ferrochrome production was 9% lower than in 2018, mainly reflecting additional maintenance days taken opportunistically in Q3 2019 during a period of high-energy costs and low-selling prices. Vanadium pentoxide production was in line with 2018.

Own sourced ferrochrome (kt)

1,438
2018: 1,580

Ferroalloys marketing volumes sold (mt)

9.5
2018: 9.0

Climate change and energy

Working in partnership to reduce emissions and energy costs

Glencore Alloys has initiated a project to build a power-generation facility that reduces emissions and energy costs at its Lydenburg ferrochrome smelter.

During 2019, our ferroalloys business agreed an energy conversion service agreement with Swedish Stirling, a leading global sustainable energy company. The agreement is for Swedish Stirling to install, operate and maintain an estimated 9.9 MW facility at the Lydenburg smelter, enough to power almost 2,000 households.

The installation will involve a phased approach, with Swedish Stirling first installing three units ahead of determining the final quantity of units required. The units contain a modular container-based solution with Stirling engines that convert the heat from residual flared gas into electricity.

At full capacity, the units will generate around 6% of Lydenburg smelter's electricity needs. Rising energy costs in South Africa are significantly affecting our operating costs. This approach will support lowering Lydenburg smelter's grid dependency, generate savings on electricity costs and reduce carbon emissions by up to 80,000 tonnes each year – the equivalent of taking nearly 17,000 cars off the road.

Glencore Alloys expects to finalise the necessary regulatory approvals and other required conditions during 2020, after which the units' construction will begin. Glencore Alloys expects the first energy conversion unit will commission by mid-2021.

The project reflects Glencore Alloys' commitment to support South Africa's transition to a low-carbon economy through incorporating technological innovations to improve its operating processes.

Responsible citizenship

Supporting the next generation of our workforce

Our ore mines, Helena, Thorncliffe and Magareng are located 75km outside of the town of Lydenburg, which serves as a crucial labour hub, providing workers for our operations.

As one of the biggest employers in the area, Glencore Alloys' corporate social investment strategy focuses on education, healthcare, infrastructure development and the incubation of local entrepreneurs.

Students from both Lydenburg and its surrounding areas had to move to larger cities to further their education once completing high school. This was a huge cost for their families and resulted in many young people not participating in tertiary education, which directly contributed to rising unemployment numbers.

Glencore Alloys recognised the urgent need to support tertiary studies, especially in technical and vocational education and training (TVET). In addition, the National Development Plan for South Africa (NDP) identifies TVET colleges as an important means to address the country's skills shortages. The NDP has a stated aim of training over 30,000 artisans each year by 2020 to improve the country's economy.

Since 2012, Glencore Alloys has sponsored around 40 school leavers each year to pursue TVET studies. However, it identified that around 100 students in the area require this training each year and Glencore Alloys recognised the need for a local TVET college.

The average cost of constructing and furnishing a TVET college is usually around US$8.7 million.

Glencore Alloys identified some old dilapidated buildings in Lydenburg belonging to the Department of Public Works. It shared its vision of converting these buildings into a TVET College with the local mayor and government representatives from the Department of Public Works and the Department of Higher Education and Training. The mayor and the Department of Higher Education and Training endorsed the initiative and the Department of Public Works donated the buildings. Glencore Alloys provided US$500,000 for the refurbishment.

Lydenburg Technical Vocational Education and Training College officially opened in November 2019 with an enrolment of 600 students. The Department of Higher Education and Training funds the students, who are studying for national certificates in civil engineering and building, electrical infrastructure construction, information communication technology and mechanical, civil and electrical engineering studies.

Glencore Alloys is proud to be supporting the next generation of workers.

Supporting emerging enterprises and suppliers

Glencore Alloys significantly contributes to its local communities through employment and sourcing and procuring goods and services from local entrepreneurs.

Many of Glencore Alloys' local communities are located in rural areas where it is difficult to gain experience in running businesses. In these areas, Glencore Alloys has established local emerging enterprise incubation hubs (LED hubs) to promote entrepreneurship and local enterprise.

The LED hubs offer accredited business management training, underwrite credit applications and encourages future business opportunities. Their objective is to foster a vibrant and diverse SME community, through encouraging up-coming entrepreneurs, start-ups as well as established and small businesses.

The LED hubs provide a space where individuals can develop business ideas and explore opportunities while receiving support, guidance and hands-on assistance in planning and modelling their concepts into viable businesses.

The LED hubs also facilitate business mentoring, where larger national and international businesses are encouraged to establish partnerships with local businesses in order to transfer skills and work experience as a means to build local capacity.

Glencore Alloys officially opened its first local emerging enterprise incubation hub at the end of 2018. It is completing the construction of two new hubs, one at Lion Smelter and one at the Rhovan Vanadium mine and smelter complex. It will establish a fourth hub in a refurbished building in Rustenburg in June 2020.

To date, the LED hubs have supported enterprises that deliver engineering services, metal breaking, telecommunication expertise, steel fabrication and demolition services.

Responsible citizenship continued...

Supporting environmentally-friendly sport

For Glencore Alloys' operations located in rural areas, water scarcity is a constant challenge. During 2019, Glencore Alloys funded the construction of two GreenSource water-saving Astroturf soccer fields for use by the communities living close to its Boshoek and Rustenburg Smelters.

Water scarcity is both a natural and human-made phenomenon. Freshwater on the planet is unevenly distributed and water often polluted. The GreenSource system collects rainwater and well water and uses a high-tech, ultra-filtration approach to remove contamination and provide safe water to the community.

The GreenSource system can also be used for sustainable playgrounds that encourage children and the community to come together and enjoy sport.

Glencore Alloys is proud to fund this innovative solution. During 2020, it will fund the construction of a third GreenSource Astroturf soccer field for the community living near to its Wonderkop Smelter.

Supporting public health initiatives

During 2019, Glencore Alloys refurbished and equipped an old section of the Job Shimankana Tabane Hospital in Rustenburg, converting it into a paediatric ward. The provincial hospital serves as an academic and referral hospital for 45 municipal wards in the region, including Swartruggens, Koster, Brits, and the Moses Kotane District Hospitals. A member of the hospital's executive committee thanked Glencore and the Rustenburg Business Forum for their continued investment in the community, "it is through continuous engagement with the mining industry and partnership with local business that we can, as the public and private sectors, contribute to achieving the socio-economic goals important to the development of our people."

This message was reiterated by the CEO of Job Shimankana Tabane Hospital, Mr Abednego Mvula, who said: "This ward refurbishment makes it more user-friendly for the children, making treating them much easier. It also goes a long way towards motivating our staff to provide quality healthcare; something that is critical to the entire team here at Job Shimankana Tabane Hospital. Glencore Alloy's refurbishment allows us to reallocate funds and effort into other areas requiring improvement."

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 was 3% lower than in 2018, mainly reflecting a number of maintenance stoppages at Koniambo.

Own sourced nickel production (kt)

120.6
2018: 123.8

Nickel marketing volumes sold (mt)

181
2018: 199

KPIs	2019	2018	2017
Fatalities at managed operations	0	0	0
Lost time injury frequency rate (LTIFR) (per million hours worked)	1.32	0.94	1.34
Total recordable injury frequency rate (TRIFR) (per million hours worked)	4.27	4.98	4.57
New cases of occupational diseases	0	0	0
CO_2e Scope 1 (million tonnes)	2.9	2.8	2.4
CO_2 Scope 2 – location based (million tonnes)	0.0	0.1	0.0
Total energy use (petajoules)	33	32	28
Water withdrawn (million m³)	116	123	117
Community investment spend (US$ million)	2	2	2
Number of employees and contractors	7,668	6,957	6,657
Proportion of female employees (%)	17%	16%	15%

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

Safety and health

Building a centre for safety training
Our Nikkelverk refinery in Norway is constructing a SafeWork centre that will house all safety-related training for employees and contractors. Expected to open in mid-2020, the SafeWork centre will further reinforce and symbolise the critical importance of safety for the 530 full-time employees and over 1,000 contractors who work at the site over the course of a full year.

Tom Michael Øksendal, Manager of the SafeWork centre, tasked with leading the initiative, summarises the driving force behind the SafeWork Centre: "We have had a sustained and strong focus on safe work at Nikkelverk for a long time, and we've made measurable strides. However, we must continuously improve. Nikkelverk is investing in their people and constructing the SafeWork Centre – a location where all employees and contractors will build and shape their safety competencies and attitudes. It's very motivating."

The SafeWork Centre aims to replicate the work environment of employees and contractors to re-create situations they will encounter around the site. The facility will be equipped with an industrial rig comprised of pipes and raised platforms that bring to life Glencore's Fatal Hazard Protocols (FHPs) and Life-Saving Behaviours.

The inside of the centre will reach a peak height of 13 metres, to allow employees and contractors to apply the processes and procedures outlined in Glencore's FHP of Working from Height. Stations dedicated to each Life-Saving Behaviour will reinforce the hazards the workforce needs to focus on and the critical behaviours they should adopt.

The Nikkelverk team is collaborating with a regional university to develop educational content, including defining the instructional methods and tools to be used. To make the experience as interactive as possible, the centre will use technology such as film and animation to support its training.

Reviewing mobile equipment interactions
Over the past few years, mobile equipment interactions have been the single largest contributor to fatalities at Glencore. We are investigating whether technology can address the challenge.

In 2018, the International Council on Mining & Metals (ICMM) announced an ambitious plan to make mining vehicles safer and cleaner via their Innovation for Cleaner Safer Vehicles (ICSV) programme, which supports the availability of collision avoidance technology for mining companies by 2025.

Glencore Nickel is aligning its approach with the ICSV programme by evaluating the effectiveness of its controls and developing improvement plans for each of its sites. It is looking at how it can benefit from new technologies and prioritising equipment and technology.

Glencore Nickel identified a promising methodology used by Glencore's coal assets in Australia (GCAA). GCAA commissioned a review and analysis of 600 life-threatening events relating to mobile equipment interactions. It found 13 'required operating states' (the states required to remain safe) and more than 60 'credible failure modes' (factors that involve deviation from the required operating states).

Glencore Nickel set out to determine how to remain in the required operating state and how to control the credible failure modes. Using the data and knowledge acquired from the GCAA analysis, Glencore Nickel enabled each of its sites to measure their processes against the required operating state and the credible failure modes.

Around 20 participants, ranging from production, maintenance, support services, supervision and management, took part in 11 workshops in four countries, five mining sites (two surface and three underground) and six metal processing plants.

The workshops' outputs identified opportunities to improve training, verifying controls and distances from other obstacles and provided site management with opportunities for improvements and inputs into defining technological requirements.

During 2020, Glencore Nickel will continue to implement the workshops' findings and investigate technological solutions.

Safety and health continued...

Implementing the SafeNickel Coaching Process

Glencore Nickel is working to establish consistent safety excellence across its business through the SafeNickel Coaching Process.

The SafeNickel Coaching Process is a cascaded, positive accountability process in which leaders coach and provide direct reports guidance on using SafeNickel tools and processes. Based on behavioural science, the Process ensures consistency of key behaviours that have the greatest likelihood that employees will consistently apply desired safe work practices to create zero harm at all sites. This approach focuses on positive coaching strategies that increase discretionary effort and encourage engagement.

In 2018, Murrin Murrin started to implement SafeNickel Coaching Process and Raglan Mine began to adopt it in 2019.

Initially, teams work with external experts to incorporate tools for safety coaching through a comprehensive coaching plan. The plan identifies objectives and defines the behaviours required to achieve them. They also incorporate leading indicators to measure the impact of the coaching process together with extensive and cascading training to guide managers and coaches.

At Murrin Murrin, the coaching plan first focused on improving the quality and active participation in pre-shift meetings. A principal tool used to coach employees in safe behaviours is the use of a 'touchpoint'. A touchpoint is a focused, positive feedback that reinforces desired safe behaviours.

Geoff Peate, Murrin Murrin's Learning and Development Specialist, is the project manager coordinating SafeNickel Coaching. Geoff noted,

> " Touchpoints, with their focus on positive reinforcement of desired workplace behaviours, will become a crucial part of people development on-site, particularly as they extend beyond the current efforts into further activities we undertake as part of SafeNickel Coaching. "

Raglan Mine adopted the SafeNickel Coaching Process to enhance pre-shift meeting discussions on high potential risk activities and to positively reinforce the behaviours required to approach these activities safely.

In 2019, more than 160 people at Raglan Mine attended a two-day supervisory leadership training session and 18 people received external training on becoming a coach.

In 2020, training will continue enabling the Raglan Mine team to fully deploy the SafeNickel Coaching Process for pre-shift meetings plant-wide.

Through regular checks, the management team ensures the Process is on track and positive change occurring. Data collected from these evaluations is used to inform the Coaching Process.

Safety and health continued...

Fatigue management at Koniambo Nickel
In June 2019, Koniambo Nickel's fleet of 22 dumper trucks became equipped with technology to reduce the risk of operator fatigue.

Koniambo Nickel installed the technology in response to an anticipated doubling of the operator workforce from January 2017 to the end of 2019 due to increasing the production schedule to include both day and night shifts.

Koniambo Nickel's fatigue management strategy focuses on five key pillars:

• Behaviours: lifestyle adapted to working schedule

• Education: training on the effects personal life choices can make on fatigue levels

• Predictive: technologies that assist in managing fatigue and schedules

• Real-time: in-cab solutions that monitor operators for fatigue and fatigue events

• Analytics: review and analysis of all data to improve fatigue management

The technology selected by Koniambo Nickel consists of an in-cab camera and detection system that records fatigue, such as yawning, increased blinking, sleep or drowsiness, and sends the data via secure Wi-Fi to a monitoring centre for analysis. Depending on the nature of the fatigue event, the technology also offers an in-cab alarm to alert the operator.

Data captured during the trial period identified the number of temporary episodes of sleep or drowsiness, known as micro-sleeps. Once Koniambo Nickel implemented the in-cab alarm feature, there was a 50% reduction in micro-sleeps.

Recognising that not all fatigue-related events pose the same level of risk, the technology categorises micro-sleeps as low, moderate and critical to enable an appropriate response. Micro-sleeps deemed 'critical' pose the greatest risk, as had the technology not intervened, there was a high probability of a fatigue-related incident occurring. This demonstrates the proactive nature of the technology and its value in minimising risk.

Going forward, Koniambo Nickel will continue to evolve its fatigue management strategy as the technology evolves.

Climate change and energy

Progressing the Onaping Depth Project

The future of Glencore's nickel operation in Sudbury, Ontario, Canada, is deep mining and its ability to adapt to it. Since receiving in late 2017 the full approval for the further development of the Onaping Depth Project, our Sudbury Integrated Nickel Operations (Sudbury INO) has worked on its development and finding ways to power its future.

Onaping Depth is located below the existing Craig Mine. When completed, it will provide Sudbury INO with a significant new source of high-grade nickel ore beyond year 2035.

Onaping Depth represents a complete break from the traditional idea of underground mining. The digital age will be on full display with real-time remote management, monitoring and control from the surface. The operation will have integrated innovative safety systems. The mine will feature Wi-Fi communication between employees and from underground to surface. In some areas, it will remove miners from the workplace through utilising autonomous mining equipment.

The entire fleet of mining equipment will feature battery-powered electric vehicles, eliminating diesel emissions and reducing noise pollution. New technology will also be applied to critical ventilation and cooling systems where the ambient rock temperature can reach 40^{0}C at depth.

Creative design and engineering, including the application of new and existing technology at Onaping Depth, define the future of this underground mine. More importantly, they help ensure many more years of mining high-value nickel ore in a safe and cost-effective environment. Sudbury INO continues to work with a few major Original Equipment Manufacturers to advance battery technology for the Onaping Depth Project, test a number of battery vehicles, and eventually develop battery electric technology that will be practical, powerful and cost effective.

The extractive industry expects that within a few years, most new mobile equipment purchased for underground will be battery electric, with zero emissions. The benefits of battery electric power in an underground mining operation are numerous. Zero diesel emissions result in a smaller environmental footprint and fewer health concerns for employees. There will also be greater energy efficiency in operating our fleet of mobile equipment. When it comes to ventilation and cooling, normally one of the biggest portions of a mine's overall energy cost, the savings will be substantial.

Generating power from wind

During the year, Raglan Mine began to integrate its second wind turbine into its power network. This wind turbine was constructed in 2018 in partnership with Tuglic Energy. Through building a second 3MW wind turbine, Raglan Mine is consolidating its commitment to reducing its carbon footprint and improving its environmental record.

The first wind turbine delivered successes both in terms of savings on diesel fuel and reducing GHG emission through its integration into Raglan Mine's electrical grid. The second wind turbine should have a similar performance.

A major element has been the addition of batteries to the second wind turbine. Through storing the wind-generated power, the batteries will address any capacity loss from the two wind turbines without affecting Raglan Mine's power network.

Climate change and energy continued...

> " If the generating capacity of either one of the wind turbines ever drops from three to zero MW as a result, for example, of poor winds or mechanical damage, the batteries offset the power loss while an operator rectifies the situation, like starting another generator. "

explains **Alex Deschênes,** Operator at the Raglan Mine generating station.

Local Nunavik communities could benefit from Raglan Mine's efforts and investments in research and development by replicating the models tested and used at the mine site without having to manage the risks and associated costs of new technology.

"It's been five years since the construction of our first wind turbine, so we can truly say that we know how to handle it. We are now very comfortable with this source of energy and integrate it as much as possible into our power network. When we lower its power generation capacity, it is only because we have little choice not to do so. This is quite impressive when you consider the amount of power it generates when winds are favourable and stable; this is all the more impressive when you think of how much we save in diesel fuel." – Alex Deschênes

Promoting safe travel in the face of climate change

Our Raglan Mine, located in the extreme north of Canada, is currently participating in an initiative to help promote safer travel in the face of climate change, given its more severe impact in northern environments.

Ice cover has a significant role for the safe travel of local communities and industry. Raglan Mine's local communities rely on ice cover for their traditional activities. Raglan Mine operates ice expeditions to transport mineral extracts via a port at Deception Bay. The risk to travel is increasing due to inconsistencies in ice cover and the challenge of measuring ice thickness.

In 2015, Raglan Mine began collaborating with regional organisations to establish a sea ice monitoring project. The project established a framework to document seasonal sea ice in three local bays using satellite images, time-lapse cameras, and underwater sonars, as well as traditional Inuit knowledge to ensure a broad understanding of the ice system. The approach also includes monitoring of traditional Inuit trails that include both inland stretches where snow on the ground is essential and sea ice sections where ice thickness is an important factor.

The research group trained local community members on camera installation and maintenance, data retrieval, measurement protocols, and the use of satellite imagery to encourage communities to take ownership of long-term ice monitoring.

A website organises and makes available to communities, industry and researchers the data collected during the project, including ice freezing and melting sequences (and their respective dates), ice cover growth and ice thickness. This information supports an improved understanding of the diverse conditions of coastal ice, which is useful for developing and reinforcing thermodynamic models of sea ice to improve the safety of its users.

Responsible sourcing and supply

Responsibly producing cobalt

Our Murrin Murrin nickel mine produces cobalt as a by-product and is one of Australia's largest cobalt producers. As a cobalt producer and refiner, in addition to mining its own ore, Murrin Murrin also purchases third-party feed.

Cobalt is a metal in rising demand due to its use in batteries for electric vehicles and portable electronics. Global concern over the impacts of cobalt extraction includes child labour and unsafe working conditions, particularly in artisanal mining operations in conflict affected and high-risk areas such as the Democratic Republic of the Congo.

The Responsible Minerals Initiative (RMI) has developed a range of tools to support the responsible sourcing of minerals including cobalt. Smelters and refiners of cobalt can choose to use the RMI's Supply Chain Due Diligence Standard, which aligns with the OECD Due Diligence Guidance for Responsible Mineral Supply Chains from Conflict-Affected and High Risk Areas.

The RMI is one of three initiatives run by the Responsible Business Alliance (RBA), a non-profit coalition of leading companies in the electronics, automotive and retail sectors, dedicated to improving social, environmental and ethical conditions in their global supply chains.

To strengthen Murrin Murrin's commitment to responsible sourcing and to support the commitment of our global cobalt customers, Murrin Murrin underwent a third-party audit against the RMI's Pilot Cobalt Refiner Due Diligence Standard in November 2019. The audit assessed Murrin Murrin compliance with the requirements specified in the Standard.

Murrin Murrin was the first Glencore cobalt operation to undertake this process. The objective of the audit is for Murrin Murrin's inclusion on the RMI conformant list. This is the list of smelters and refiners confirmed by the RBA to be conformant with the Pilot Cobalt Refiner Due Diligence Standard.

Murrin Murrin is currently awaiting the final audit outcome and anticipates receiving conformant status in 2020.

Oil

We source and trade crude oil and oil products and have additional interests in oil and gas production-sharing contracts. We operate Astron Energy, a leading supplier of petroleum products in South Africa and the operator of a crude oil refinery in Cape Town and a lubricants manufacturing plant in Durban. We also own AleSat, a Brazilian fuel distributor.

Operating highlights
Entitlement interest production 19% higher than in 2018, reflecting the benefits of the drilling campaign in Chad and first oil from the Bolongo field in Cameroon.

Own sourced oil (mbbl)

5.5
2018: 4.6

Crude oil and oil products marketing volumes sold (mbbl)

1,752
2018: 1,704

KPIs	2019	2018	2017
Fatalities at managed operations	0	0	0
Lost time injury frequency rate (LTIFR) (per million hours worked)	0.20	1.35	0.48
Total recordable injury frequency rate (TRIFR) (per million hours worked)	1.33	2.16	1.21
New cases of occupational diseases	0	0	0
CO_2e Scope 1 (million tonnes)	0.98	1.05	0.98
CO_2 Scope 2 – location based (million tonnes)	0.11	0.0	0.0
Total energy use (petajoules)	11	10	10
Water withdrawn (million m³)	1.6	0.2	0.3
Community investment spend (US$ million)	0.14	0.23	0.11
Number of employees and contractors	4,479	1,331	875
Proportion of female employees (%)	26%	9%	10%

Key
1. Chemoil Terminals, Carson
2. Chemoil Terminals, Long Beach
3. Chemoil Energy
4. Asfaltos Mesoamericanos
5. Petrolatin, Guatemala
6. Ale Combustiveis
7. XStorage, Ramallo
8. Chad oil assets (Mangara and Badila)
9. XStorage, Beira
10. Astron Energy South Africa and Botswana
11. Karadeniz LPG

* Non-operated JV and equity share assets are not shown

Safety and health

Developing local health and safety skills
During 2019, Glencore's subsidiary PetroChad (Mangara) Limited (PCM), which operates our oil concessions in Chad, focused on developing the skills of our Chadian employees in the health, safety and environment (HSE) team.

The training programme is part of PCM's wider programme to upskill its local workforce and reduce the number of expat workers.

External providers conducted a number of internationally recognised training courses to develop further the local HSE team's existing knowledge and experiences. The training included NEBOSH International General Certificate for Occupational Health & Safety and the IEMA International Environment Certificate.

All our HSE co-ordinators participated in a two and a half day in-house training course, which provided a detailed overview of the SafeOil framework and Glencore's HSE management system processes. Recognising the role that HSE has in delivering 'control of work' (the processes required to deliver a safe workplace), the externally-run training focused on improving HSE performance in this crucial area. In addition there was a session on revised permit to work processes, which is the formal system that ensures adequate planning and consideration is given to the risk assocated with carrying out activities.

As a result of the training, participants improved their understanding on workplace hazards and how to assess hazards for each work area.

As part of their training, the HSE team developed materials for an online training programme, which PCM used to refresh all of its workers in core HSE topics. During 2020, PCM will also use the materials for malaria awareness and training on the SafeOil programme.

The success of the training was evident in PCM's improved injury rate during 2019, with both lost time and total recordable injury rates being below the industry averages.

Land stewardship

Training the local community in land stewardship

PCM's activities in Chad are located in the Badila and Mangara regions, where agriculture is a key economic activity.

The core objective of PCM's community development plan is to reduce dependency on our operations and to contribute to the socio-economic development of the regions in which it operates. In the Badila region, traditional farming activities coupled with soil depletion and climate change, means local farmers can no longer meet the demands of rising populations. In addition, traditional agricultural practices involve a 'slash and burn' technique that has a significant impact on the environment.

PCM have identified arable farming and livestock breeding as activities core to the region's socio-economic development. Improved agricultural practices provide an opportunity to increase local incomes and reduce environmental impacts.

PCM established an agricultural project to train and support the farmers based in Badila. During June 2018 to September 2019, PCM trained three groups of 15 farmers on market gardening techniques. The training included tree planting, market gardening, producing organic compost, manufacturing organic pesticides and recognising and treating tree diseases. In addition, the participants undertook a module on strategies for marketing and selling their produce.

This approach, offered an opportunity to the community to improve their knowledge of market gardening and plantation production knowledge and achieve food self-sufficiency through the diversification of crops. The approach also supports the community to increase its food production with a positive benefit on individual incomes and the local economy.

At the end of the training, the graduates implemented their improved understanding into their agricultural plots in the wetlands, supported with equipment provided by PCM.

The training has enabled the farmers to move from subsistence to profitable farming, which supports self-sufficiency and an opportunity to share the benefits with the wider community. This in turn, is helping to alleviate poverty, which is prevalent in the region.

Moving from slash and burn techniques to market gardening, which requires less disturbance to the land, has reduced the impact of local agriculture on the environment. The new agricultural techniques require the protection and restoration of land in order to maintain its productivity.

The groups that undertook the training have subsequently gone on to train other community members, further improving local financial incomes and increasing the availability of fruits and vegetables in the local markets.

Responsible citizenship

Responding to local concerns

PCM's operations, have established a robust grievance mechanism to collect and address community concerns.

The grievance mechanisms established by PCM align with the recommendations published by the International Finance Corporation's Performance Standards on Social and Environmental Sustainability. While developing the grievance management procedure, PCM consulted with local communities, who approved the approach.

In Chad, the grievance mechanism process captures concerns through a variety of methods, including the routine and ongoing community liaison as well as formal stakeholder engagement.

Reflecting local literacy levels, complainants usually submit a grievance to the village leader or canton chief, who in turn contact PCM's community liaison officer. PCM records the grievance in a database and tracks the progress on assessing and addressing it via a dashboard.

An investigation into the grievance takes place with the village leader and another community member present to assess whether the grievance is valid. If the grievance is valid, PCM works with the complainant to agree on compensation and the payment date. Chadian law clearly defines compensation payments. All participants in the investigation, the complainant, village leader, PCM representative and community witness agree on and sign the conclusion of the assessment or investigation.

Through monitoring and reporting on the grievances raised, we are able to measure the effectiveness of the grievance management, as well as identify and address broad trends and recurring concerns.

During 2019, the majority of the grievances in Chad related to the flooding of agricultural land during the rainy season and water runoff from PCM's concession to neighbouring farms. A third-party study has investigated how to improve the management of stormwater run-off.

Handing over the Bemangra Health and Maternity Centre to local authorities

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

Prior to the construction of the new health centre, a community-operated health centre was the main provider of medical services to Bemangra and its surrounding 35 villages and nomadic encampments, serving over 16,000 people. The old health centre was not able to meet demand or maintain the required standards.

PCM identified a need by the community to work with local authorities to build a new maternity facility and repair the existing building to improve the health centre's range of services.

The new facilities includes pre- and post-natal observation rooms, a delivery room, a midwife's office and a septic tank. The building has its own water supply system and solar-powered lighting.

The well attended handover ceremony's participants included local prefects, canton chiefs, the provincial Delegate of Public Health as well as participants from women's associations, civil society groups and local communities.

The Canton Chief of Bemangra said "thank you Glencore for promoting reproductive health and for adopting the adage 'no woman should die while giving birth'."

Since the new facilities opened, the attendance frequency for pre-natal consultations has increased by 45%, leading to nearly 50% more births taking place at the health centre and a 40% reduction in maternal and infant mortality rates.

Responsible citizenship continued...

Delivering primary education to Melom village

During 2018, PCM 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.

At the existing school, built in 2011, three teachers were providing education 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, severe winds destroyed the school.

In 2018, PCM commenced construction of a new school in Melom with three classrooms and sanitation facilities.

In September 2019, PCM handed the new school to the community. The school provides an education to around 300 local students from six local villages.

Providing books for Bardira School

In 2017, PCM built a primary school in Bardira village, which educates 160 students. During 2019, PCM provided 241 reading books to support the students' education. PCM gave the books to the school in the presence of the Donia Basic Education planner, as well as representatives from the community.

Supporting a secure water supply

PCM has supported the drilling, construction and maintenance of water wells and towers that benefit the communities living close to its activities. Over time, the water infrastructure requires maintenance to support an efficient delivery of drinking water.

PCM identified that the poor maintenance of the water infrastructure was partly due to communities lacking the funds to pay for skilled technicians and spare parts. The technicians are based in the larger urban areas, which resulted in both a delay and a 'call-out' cost.

PCM provided a six-day training course for 24 members of the community management committees in 12 cantons. The training included studying all types of pumps and hands-on training on two broken water wells. Through training local community members to maintain and service the water wells, the local communities would achieve a considerable cost saving and ensure a less disrupted water supply.

In addition to continuing the supply of drinking water, the management took on voluntary responsibility and ownership for their communities' water infrastructure, which has led to improved maintenance and servicing.

As a result of PCM's investment in water infrastructure and the training programme, over 220,000 people in 24 cantons have access to drinking water.

Developing a sustainable livelihood

In Bemangra village, a large number of residents survive with less than 0.5 hectares per family. PCM identified a need to promote food self-sufficiency. Over 80% of the adults in Bemangara village are involved in agriculture.

During the dry season, ten community members undertook three months of theoretical training and, during the rainy season, the students participated in six months of practical work experience. The training took a 'train the trainer' approach and those participating in the training went on to share their knowledge with other community members.

The training covered sustainable agriculture methods and techniques to improve crop yields. Through improving agricultural practices, the community is achieving food self-sufficiency and helping to address malnutrition. Through developing a new source of income for the community, they are contributing to the local economy.

Our people

Successfully integrating workforces

In 2019, Glencore Oil acquired Astron Energy South Africa and Botswana, a leading supplier of petroleum products and the operator of a crude oil refinery in Cape Town and a lubricants manufacturing plant in Durban. In 2018, it acquired AleSat, a Brazilian fuel distributor and Karadeniz LPG terminal in Turkey.

These acquisitions provided an opportunity to refine Glencore Oil's approach to integrating new businesses and their workforces, while identifying and mitigating HSEC-related risks. Glencore Oil's approach aligns with OECD's 2018 Guidance on change of ownership in hazardous facilities.

Glencore Oil's process starts with technical due diligence work to develop an understanding of existing and potential HSEC risks. Core to the integration process is keeping internal and external stakeholders informed on objectives and progress. This supports motivation for retained personnel and ensures continuity with no loss of competence or knowledge from within the organisation or its workforce.

During the acquisition process, Glencore Oil establishes a number of functional work streams to assess the information provided by the vendor with the objective of verifying alignment with Glencore's Group policies and ways of working.

Through site visits, Glencore Oil collects data and information to assess the facilities performance and to identify any potential environmental or legal liabilities. This includes looking at community and stakeholder relationships, assessing the management of major hazards and identifying any constraints or limitations for future operations.

The assessment stage, allows Glencore Oil to move confidently forward with the transaction, as well as informing the development of functional transition plans.

Through the integration stage, Glencore Oil holds town hall meetings with the acquired company's workforce to update them on the transaction's progress. Glencore Oil engages with relevant HSEC employees and management teams to discuss HSEC expectations and policies and to review the progress of the transition plans.

Glencore Oil conducts verification and gap assessments against priorities, policies and elements of SafeOil. The integration team develop an action plan to address any shortfalls.

At the end of the transition period, the integration process should lead to HSEC systems aligned with those of Glencore.

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.

KPIs	2019	2018	2017
Fatalities at managed operations	5	7	6
Lost time injury frequency rate (LTIFR) (per million hours worked)	1.46	1.44	1.64
Total recordable injury frequency rate (TRIFR) (per million hours worked)	3.31	3.57	4.03
New cases of occupational diseases	14	9	11
CO_2e Scope 1 (million tonnes)	2.0	2.0	1.9
CO_2 Scope 2 – location based (million tonnes)	2.5	2.6	2.3
Total energy use (petajoules)	52	51	46
Water withdrawn (million m³)	435	414	280
Community investment spend (US$ million)	37	38	40
Number of employees and contractors	52,718	54,298	40,767
Proportion of female employees (%)	16%	17%	18%

Key
1. Bracemac-McLeod mine
2. Kidd operations
3. General Smelting
4. CEZinc refinery
5. Nordenham
6. Britannia Refined Metals
7. Asturiana de Zinc
8. Portovesme
9. Kazzinc
10. Volcan
11. Los Quenuales
12. Perubar
13. Sinchi Wayra/Illapa
14. Aguilar
15. Lady Loretta mine
16. McArthur River mine
17. Mount Isa Mines

Operating highlights

Own sourced zinc production was in line with 2018, reflecting the effects of stronger production (mine restarts) in Australia and Peru, largely offset by reduced own sourced production at Kazzinc for safety reasons and expected lower zinc production from Antamina due to mine scheduling.

Own sourced zinc production
(kt)

1,078
2018: 1,068

Zinc metal and concentrates marketing volumes sold (mt)

3.1
2018: 3.2

Safety and health

Enhancing our Safety Culture

Glencore Zinc is committed to Glencore's zero harm vision and has adopted an approach of continuous improvement of its safety systems and technologies, as well as addressing practically its safety culture and leadership.

Head of Zinc Industrial Operations, Chris Eskdale said: "No matter where they work, every one of our people has the right to finish their daily shift unharmed. This is not just a target, it is a fundamental value of how we do business as one of the world's leading zinc producers. We need to ensure that everyone understands this value completely and what it means for each person. Everyone must always raise any concerns they have."

In 2019, Glencore Zinc's Behavioural Based Safety (BBS) project team undertook a safety culture survey with nearly 50,000 employees and contractors, of which around 85% responded. The survey assessed nine key factors at team, supervisory and management levels known to influence safety culture and performance.

Some of the areas measured included employee perceptions on workplace relations, the ability to engage with colleagues on safety, procedural justice, support from management, raising concerns on safety, management credibility and the management team's support for and caring about safety.

At each Glencore Zinc site, the BBS team identified safety 'champions', who were trained on facilitation skills. The champions ran focus groups with around 10% of the workforce, which gathered qualitative stories as an additional input to the data sourced from the survey.

Combining both the outputs from the workshops and the survey data, the BBS team developed an overview of each site's safety culture and its strengths and opportunities. Some of the common themes arising from the survey included the need for constant and consistent communications on safety and a visible management presence to demonstrate organisational commitment towards building a safety culture.

The survey results also showed that to drive engagement and behaviour change, feedback and recognition for safety contributions and achievements is important.

A third party analysed the data and made recommendations on next steps. The BBS team discussed the results with each site's senior management team and together identified one or two areas considered to have the greatest priority for action over the coming year in order to improve their safety culture.

Glencore Zinc recognises that leadership is a significant driver of culture. The next phase of the BBS project will focus on developing Glencore Zinc's leaders at all levels.

The BBS team have identified and trained trainers, who are delivering safety leadership training on the seven recognised safety leadership best practices known to lead to an improved safety culture:

1. Vision – describing a compelling and vivid picture of a desired safety culture and performance
2. Credibility – treating others with dignity and respect and following through on safety commitments
3. Action orientation – proactive actions to reduce exposure to risk and a persistent approach to solving problems
4. Communication – informing people on relevant safety information
5. Collaboration – promoting cooperation to solve safety problems
6. Feedback and recognition – providing positive feedback on good safety performance, publicly recognising safety contributions and celebrating safety success
7. Accountability – communicating clear safety roles and responsibilities, providing frequent and fair appraisal of efforts, holding people accountable for their responsibilities

Leaders are also learning about how to understand better and influence safety behaviours. The BBS team also offers each leader an individual development plan, which includes 360-leadership assessments and personalised coaching.

Safety and health continued...

Undertaking a multi-disciplinary, cross-commodity fatality intervention

The operations of Kazzinc, a major, fully-integrated zinc producer, are located in the eastern region of Kazakhstan and consist of six mines and four smelters producing zinc, lead, copper, gold and silver. Kazzinc employs approximately 20,000 employees.

Tragically, during 2016 to 2019, nine people lost their lives at Kazzinc's operations, which included three people during 2019.

At the end of 2019, the corporate HSEC team initiated a new approach to address our safety performance – a multi-disciplinary, cross-commodity fatality intervention at Kazzinc. The intervention team visited every room in every operation while accompanied by site general managers, with the objective of reviewing operating processes and, if necessary, closing operations with unsafe conditions.

The fatality intervention team populated a dashboard every day with its findings, High Potential Risk Incidents (HPRIs) and best practice observations. The real-time collection and consolidation of findings, supported the identification of emerging patterns, which resulted in an early understanding of the nature and scale of actions required to address the findings.

The Kazzinc fatality intervention has revealed organisational traits:

- Leadership: bold, decisive and determined leadership at multiple levels, prepared to try new and different approaches
- Organisational agility: collaboration and focus to deliver an intervention that involved the deployment of 30+ operational leaders from across the Group using new, purpose-built digital tools for real-time data collection
- Resilience: strong internal relationships delivered a respectful manner throughout the large and highly-intrusive intervention
- Competence and commitment: an obvious commitment to achieving safer operations evidenced through the professional, mature and skilful manner in which operational leaders stopped operations with unsafe conditions and acts and raised HPRIs

Going forward, the Kazzinc management team are focusing on closing out findings, verifying corrective actions, addressing the HPRIs and preparing for the second phase starting in early 2020.

The fatality intervention has already resulted in a safer plant, equipment and behaviours and has created a shared understanding of how to deliver safe and stable operations and a clear action plan to take forward.

Land stewardship

Returning a smelter to a natural state

In 2019, Glencore Zinc made a difficult decision to close the Brunswick Smelter due to changing global markets and the completion of mining at the Brunswick Mine six years earlier. On closure, the site transferred to Glencore's North American legacy operations group, who started the process of planning, permitting and executing the Smelter's closure plan.

The Smelter, located in Northern New Brunswick, on Canada's east coast had been in operation since 1966, producing more than 4 million tonnes of lead and more than 15,000 tonnes of silver. Over the course of its 50+ year history, the Brunswick Smelter employed more than 4,000 people and directly contributed over CA$3.5 billion (in 2019 dollars) to the New Brunswick economy.

We will undertake the closure process in accordance with all regulatory and corporate requirements. We will conduct the demolition and land reclamation once the planning and permitting phases are complete. Following the active reclamation phase, a period of long-term monitoring will commence.

The team executing the work includes members of the team responsible for the successful closure of the Brunswick Mine. Experience will also come from previous smelter closures, including the Kidd Metallurgical complex. This closure consisted of similar work, including demolition, land reclamation and the closure of a residue storage facility, and for which Glencore earned the Tom Peters Memorial Reclamation Award in 2014.

Responsible citizenship

Suppressing dust at tailings storage facility

At Kazzinc's Altai mining and concentrating complex, two villages of around 2,500 are located close to its tailings storage facility (TSF). The Altai complex is located in East Kazakhstan, one of the coldest regions in Kazakhstan with deep winters and warm summers. The varied weather, coupled with strong winds, means dust management is a core activity.

In May 2018, our Kazzinc asset began the first stage of installing a spraying system for the southern area of its TSF at its Altai mining and concentrating complex. Kazzinc will complete the northern area spraying system in 2020. The spraying systems provide dust suppression.

"When the devices operate, a water screen is created and this 'fog' prevents dust spreading even in strong wind" said Kaztai Takeyev, Kazzinc's chief ecologist at Kazzinc when explaining the operational concept of the spraying systems.

Each nozzle coverage area is 30m^2 when there is no wind and the water particles spread over a larger area when there is windy weather. Consequently, dust does not spread, but instead the water particles settle it down within the TSF.

Kazzinc has appointed a specialised contractor to assess the atmospheric air quality at the TSF and the surrounding area, as well as the ground water quality. To date, the measurements have shown that the spraying system is maintaining levels within the thresholds established by Kazzinc's environmental permit.

Fish stocking of Bukhtarma reservoir

Our Kazzinc operation receives much of its power from the Bukhtarma Hydroelectric Power Plant. The Bukhtarma Hydroelectric Power Plant created the Bukhtarma water reservoir on the Irtysh River. It is the largest water reservoir in Kazakhstan and one of the five largest man-made water reservoirs in the world.

In 2019, Kazzinc entered into a partnership with Kazakhstan's Research Center of Fishery to research the region's fish resources. The research investigates the impacts on fish resources from the Bukhtarma Hydroelectric Power Plant through looking at the biodiversity of the reservoir and the actions needed to restore natural resources and support flora and fauna to flourish. The research will make recommendations on compensations potentially required for this section of the Irtysh River.

The research showed a need to regularly replenish fish stocks, while investigating means to protect fish from the processes of the hydroelectric power plant. Kazzinc signed an agreement with the Bukhtarma Fish Hatchery Ltd for fry raising.

During 2019, Kazzinc released 900,000 juvenile common carp into the Bukhtarma reservoir.

Mikhail Ivanov, HSEC Engineer at Bukhtarma Hydro, said: "We chose the location and timing of the fish restocking on the recommendations provided by the Research Center of Fishery. We have released more than 890,000 of juvenile common carp at a cost of around 19.6 million tenge".

Encouraging Indigenous employment

McArthur River Mine (MRM) is located in the Gulf of Carpentaria in the Northern Territory of Australia. MRM is an active member of its community and works closely with Traditional Owners to preserve the cultural heritage of the local Aboriginal people.

Indigenous employees at MRM are an important part of our workforce, currently accounting for around 20% of total employees. During 2019, its recruitment and development programmes targeted local Indigenous people with its trainee programme that 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 three years and has led to many of the trainees securing permanent employment and upskilling through nationally recognised qualifications. In 2019, MRM added formal mentors to support with the Indigenous people's transition to employment. To further supplement the traineeship programme, MRM hired six Indigenous people through its apprenticeship programme and another eight through its trainee truck programme.

Glossary

ASM
Artisanal and small-scale mining.

Carbon Scope 1 and Scope 2 location-based intensity
The carbon Scope 1 and 2 location-based intensity is calculated as a ratio of Scope 1 and 2 location-based emissions of Glencore operated industrial assets owned at the end of the reporting year, divided by their copper equivalent production. Further synonyms of these metrics used in this report include 'carbon emissions intensity' and 'greenhouse gas emissions intensity'.

care and maintenance
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.

CCUS
Carbon capture, utilisation and storage.

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 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_2e
Carbon dioxide equivalent (CO_2e) is the universal unit of measurement for the global warming potential (GWP) of greenhouse gases, where one unit of CO_2e 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_2, 28 for methane and 265 for nitrous oxide, as per IPCC's 5th Assessment.

commodity department
Glencore's business is divided into a number of commodity departments, including copper, nickel, ferroalloys and zinc.
See 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.

CSIRO
The Commonwealth Scientific and Industrial Research Organisation (CSIRO) is an Australian federal government agency responsible for scientific research. Its chief role is to improve the economic and social performance of industry for the benefit of the Commonwealth.

CTSCo
Glencore's wholly-owned subsidiary, the Carbon Transport and Storage Company Pty Ltd (CTSCo), is developing a CCUS project.

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"

DPM
Diesel particulate matter.

EITI
The Extractive Industries Transparency Initiative (EITI) 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.

ESG
Environment, social and governance.

ferroalloys
Various iron alloys that have a high proportion of one or more other elements, eg manganese, chrome or silicon.

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_2). The Greenhouse Gas Protocol separates GHG emissions into different scopes depending on source.

GRI
The Global Reporting Initiative (GRI) is an international independent standards organisation that develops and disseminates voluntary sustainability reporting frameworks; 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.

Glossary continued...

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 (HPRIs) could potentially result in a catastrophic or major outcome.
See 'incident classification'

HSEC
Health, safety, environment and communities.

ICMM
The International Council on Mining & Metals (ICMM) is an industry trade body dedicated to establishing and promoting leading sustainability practices.

ISCV
The ICMM's Initiative for Safer Cleaner Vehicles is building an evolving industry pathway towards the safest approach for controlling potential vehicle interactions.

incident classification
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.

IFC
The International Finance Corporation (IFC) 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 (ILO) 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 United Nations Intergovernmental Panel on Climate Change (IPCC) 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 (LBMA) 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 (LTIs) 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
The lost time injury frequency rate (LTIFR) is the total number of LTIs recorded per million working hours.

MACC
A marginal abatement cost curve (MACC) is an estimate of the volume and costs of opportunities to reduce emissions in a given year.

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"

Mining Technology Steering Team (MTST)
The MTST is an internal, cross-departmental, technology working group that investigates how technology can reduce the health and safety risks faced in our operations

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.

NDCs
Nationally Determined Contributions (NDCs) are the efforts by each country to reduce national emissions and adapt to the impacts of climate change.

OECD
The Organisation for Economic Co-operation and Development (OECD) 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.

the Paris Agreement
An agreement within the United Nations Framework Convention on Climate Change, dealing with GHG emissions mitigation, adaptation, and finance, signed in 2016.

petajoule (PJ)
A measure of energy equivalent to a thousand trillion joules, or 10^{15} joules, usually used to express energy consumption by cities or major industries.

Glossary continued...

SafeWork
A Glencore initiative to change attitudes towards safety and bring about long-term sustainable change to eliminate fatalities and serious injuries.

Safeguard Mechanism
The Safeguard Mechanism provides a framework for Australia's largest emitters to measure, report and manage their emissions.

Scope 1 emissions
Greenhouse gas emissions from owned or controlled sources (ie direct emissions), including emissions from combustion in owned or controlled boilers, furnaces and vehicles/vessels and coal seam emissions. Our Scope 1 emissions are measured in CO_2e.

Scope 2 – location-based emissions
This approach applies grid emission factors to all purchased electricity, regardless of contractual purchase arrangements. Our Scope 2 – location-based emissions are measured in CO_2.

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. Our Scope 2 – market-based emissions are measured in CO_2.

Scope 3 emissions
Indirect greenhouse gas emissions (not included in Scope 2) that occur in our value chain, including both upstream and downstream emissions.

tailings
The residue of an industrial process, especially residue that contains mineral ore.

TSF
Tailings are stored in purpose-built tailings storage facilities (TSFs).

TRIFR
The total recordable injury frequency rate (TRIFR) is the sum of fatalities, LTIs, restricted work injuries (RWIs) and medical treatment injuries (MTIs) per million hours worked. The metric represents all injuries that require medical treatment beyond first aid.

United Nations Global Compact (UNGC)
The UNGC is a voluntary initiative based on CEO commitments to implement universal sustainability principles and to take steps to support UN goals.

United Nations Guiding Principles
The United Nations Guiding Principles on Business and Human Rights are a set of guidelines for states and companies to prevent, address and remedy human rights abuses committed in business operations.

Universal Declaration of Human Rights
The Universal Declaration of Human Rights is a common standard for all peoples and all nations that sets out fundamental human rights to be universally protected.

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.

water discharge
Total of water effluents discharged over the course of the reporting period to subsurface waters, surface waters, sewers, treatment facilities, etc.
See "water output"

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.
See "water input"

workforce
References to our workforce include both employees and contractors.

Assurance statement

Independent assurance report to Glencore plc on selected information in the 2019 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 2019 Sustainability Report, and the documents "Our Approach to Sustainability" and "ESG data book and GRI Index" for the year ended 31 December 2019. Each of these are available on Glencore's website http://www.glencore.com/sustainability.

Selected Subject Matter for assurance

Glencore's disclosures in the 2019 Sustainability Report regarding subject matters 1 to 5 of the International Council of Mining and Metals' (ICMM) Sustainable Development Framework, 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 and 13 of the Sustainability Report 2019 (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);

• the company's reported performance during the given reporting period for selected key

performance indicators' presented in Table 1 below (ICMM Subject Matter 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 2019 and in the ESG data book and GRI Index 2019 (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.

Emphasis of matter regarding 20 fatalities related to the Mutanda asset

Per our scope of work, we provide limited assurance on the KPI 'Total number of Fatalities' reported by Glencore plc in the 2019 Annual Report (the Report). Our substantive test procedures included testing the classification of 100% of all reported 'recordable' and 'non-recordable' fatalities during the assurance period.

In the course of completing our assurance procedures, we reviewed a fatal event in the Democratic Republic of the Congo in February 2019, which resulted in the deaths of 20 civilians. We concluded that Glencore's classification of the incident as 'non-recordable' was aligned to the definitions set out in the reporting criteria 'GCP Database Guidance document GHS GDL 007 Classification of incidents with health and safety consequences'. We draw

Table 1: ICMM Subject Matter 4

Material risks and opportunities	Report Page[1]	Key performance indicators	Assured figure
Catastrophic hazard management	16	Total number of major (Category 4) and catastrophic (Category 5) spills	0
Workplace health and safety	19	Total number of Fatalities (employee and contractor)	17
		Total Recordable Injury Frequency Rate (employee and contractor) (injuries per million working hours)	2.86
		Total Lost Time Injury Frequency Rate (employee and contractor) (injuries per million working hours)	0.99
Climate change and energy	22	Total direct and indirect energy consumption (PJ)	210
		Total Scope 1 GHG emissions (million tonnes of CO_2e)	18.3
		Total Scope 2 GHG emissions – location-based (million tonnes of CO_2)	10.9
		Total Scope 3 GHG emissions – losses from transmission and distribution of electricity (million tonnes of CO_2e)[2]	0.9
		Total Scope 3 GHG emissions from use of sold products (fossil fuels, million tonnes of CO_2e)	325.7
Water	29	Total water withdrawal (million m³)	1,050
		Total water discharge (million m³)[2]	697
Responsible Citizenship	44	Total amount of Payments made to Governments (US$ million)	7,673

1   Page references are provided to the Sustainability Report 2019.
2   KPIs will be reported in the Databook and GRI References 2019.

Assurance statement

readers' attention to pages 46-47, on which management describe the incident and reference the ongoing work that seeks to raise health and safety awareness, and related standards, amongst the company's suppliers and key contractors to minimise the possibility of an incident such as this occurring again. This matter provides important context for fatalities occurring during the year, but our assurance conclusion is not modified in respect of it.

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 2019 and Databook and GRI References 2019, for the year ended 31 December 2019, have not been prepared, in all material respects, in accordance with the Reporting Criteria.

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, South Africa, Australia, North America, Asia and South America) and commodity coverage (Coal, Copper, Ferro Alloys, 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 2019, 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

12 May 2020

Important notice

Important notice concerning this report 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. 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.

By their nature, forward-looking statements involve known and unknown risks and uncertainties, many of which are beyond Glencore's control. Forward-looking statements are not guarantees of future performance and may and often do differ materially from actual results. Important factors that could cause these uncertainties include, but are not limited to, those disclosed the Principal Risk and Uncertainties section of the Annual Report 2019.

For example, our future revenues from our assets, projects or mines will be based, in part, on the market price of the commodity products produced, which may vary significantly from current levels. These may materially affect the timing and feasibility of particular developments. Other factors include (without limitation) the ability to produce and transport products profitably, demand for our products, changes to the assumptions regarding the recoverable value of our tangible and intangible assets, the effect of foreign currency exchange rates on market prices and operating costs, and actions by governmental authorities, such as changes in taxation or regulation, and political uncertainty.

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