



SUSTAINABLE DEVELOPMENT REPORT 2018

Towards long-term sustainability

Eurasian Resources Group S.à r.l.



ERG has integrated mining, processing, energy, logistics and marketing operations primarily in Kazakhstan and Africa. More broadly, we operate in 15 countries and have a global workforce of around 70,000¹ people.

ERG represents one third of the metals and mining industry in Kazakhstan and is the world leader in high-carbon ferrochrome production by chrome content. We are also a key supplier of iron ore, aluminium and alumina in the CIS, as well as a provider of energy and railway services.

Through our assets in Africa, we are a major producer of cobalt and copper, and have development projects focused on manganese, platinum, bauxite, fluorspar and coal. We are also developing an iron ore and logistics project in Brazil.

ABOUT THIS REPORT

This annual Sustainable Development Report covers Eurasian Resources Group's (ERG) sustainability performance during the 2018 calendar year². It covers ERG's own mining, processing, power generation, project development and transportation activity.

The contents of this report have been informed by the requirements of the Global Reporting Initiative (GRI) Standards. Accordingly, it is focused on our most material Sustainable Development issues (p. 18). The report has been subject to an internal validation process. It has not been subject to third party assurance. For all queries in relation to this report, please contact: sdreport@erg.net.

Please note that this report is produced in English, Kazakh and Russian (with summaries also available in other languages). In the event of any inconsistencies, the English-language version shall take precedence.

Notes on the preparation of this report

All references to 'ERG' or the 'Group' refer to Eurasian Resources Group S.à r.l. and/or its subsidiaries.

¹ Excluding contractors.

² This follows our last Sustainable Development Report, published in 2018 and covering the 2017 calendar year.





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OUR GLOBAL FOOTPRINT

ERG is a leading diversified natural resources group

Key highlights

COUNTRIES OF PRESENCE (INCLUDING EXPLORATION)

15

SHARE IN KAZAKHSTAN'S METALS AND MINING SECTOR¹

1/3

GROUP HEADCOUNT²

69,253

REDUCTION IN LTIFR (EMPLOYEES ONLY)³

-15.9%

COMMUNITY SOCIAL INVESTMENT SPENDING

US \$115M

Launch of Clean Cobalt Framework



What makes us different?

- » A long-standing heritage in Kazakhstan, with a global operational footprint
- » Participant in China's Belt and Road Initiative – strategically positioned in the heart of Eurasia
- » A diversified portfolio, with low-cost operations and significant growth potential
- » A diverse and long-standing global customer base
- » Integrated mining, processing, energy, logistics and marketing operations
- » Poised to become a major player in responsibly produced cobalt

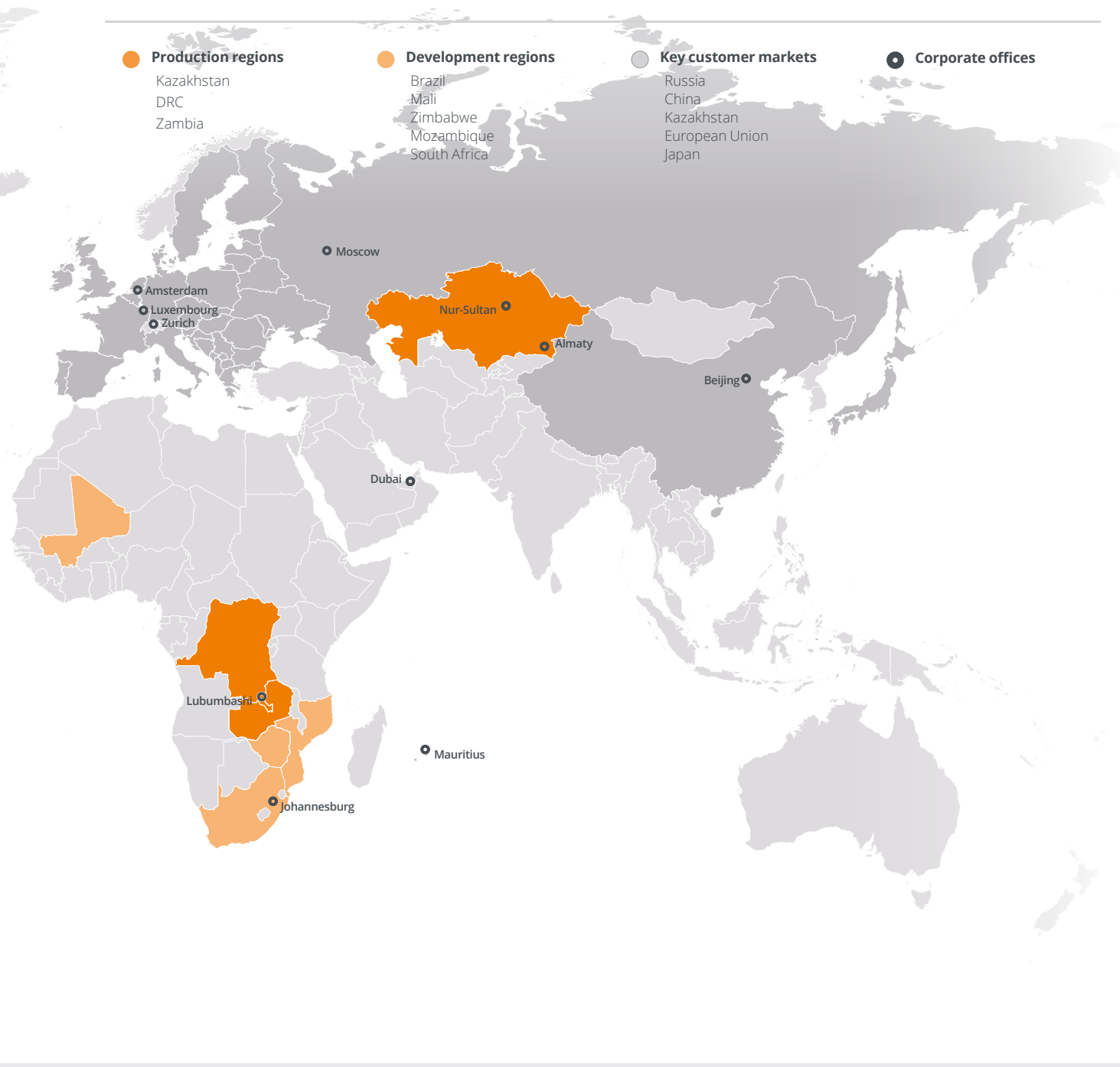
Key commodities

Division

Number of key operational assets

Key countries of operation

1 Based on production volumes.
2 Excluding contractors.
3 Including employee fatalities.



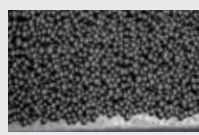
Ferroalloys



4

Kazakhstan

Iron Ore



1

Kazakhstan

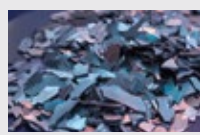
Alumina and Aluminium



4

Kazakhstan

Other Non-ferrous



4

DRC and Zambia

Energy



4

Kazakhstan

Logistics¹



1

Kazakhstan

¹ Our logistics entity Sabot is included in Other Non-Ferrous as it primarily acts in a supporting capacity for our operations in Africa.

CEO STATEMENT



At ERG, we view Sustainable Development as a broad concept that extends beyond the responsible management of our impacts on others. It is also about ensuring our business is configured to generate value well into the future and to deliver ongoing benefits for our stakeholders – from shareholders to local communities. Therefore, the pursuit of ‘business sustainability’ sits at the heart of all that we do.

2025 Strategy

Our commitment to Sustainable Development is embodied by our new, integrated 2025 Strategy. This sets out our strategic priorities as we pursue our Vision. We believe that by balancing these priorities with more immediate commercial and operational considerations, we will secure the future success of our business.

The new strategy comes as we mark the 25th anniversary of our business in Kazakhstan, and I have no doubt it will do much to help us achieve another 25 years of success.

We are now focused on implementing the 2025 Strategy – which is supported by well-defined strategic tasks, supporting actions and key performance indicators – at all levels of our business. This includes the application of a range of fully aligned functional strategies, many of which are already in development, as well as the driving of supportive cultural change through our ERG Academy.

During this process, we will be guided by ERG’s corporate values, which are actively promoted across all of our entities.

Financial resilience

An important 2018 milestone was the upgrading of our credit rating by both Standard & Poor’s and Moody’s. This was in recognition of ERG’s more robust financial position in 2017, including our improved leverage and stronger financial performance, as well as our maintenance of adequate levels of liquidity.

In 2019 both credit rating agencies reaffirmed ERG’s respective credit ratings with the revision of outlooks from positive to

Focus on safety

Nothing is more important to ERG than the safety of our employees, contractors and communities. It is therefore with great sorrow that I report five workplace fatalities in 2018 (2017: 6). I send my sincere condolences to the families of those who died. In addition to specific management responses to each fatality, we have commissioned an independent third party audit of our existing safety management system in Kazakhstan and strengthened our contractor management practices. Whilst our overall LTIFR fell to 0.58 from 0.69 in 2017, these tragic events demonstrate the need for constant vigilance if we are to achieve Zero Harm.

In addition, we remain fully committed to ensuring the safety and integrity of our tailings storage facilities. In 2019 we completed a Group-wide assessment of the risks associated with our tailings dams. This led to the development of an action plan to guide us in the ongoing implementation of necessary controls.

stable reflecting lower commodity prices and the delayed ramp up of our Metalkol RTR project.

We will continue to pursue an enhanced credit profile to support the financing of our future growth, as well as our long-term financial resilience.

Operational performance in Kazakhstan

In Kazakhstan, we continued to improve our operational performance, supported by – amongst other things – ongoing business transformation, operational efficiency initiatives and development of our portfolio. This included (in the context of a broadly positive price environment in 2018) a 7.8% increase in net ferroalloy production, driven by operational improvements at Workshop No.4 at our Aktobe Ferroalloys Plant, as well as optimisation initiatives at our other facilities. In addition, we achieved a 16.1% increase in iron ore concentrate and pellet production (partly through the use of hitherto unused production capacity) and a 4.6% increase in coal production (driven by the initiation of exports to new clients in Europe and the use of new equipment).

Metalkol RTR and responsible cobalt

A further milestone has been the start of commissioning at our strategic Metalkol RTR cobalt and copper project in the DRC in 2018. Once it reaches full production, this project has the potential to make us one of the largest players in the global cobalt market. This will mark a positive new phase for ERG and will put us at the centre of the global transition towards clean battery technology.

There is, however, increasing international scrutiny and concern regarding the conditions in which cobalt and other metals are sourced. This includes potential association with human rights risks and other challenges. It is in this context that we have launched our Clean Cobalt Framework (p. 62) at Metalkol RTR, which will deliver high levels of assurance to our value

OUR VISION

An international sustainable, socially responsible and efficient natural resources company.

OUR MISSION

Be the best at what we do. Navigate global change whilst holding true to our values. Responsibly unlocking the potential of the Earth and its people, ensuring the prosperity of those who rely on us.

OUR VALUES



Safety

Safety is a top priority at ERG



Unity

In the spirit of teamwork, Unity stands as one of the core values at ERG



Efficiency

We demonstrate Efficiency when working towards our goals



Development

Within the context of Development, ERG provides its employees with numerous opportunities to learn and grow



Responsibility

Responsibility means that ERG works continuously to fulfil the company's commitments

“ Safety – and the achievement of Zero Harm – is our top priority

chain partners whilst actively improving the lives of local people and addressing child labour in artisanal mining communities.

We seek to augment the positive impact of these efforts through our engagement in multi-stakeholder advocacy. For example, ERG is a founding member of the World Economic Forum's Global Battery Alliance, an initiative that I co-chair.

Strategic positioning in relation to China

Our growth continues to be supported by our strategic relationship with China. Indeed, the country accounts for more than 20% of our sales volumes, including high-quality ferrochrome, copper and cobalt. We are focused on ensuring that this partnership continues to grow in the coming years. For example, once Metalkol RTR reaches full production, we will be well positioned to become one of the largest single suppliers of cobalt to the Chinese market.

Furthermore, ERG is a participant in China's ambitious Belt and Road Initiative (BRI), which is expected to play an important role in underpinning our future growth. In this context, in 2018 Chinese financing and technical capabilities supported key projects including the development of Metalkol RTR.

Managing our impacts and sharing the value we generate

Achieving long-term sustainability is an ongoing journey, and there is more to be done. This is particularly the case with respect to our safety performance (see above).

In terms of environmental management, we took a number of important steps to support our future performance. This included the development of a long-term Air Emissions Strategy, as well as the introduction of advanced gas treatment technologies to relevant assets in Kazakhstan.

In addition, we continued to implement an energy efficiency programme that helped us reduce our consumption in Kazakhstan by more than 2,000 terajoules. Nonetheless, a limited increase in energy production meant we experienced a corresponding increase in our overall greenhouse gas (GHG) emissions. Therefore, we will continue to explore ways to reduce our GHG emissions in future.

More broadly, we continued to make a meaningful, positive impact across a wide range of stakeholders. In 2018 this included the payment of US\$827 million to host governments in taxes and duties. In addition, our ongoing, Group-wide community social investment (CSI) spending – which promotes socio-economic development in our regions of operation and beyond – amounted to US\$115 million (2017: US\$111 million). Much of this CSI spending is being focused in a way that reduces dependency and promotes independent enterprise. A key example of this is our support for the Student Entrepreneurship Ecosystem programme in Kazakhstan, which is helping turn regional universities into hubs of entrepreneurial excellence (p. 57).

Workforce developments

In 2018, operational challenges resulted in a significant amount of organisational change in Africa. This included retrenchments at Boss Mining, Comide, Congo Cobalt Corporation, Chambishi Metals and our Johannesburg office. We regret the impact this has had on those affected.

In 2018, we made significant steps in terms of establishing a coherent and transparent approach to people management in Kazakhstan (where the bulk of our workforce is based). This includes the remodelling of our organisational structures, the standardisation of job roles and the implementation of competency-based employee evaluation. In this context, analysis and benchmarking

of our employees' salaries helped drive pay rises for all production personnel in Kazakhstan. In addition, we continued to apply a holistic talent management approach that will support our skills pipeline across all demographics, job grades and disciplines.

Collectively, this will help drive effective talent and performance management and provide us with the future skills that we need. In parallel, we continued to enhance and standardise workplace conditions across our entities in Kazakhstan, by improving onsite facilities, employee catering, healthcare provision and employee transportation.

Along with our ongoing efforts to improve external living conditions in our mining towns, this will help ensure we continue to benefit from high-quality pools of local labour.

UN Global Compact and Sustainable Development Goals

Finally, in 2019 ERG became a participant in the UN Global Compact. This initiative aims to support broader UN goals and initiatives, including the Sustainable Development Goals, which are a key component in our own approach to business sustainability. By participating in one of the world's largest voluntary corporate citizenship initiatives, we are joining other leading businesses in committing to the UN Global Compact's ten principles.

These principles – alongside our 2025 Strategy – help define how we will manage our business in 2019 and beyond.

Benedikt Sobotka
Chief Executive Officer

How we create value



Inputs

Finance

We seek to use all funds efficiently, whether obtained through financing or generated from operations and investments.

People

We rely on the skills, well-being and motivation of employees, contractors and service providers to generate value.

Relationships

We seek to build and sustain constructive relationships with all our stakeholders, based on mutual respect, transparency and trust.

Natural resources

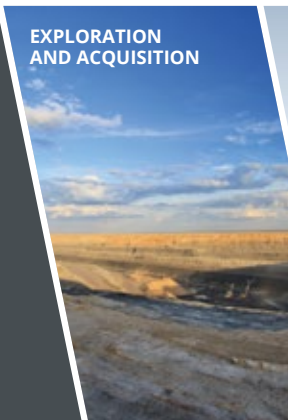
It is critical that our businesses responsibly manage all the natural resources used in our processes, given their finite nature.

Capital assets

Significant financial investment in the purchase, development and maintenance of property, plant and equipment has provided us with the capacity to generate long-term returns.

Activities

EXPLORATION AND ACQUISITION



DEVELOPMENT



MINING



PROCESSING AND BENEFICIATION



LOGISTICS

Logistics and transportation services to support our own operations as well as third party businesses

Key products



FERROALLOYS
Stainless steel



COBALT
Lithium-ion batteries
Alloys
Magnets



COPPER
Infrastructure and construction
Transportation
Electrical and electronics

Key markets



CHINA



EUROPEAN UNION

EXTERNAL ENVIRONMENT

[Read more on p. 14](#)

RISKS

[Read more on p. 16](#)

MATERIAL ISSUES

[Read more on p. 18](#)



ENERGY
Generation of power for our operations and third parties in Kazakhstan



ALUMINIUM
Transportation
Infrastructure and construction



IRON ORE
Steel



COAL
Energy
Heat



STAKEHOLDERS

Read more on p. 98

2025 STRATEGY

Read more on p. 12

GOVERNANCE

Read more on p. 92

Outputs

Social

LTIFR
0.58

TAXES PAID
US\$827M

COMMUNITY SOCIAL INVESTMENT
US\$115M

Environmental

CO₂ EMISSIONS
24.7Mt CO₂e

ENERGY CONSUMPTION
275,596 TJ

WATER WITHDRAWAL
2,029Mm³

Financial

UNDERLYING EBITDA
US\$1,913M

REVENUE
US\$5,353M

FREE CASH FLOW
US\$659M

Enabling the global 'Green Economy'

Beyond our own environmental performance, we are proud to play a broader role in helping enable – through the production of ferroalloys, cobalt, aluminium and copper – the global 'Green Economy'. As noted by the World Bank¹, these metals are expected to make an important contribution in terms of supporting cleaner technology.

Ferroalloys

Ferroalloys, which are essential components in the manufacture of stainless steel, are required for the development of high-efficiency coal-fired power stations (including boilers and pipework) and for gas turbine generation. Stainless steel also plays an important role in nuclear power generation structures.

Cobalt

Cobalt is a vital component in lithium-ion batteries used in electric vehicles. Growing electric vehicle production is likely to significantly increase demand for cobalt. In this context, our contribution to increased cobalt supply is likely to have a material impact on the gradual transition away from hydrocarbon vehicles.

¹ World Bank, The Growing Role of Minerals and Metals for a Low Carbon Future: <http://documents.worldbank.org/curated/en/207371500386458722/pdf/117581-WP-P159838-PUBLIC-ClimateSmartMiningJuly.pdf>



Aluminium

Aluminium, which is integrated into photovoltaic generation infrastructure, wind generation infrastructure, and lithium-ion batteries, could play a key role in reducing the weight of future fuel-efficient and/or electric vehicles. According to the World Bank, the metal is expected “to benefit amongst other metals from a low carbon energy shift over the century”.

Copper

Copper is a key input material for renewable energy infrastructure and electric vehicles. For example, it is estimated that the motors used in electric vehicles require approximately four times as much copper compared to traditional combustion engines. The metal is also (like cobalt) an essential component for lithium-ion batteries, as well as power inverters and charging infrastructure.

Furthermore, the World Bank notes that the “spread of distributed energy generation and electricity access is likely to increase future demand for more electrical cabling”, resulting in greater demand for copper and aluminium.



Positive revenue growth and improved credit ratings

REVENUE

US
\$5,353M

△
+6%



CAPEX

US
\$752M

△
+10%

UNDERLYING EBITDA

US
\$1,913M

▽
-8%

UPGRADED CREDIT RATINGS
BY STANDARD & POOR'S AND
MOODY'S RESPECTIVELY¹

B/B (Stable)

B2 (Stable)



¹ As of June 2019.
Note: Hereafter – year-on-year comparisons.

FERROALLOY PRODUCTION

+7.8%



FIRST COPPER CATHODE AND COBALT HYDROXIDE PRODUCED AT METALKOL RTR IN THE DRC

IRON ORE CONCENTRATE AND PELLETS PRODUCTION

+16.1%

Group production performance

Commodity	2018 (kt)	2017 (kt)	Change
Saleable ferroalloys ¹	1,613	1,496	7.8%
Saleable iron ore concentrate and pellets	12,292	10,585	16.1%
Alumina	1,481	1,509	-1.9%
Aluminium	258	257	0.4%
Saleable copper (contained)	139.5	142.7	-2.1%
Saleable cobalt (contained)	1.6	2.5	-36.1%
Coal	28,724	27,472	4.6%

In 2018, our revenue increased by 6% to US\$5,353 million (2017: US\$5,048 million), reflecting improved average sales prices and higher sales volumes.

The positive impact of increased sales volumes for ferroalloys, iron ore, coal and aluminium was offset by a decrease in our cobalt and copper concentrate sales.

Similarly, a 5% decrease in yearly weighted average ferroalloy sales prices (driven by a 6% decline in the yearly average sales price of high-carbon ferroalloys) reduced our revenue by US\$102 million. Nonetheless, this was compensated for by higher yearly average sales prices for our other Group products (+US\$194 million), resulting in a net positive impact from price changes of +US\$92 million.

Our operational expenses increased as a result of higher costs linked to input prices for major input materials (many of which are imported) such as coking coal, graphite electrodes, electrode paste, fuel, explosives and spare parts. Higher costs were also

driven by increased sponsorships and donations, gradual salary increases at our assets in Kazakhstan and additional repair activity. These cost pressures were partially mitigated, however, by our efficiency initiatives, as well as the depreciation of the tenge.

In this context, our underlying EBITDA fell by 8% to US\$1,913 million (2017: US\$2,090 million) – mainly as a result of higher operational expenses. This partially reflected fluctuations in prices (with many of our inputs being imported) as well as domestic and foreign inflation.

In future, we plan to decrease our operational expenses through a variety of means, potentially including through the optimisation of our costs and by focusing investment on more cash-generative operational assets.

In addition, in 2018 our credit ratings were upgraded by Standard & Poor's (from B-/B (Stable) to B/B (Positive)) and Moody's (from B3 (Stable) to B2 (Positive)).

This reflected improvements in our financial and operational performance based on our results for 2017, including improved financial metrics (including EBITDA) and maintenance of adequate levels of liquidity. Other factors cited included our competitive cost structures, operational and product diversification and strong customer base.

In 2019 both credit rating agencies reaffirmed ERG's respective credit ratings with the revision of outlooks from positive to stable reflecting lower commodity prices and the delayed ramp up of our Metalkol RTR project.

Nonetheless, we will build on recent progress by pursuing further improvements in our credit profile. This will help provide us with a positive platform for the future – in terms of financing growth and supporting the resilience of our business.

¹ Total net ferroalloys production.

Holistic strategy to support business sustainability

Our approach to Sustainable Development

For ERG, Sustainable Development is about more than the responsible management of our environmental, social and governance impacts; it is also about achieving:

- » True 'business sustainability' by ensuring our business is fit for the future and can generate long-term value
- » Sustained and profitable growth that delivers ongoing benefits to our stakeholders – including employees, shareholders, customers, business partners, local communities and host countries more broadly

As such, Sustainable Development is integral to our business model – and increasingly integrated into our core business processes. This is best demonstrated by our 2025 Strategy, which is ultimately aimed at achieving 'business sustainability'.

Furthermore, we are supportive of the United Nations Sustainable Development Goals (SDGs) and seek to maximise our positive impacts and minimise any negative impacts in this regard. This includes the identification of relevant SDGs for ERG, selected on the basis of:

- » Potential synergies between the achievement of relevant SDGs and our own business performance
- » Our ability to positively or negatively impact the achievement of relevant SDGs
- » The degree to which the achievement of each SDG is relevant to our areas of operation

These efforts will help us align our actions more closely with international stakeholder expectations – to the benefit of both our business and broader society. Further details regarding relevant SDGs are set out on p. 97 as well as within each of the thematic chapters.

Please note that all references to associated UN targets are for the contextualisation of our impacts, risks, opportunities and performance only – and do not represent formal corporate targets per se.

BALANCED
PORTFOLIO
GROWTH

Strategic priorities

Steady growth and development of the asset portfolio in Kazakhstan and beyond

A HAPPY AND
PROFESSIONAL
TEAM

Development of our employees' competencies and the maintenance of their safety and well-being

SUSTAINABLE
DEVELOPMENT OF
OUR HOST REGIONS

Contribution to the socio-economic development and well-being of communities in our regions of operation

EFFICIENCY IN ALL
THAT WE DO

A strong focus on pursuing efficiency at Group and asset level

FINANCIAL
STABILITY

The maintenance of financial sustainability, whilst delivering decent shareholder returns

Sustainable Development Principles

ZERO HARM

LEADERSHIP

ACCOUNTABILITY

BALANCE

INTEGRITY

INNOVATION

Strategic goals

- » Further develop existing assets in Kazakhstan
- » Increase returns on the existing portfolio of international assets
- » Optimise our portfolio through new natural resource opportunities and/or divestment
- » Further develop the Group's power generation business

Key stakeholders

- » Shareholders
- » Host governments
- » Local communities
- » Customers
- » Suppliers/contractors
- » Finance providers

- » Deliver safe working conditions
- » Improve employee wellness and health
- » Deliver comfortable workplaces
- » Develop strategic skills and competencies
- » Improve employee benefits
- » Improve ERG's employee proposition and status as an employer
- » Further develop our corporate culture
- » Develop our talent pool and leadership pipeline

- » Employees
- » Host governments
- » Regulators
- » Local communities

- » Improve the well-being and prosperity of communities in our regions of operation
- » Maintain international environmental standards - including those relating to water, air and soil - to support local well-being in our regions of operation
- » Support entrepreneurship and the development of the business environment in our host countries

- » Local communities
- » Regulators
- » Regional governments
- » Civil society

- » Reduce unit costs by eliminating bottlenecks and improving productivity
- » Improve organisational effectiveness
- » Improve sales effectiveness
- » Develop a culture of continuous improvement supported by relevant tools and mechanisms

- » Shareholders
- » Customers

- » Maintain a decent level of dividend yield for shareholders
- » Maintain high returns on invested capital
- » Achieve and maintain acceptable level of debt
- » Maintain high levels of liquidity to support resilience in the face of changing market conditions

- » Shareholders
- » Finance providers
- » Employees
- » Suppliers/contractors
- » Host governments
- » Local communities

Understanding and navigating global challenges and opportunities

Global metals demand and price trends



- » Metals price performance was generally positive in the first half of 2018, before a marked correction in the second half of the year
- » This downward shift in performance reflected global geopolitical and economic trends, including US-China trade tensions, rising US interest rates and a stronger US dollar, as well as signs of faltering growth in China and Europe
- » Nonetheless, average annual prices for metals produced by ERG demonstrated largely positive year-on-year performance

Implications and responses

Mixed market conditions for metals in 2018 further highlighted the importance of optimising our business. Our efforts in this respect, include:

- » **Transformation:** The implementation of the ERG Production System and ERG Business System in Kazakhstan (p. 24)
- » **Operational efficiency:** The continued application of our existing Operational Efficiency programmes in Kazakhstan (p. 30), as well as the introduction of new measures generated by our managers and employees (p. 29)
- » **Innovation:** The roll-out of our Group-level Digital Strategy to support digital innovation across our organisation (p. 31)

In addition, we continue to invest in a range of growth and renewal projects to help ensure the Group can benefit from long-term shifts in metal demand associated with the transition towards the global 'Green Economy' (p. 8).

Belt and Road Initiative



- » China's ambitious Belt and Road Initiative (BRI) has become one of the key pillars of the country's trade policy
- » It comprises a land-based 'Silk Road' across Eurasia (including Kazakhstan) and a sea-based route running between South East Asia, East Africa and the European Union
- » According to the World Bank, the BRI includes one third of global trade and GDP, and 60% of the world's population¹

Implications and responses

China is the largest buyer of ERG's raw material inputs – currently accounting for more than 20% of our sales. The BRI is likely to play an important role in helping drive future demand – as well as our future growth. Indeed, in 2018 Chinese financing and technical capabilities supported the development of our portfolio, such as the financing and construction support for our Metalkol RTR cobalt and copper project in the DRC (p. 26). In addition, if it proceeds, the construction of our KAS-2 project in Kazakhstan is also likely to benefit from Chinese support (p. 27).

In 2018, we expanded our presence in China through a new, larger office in Beijing. This marks a new stage in our strategy in the country.

¹ World Bank: worldbank.org/en/topic/regional-integration/brief/belt-and-road-initiative

Technological change and battery demand



- » The electric vehicle revolution has resulted in strong demand for cobalt – with global sales of new energy vehicles¹ rising to 2.1 million units in 2018 (2017: 1.3 million units)²
- » Demand for cobalt in electric vehicle batteries is expected to more than double by 2020 (as compared to 2018) – and increase four-fold by 2025³
- » The growing global use of lithium-ion batteries in energy storage systems at wind and solar farms is also helping drive demand – with installed lithium-ion battery capacity rising to 286GWh by the end of 2018 (end of 2017: 161.8GWh)⁴

Implications and responses

ERG is exceptionally well placed to help sustain the ‘battery age’ through our existing operations in the DRC and Zambia. Most notably, this includes our Metalkol RTR project, which will ramp up to produce 20kt of cobalt contained in hydroxide per annum by the end of 2020. Much of this output will be processed in China and used by customers all over the world – supporting battery manufacturing and the gradual global substitution of internal combustion technology.

Climate change and decarbonisation



- » There is growing consensus around the importance of decarbonising the global economy – as expressed in the Paris Agreement on Climate Change (of which Kazakhstan is a signatory)
- » The metals and mining sector – and the coal sector in particular – has a responsibility to explore opportunities to reduce its emissions
- » The transition to a lower carbon economy is also anticipated to present a number of growth opportunities for the sector – including growth in demand for cobalt

Implications and responses

In 2018, our efforts to reduce our carbon footprint included (amongst other measures):

- » **Energy efficiency:** The application of our 2016-2020 Energy Efficiency Programme – reducing our consumption by more than 2,000 terajoules (p. 71)
- » **Renewable energy:** The investigation of wind farm sites in Kazakhstan (p. 72)
- » **Carbon footprinting:** Cross-lifecycle carbon footprinting of our aluminium and ferrochrome products in Kazakhstan

Beyond this, ERG is well positioned to play a broader role in helping to enable – through the production of aluminium, copper, cobalt and ferroalloys – the transition to a lower carbon economy (p. 8).

1 I.e. electric vehicles and highly electrified plug-in hybrids.
 2 EV-Volumes: ev-volumes.com.
 3 Based on internal research.
 4 Benchmark Mineral Intelligence: benchmarkminerals.com.

RISK MANAGEMENT

Our risk management framework helps us identify and understand potential threats to our business sustainability – and thus our most material Sustainable Development issues (p. 18).

In 2018, we advanced our management of risk through:

- » The revision and update of our Risk Management Policy, Risk Management Manual and Instructions as well as our Capital Project Risk Management Manual and Instructions

- » The development of a Group Internal Control Policy and methodology, which was approved in early 2019
- » The definition of our Group risk appetite with respect to multiple risk categories

Principal risks and key mitigation actions relevant to Sustainable Development

RISK AREA	KEY MITIGATION ACTIONS
Political risks	<ul style="list-style-type: none"> » Monitoring and analysis of political and macroeconomic trends in Group regions of operation
Regulatory risks	<ul style="list-style-type: none"> » Monitoring of legislative and regulatory changes in Group host regions » Participation in professional bodies/associations to enhance the representation of our interests » Monitoring and control of compliance with obligations stipulated by obtained licences and permits » Development and implementation of government negotiation strategies
Price risks	<ul style="list-style-type: none"> » Monitoring of the macroeconomic and market environments » Maintenance of long-term sales contracts » Application of formula pricing to key sales contracts » Hedging commodity prices/the application of 'natural' hedging
Production and operational risks	<ul style="list-style-type: none"> » Risk-based reliability planning and maintenance » Independent technical diagnostics of machinery » Maintenance of resilient power supply system/long-term power contracts » Control of input materials (quality and specification) » Monitoring of compliance with operational procedures » Implementation of business continuity management process » Insurance of property damage/business continuity risks
Supply chain and logistics risks	<ul style="list-style-type: none"> » Improvement of planning and control systems » Quality/specification controls » Formula pricing for purchased input materials » Long-term contracts for key input materials/wagon rentals » Purchase of additional locomotives and railway wagons
Capital project execution risks	<ul style="list-style-type: none"> » Systematic/phased project implementation process » Enhanced project due diligence/mine planning process » Application of risk management standards for large projects » Robust project financing arrangements, plus effective project contracting » Monitoring/control of project deadlines, budgets, etc. » Maintenance of relevant insurance policies



RISK AREA	KEY MITIGATION ACTIONS
Financial risks	<ul style="list-style-type: none"> » Broadening of Group's creditors portfolio/restructuring of debt portfolio » Monitoring compliance with covenants established in loan agreements » Regular updating of Group Cash flow plan/control of Group liquidity levels » Implementation and monitoring of compliance with financial risk policies and procedures » Control of the Group Forex (FX) position
Personnel management risks	<ul style="list-style-type: none"> » Maintenance of competitive remuneration packages » Training and development programmes to maintain the pipeline of qualified personnel » Enhancement of recruitment/retention procedures » Implementation of an effective motivation system
Social risks	<ul style="list-style-type: none"> » The provision of social benefits to Group employees (who make up a significant proportion of our local communities) » Application of community social investment » Analysis of staff satisfaction and loyalty » Monitoring of social attitudes within Group host regions » Application of grievance mechanism procedures
Health, safety and security risks	<ul style="list-style-type: none"> » Implementation of OHSAS 18001 certified and/or aligned safety management systems standards » Zero Harm approach towards critical health and safety risks » Control of compliance with local safety regulations
Environmental and climate change risks	<ul style="list-style-type: none"> » Application of policies and procedures to ensure compliance with regulatory emissions limits » Integration of environmental criteria into project stage-gates » Implementation of renewable energy projects » Carbon footprint analysis » Implementation of ISO 14001 certified and/or aligned environmental management system » Implementation of ISO 50001 certified energy management systems in Kazakhstan
Compliance risks	<ul style="list-style-type: none"> » Regular assessment of compliance risks and development of mitigation measures » Monitoring of adherence to Group compliance policies and regular progress reports to management » Extensive training and communications programme to ensure adequate compliance risk management » Counterparty due diligence » Monitoring of compliance with human rights standards » Monitoring of applicable international sanctions » Implementation of a programme to ensure compliance with the EU General Data Protection Regulation (GDPR) and other applicable data protection laws in all jurisdictions where the Group does business » An anonymous and confidential 24-hour Group Hotline
IT and information security risks	<ul style="list-style-type: none"> » Application of information security policies » Audit of IT systems for compliance with information security requirements » Prompt responses to IT failures » Monitoring of compliance with the terms of software licences

Understanding what matters

This report has been directly informed by a structured materiality process. The initial (internal) phase of this process drew on specific research and analysis (including with respect to the UN SDGs), as well as ERG's ongoing risk assessment process and stakeholder engagement activity.

The final (external) phase of the process was completed in 2019 and involved the engagement of external stakeholders (see below). As well as informing our Sustainable Development reporting, the materiality process will help inform our overall management approach. If an issue does not appear as material, it does not mean it is irrelevant or is not being managed, but only that it is not of sufficient significance to be addressed in detail in this report.

Our material issues are prioritised using a quantitative scoring system based on the following criteria:

- » The potential/actual impact of ERG on stakeholders and their interests
- » The potential/actual impact of stakeholders on ERG and the achievement of its business objectives

📄 See p. 96 for further details.

External engagement

In 2019, we implemented a dedicated external engagement exercise to gather external input into our materiality process. This involved representatives from over 25 organisations (at both national and international level) representing industry, value chain partners, civil society, finance providers, government and labour.

Engagement took place through bilateral interviews, during which participants provided feedback on – and, where relevant, suggested adjustments to – our internally-generated selection of material issues.

Engagement outcomes

Whilst there was broad overall agreement with the results of our internal materiality assessment, key areas in which stakeholders suggested increased prioritisation included the following:

- » **'Energy and climate change'** (due to growing stakeholder concern – including amongst customers and end-users – as well as the risks and opportunities a more carbon-constrained future could pose to ERG)
- » **'Community impacts'** (mainly due to the context in the DRC)
- » **'Human rights'** (due to heightened stakeholder interest, as well as ERG's growing internal and external human rights commitments)
- » **'Biodiversity'** (in the context of general concerns over the impact of mining and associated activities on local ecosystems)
- » **'Responsible closure and transfer'** (with a particular focus on the potential socio-economic implications for employees and local stakeholders)

These collective suggestions have been integrated into ERG's final materiality results accordingly.

Emerging and future issues

Participants were also asked to identify emerging or future sustainable development issues relevant to ERG and/or the broader mining and metals sector. Key areas of discussion included:

- » The rise of sustainable finance
- » Increasing demand for mineral value chain assurance
- » Evolution of the circular economy and increased focus on product lifecycle management
- » The potential impacts of automation and technological disruption
- » Evolving geopolitics and sanctions regimes

Materiality process: 2017/2018

1. Scoping

Definition of an initial scope of potentially material Sustainable Development issues affecting ERG and/or its stakeholders.

2. Initial internal assessment

Prioritisation of potentially material issues using a quantitative scoring system.

3. Internal review and feedback

Presentation of the initial results to ERG functional managers/discipline experts – and adjustment of the scores in line with their feedback.

4. Finalisation of internal assessment and mapping

Finalisation of the list of prioritised Sustainable Development issues – and mapping against the GRI disclosure requirements for ERG's 2017 Sustainable Development report.

2018/2019

5. Desk-based update

Updating of the internal assessment scores to reflect, for example, changes in Group priorities, risk assessment results, stakeholder concerns, the external operating environment and other dynamic factors.

6. Additional internal stakeholder input

Engagement of senior internal stakeholders to verify the results of the desk-based update.

7. External stakeholder input

Presentation of the updated results of the materiality assessment to over 25 external stakeholders.

8. Finalisation of complete assessment and mapping

Finalisation of the list of prioritised Sustainable Development issues – and mapping against the GRI disclosure requirements for ERG's 2018 Sustainable Development report.



MATERIAL ISSUES	ISSUE	DESCRIPTION
Preparing our business for the future <ul style="list-style-type: none"> ● Transformation ● Efficiency and innovation ● Governance ● Risk management 	Transformation	» The delivery of sustainable growth and reduced costs through enhanced asset integrity, new partnerships and advanced management practices – underpinned by ongoing cultural transformation
	Efficiency and innovation	» Enhanced operational performance through improved processes, technology and innovation
Helping our people thrive <ul style="list-style-type: none"> ● Health and safety ● Skills, capabilities and development ● Labour relations ● Diversity and inclusion 	Health and safety	» Delivery of a safe and healthy workplace
	Skills, capabilities and development	» Development of skill and capability levels within our workforce
	Labour relations	» Relations with our workforce and their legitimate representatives on salient workplace and non-workplace (e.g. quality of life, family welfare, etc.) issues
Community development and well-being <ul style="list-style-type: none"> ● Community impacts ● Community investments ● Artisanal and small-scale mining ● Indigenous people and traditional communities 	Community impacts	» The positive and negative impacts of ERG on local communities (excluding dedicated community social investment projects and closure, which are dealt with separately)
	Artisanal and small-scale mining	» The presence of – and interaction with – Artisanal and small-scale mining (ASM) communities within or near ERG's concession areas in Africa
	Community investment	» Voluntary and/or mandatory spending aimed at enhancing socio-economic conditions in our countries of operation ¹
Environmental stewardship <ul style="list-style-type: none"> ● Pollution prevention ● Energy and climate change ● Waste management ● Water availability ● Responsible closure and transfer ● Biodiversity 	Pollution prevention	» Responsible management of potentially harmful emissions to the environment ²
	Energy and climate change	» The use and/or production of non-renewable energy in all its forms and the impacts of climate change on the company and other stakeholders
	Waste management	» Responsible approaches to waste generation, management and disposal (e.g. overburden, tailings, slag, general industrial waste, etc.)
Our relationship with broader society <ul style="list-style-type: none"> ● Value generation and distribution (including local content) ● Compliance ● Government relations and policy ● Human rights³ 	Value generation and distribution (including local content)	» The generation of economic value by ERG – and the distribution of such value to its stakeholders
	Compliance	» Maintaining compliance of the Group and its employees with regulatory requirements and compliance commitments
	Government relations and policy	» Relations between ERG and host – and other third-party – governments, including positive and negative mutual impacts

● Material issue ● Relevant issue

1 Please note that community-focused spending linked to our employees is addressed under 'Labour relations'.
 2 Excluding carbon emissions, which are addressed separately under 'Energy and climate change'.
 3 Please note that whilst 'Human rights' is a key issue for ERG and is highly material in the DRC, it was not assessed to be material as a distinct issue. This is primarily due to the coverage of key topics with human rights implications by other issues that were found to be material (e.g. 'Artisanal and small-scale mining' and 'Compliance').

SECTION 1

Preparing our business for the future

MATERIAL ISSUES INCLUDE

Transformation

Read more on p. 23

Development of our portfolio¹

Read more on p. 25

Efficiency and innovation

Read more on p. 29

2018 HIGHLIGHTS

Development and implementation of our Group 2025 Strategy

¹ Please note, information on 'Development of our portfolio' sits outside of our materiality process and is included for the purposes of completeness.



First copper cathode and cobalt hydroxide produced at our Metalkol RTR project in the DRC

Establishment of a dedicated **ERG Capital Projects** company to support effective project execution

US \$91.7M saved as a result of Operational Efficiency initiatives in Kazakhstan

SECTION 1: PREPARING OUR BUSINESS FOR THE FUTURE

Under our 2025 Strategy, **financial stability** remains a Group priority. In part, this means maintaining acceptable leverage, as well as sufficient liquidity to ensure resilience in the face of potential market volatility. It also means delivering dividends to our shareholders and maintaining a high degree of returns on invested capital. Whilst all aspects of our 2025 Strategy will ultimately support our business sustainability, two further Group priorities will be of particular relevance:

- » **Efficiency in all that we do** through a reduction in our unit costs (i.e. as a result of productivity improvements and production increases), improved organisational effectiveness and enhanced sales processes – whilst developing a culture of continuous improvement
- » **Balanced portfolio growth**. In practice, this means further developing our existing assets in Kazakhstan, improving asset returns from our international assets, developing new natural resource opportunities and further developing our energy business



Our transformation journey

CRISIS MANAGEMENT

- » Maintenance of production volumes and avoidance of retrenchments
- » Stabilisation of financial position
- » Transformation, centralisation and enhanced management oversight

STABILISATION

- » Restructuring of our debt and the consolidation of our financial position
- » Implementation of innovative projects
- » Revitalisation of existing growth and renewal projects

DEVELOPMENT AND GROWTH

- » Optimisation of our asset portfolio
- » Investment in new growth and renewal projects
- » Extensive improvement of operational efficiency
- » Further refinement of management systems and management capabilities

2014 – 2015

2016 – 2017

2018 >



Transformation

Strategic context

» Efficiency in all that we do:

Under our 2025 Strategy, we have prioritised the pursuit of efficiency at Group and asset level. This includes a focus on improving our organisational effectiveness and developing a culture of continuous improvement – supported by relevant management tools and processes.



Relevant UN Sustainable Development Goals

UN SDG	Associated UN targets
	8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors

We are continuing to transform our business through the application of international standard systems, practices and organisational structures as part of a broader journey that started in 2014. By doing so, we plan to enhance the sustainability of our business and its ability to generate value in the long term.

Our transformation efforts are focused on (amongst other elements):

- » Business process standardisation, improved planning, efficient capital allocation, as well as enhanced productivity, resulting in cost reductions
- » The application of innovative operational and management approaches
- » Strengthened organisational governance and transparency
- » Employee engagement, the promotion of corporate values and performance management

We continue to benefit from various initiatives that have been ongoing since 2014. We built on these existing programmes in 2018 through a range of new initiatives addressing the most strategic aspects of the business, as well as stakeholder expectations.

Development of our 2025 Strategy

One of our most important transformation projects has been the development and implementation of our clearly articulated 2025 Strategy (p. 12). This was signed off by our Board of Managers in June 2018.

We have subsequently initiated the development of a first wave of functional strategies to support implementation of the Group's 2025 Strategy.

This includes:

- » Investment planning
- » Capital projects
- » Finance
- » Human Resources
- » IT
- » Maintenance
- » Production and operational efficiency
- » Procurement
- » Health, Safety and Environment (HSE) and social management

In addition, we:

- » Have improved our internal initiative/project screening process to ensure all our efforts are aligned with and effectively support our strategic objectives
- » Are developing an overall portfolio strategy
- » Are reviewing specific asset strategies to ensure they are aligned with the 2025 Strategy

Collectively, this will underpin the implementation of our 2025 Strategy.

SECTION 1: PREPARING OUR BUSINESS FOR THE FUTURE

Transformation continued

Leveraging the ERG Academy in Kazakhstan

The implementation of our 2025 Strategy will be highly reliant on the ongoing transformation of our workplace culture. The ERG Academy will be a key component in this process, as it moves away from purely operational training to play a more strategic role in supporting cultural change within our business in Kazakhstan. This includes:

- » Internal promotion of our newly-defined 2025 Strategy
- » Input into and support for the development of functional sub-strategies under the 2025 Strategy
- » The holding of Group-level events such as the Innovators' Forum (p. 29)
- » Targeted training to support the implementation of the ERG Production System (see below), with training started in April 2019 at the Aksu Ferroalloys Plant

ERG Production System in Kazakhstan

We are, in the context of our 2025 Strategy, determined to support the development of a new, more effective and efficient working culture. To this end, we developed a new initiative in Kazakhstan (where the majority of our workforce and assets are located) called the ERG Production System, which supports efficiency across the product lifecycle – including through the application of the lean principles.

The ERG Production System ultimately aims to:

- » Promote continuous improvement in production efficiency, with a focus on equipment productivity and sustainable cost reduction
- » Improve management efficiency at site level through the application of common principles and more effective interaction between employees and teams
- » Engage employees in efficiency improvement processes by finding new ways to carry out common tasks and improve employee involvement (including involvement in decision-making)
- » Support systemic change management in the production process, with a focus on the empowerment of employees and cross-functional collaboration

We first plan to carry out targeted pilot applications of this approach at our key entities in Kazakhstan. Thereafter, it will be rolled out to all parts of our business in Kazakhstan – through dedicated training programmes for employees at different levels, from workshop-level supervisors to asset-level managers.

ERG Business System in Kazakhstan

In 2018, we launched a programme aimed at enhancing the efficiency of all of our business processes in Kazakhstan and achieving continuous improvement. The programme will support our efforts to pursue efficiency in all that we do, and will include a focus on:

- » Improved engagement and empowerment of managers at all levels to improve organisational efficiency
- » Simplification and improved efficiency of management processes, including through:
 - The creation of universal standards and processes
 - Improved cross-functional collaboration at all levels
 - Automation
 - Reduced bureaucracy

Functional transformation programmes

In addition, we implemented a range of functional transformation programmes to support our Group initiatives.

These included:

- » The formation of a dedicated ERG Capital Projects company to support effective project execution
- » The centralisation of financial controls at Group level and the approval of new Treasury, Budgeting and Planning, Tax policies
- » The implementation of initiatives to enhance maintenance and repairs processes
- » The approval of a new corporate risk management methodology

Application of environmental and social management software solutions

We also advanced the implementation of a range of software platforms to support more effective management oversight, processes and decision-making in a range of areas. In Africa, this included an integrated software programme (Isometrix) to support our health and safety, environmental and social management activities. We will be exploring opportunities for the future application of similar systems in Kazakhstan.

Planning for the future

With respect to our 2025 Strategy, in 2019 we plan to:

- » Finalise the underlying functional sub-strategies that support the 2025 Strategy
- » Identify new business development opportunities that will support the 2025 Strategy Goals

Beyond this, we will continue to implement – and develop – the ERG Business System and ERG Production System in Kazakhstan. We will also explore opportunities for the application of related principles and processes at our assets in Africa.

In addition, we will be rolling out an organisational development programme to support the effectiveness of our management team and structures in Africa.





SECTION 1: PREPARING OUR BUSINESS FOR THE FUTURE

Development of our portfolio

Strategic context

»» **Balanced portfolio growth:**

Under our 2025 Strategy, we have prioritised the steady growth and development of our asset portfolio. This includes the development of our existing assets in Kazakhstan and increasing the returns on our existing international assets. Furthermore, we are focused on optimising our portfolio through new natural resources opportunities and/or divestment, whilst further developing our power generation business.



Relevant UN Sustainable Development Goals

UN SDG	Associated UN targets
	8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors
	9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries
	9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities

In line with our 2025 Strategy, we are focused on developing our portfolio. This includes our efforts to:

- » Develop our assets in Kazakhstan (some of which are of a mature nature and require renewal and refurbishment)
- » Enhance the profitability of our assets outside Kazakhstan to increase the contribution of our international portfolio to our Group EBITDA

- » Optimise our portfolio, including through the disciplined targeting of capital expenditure
- » Further develop our energy business and increase its role in our overall portfolio

To support our ambitions, we have taken steps to enhance our organisational proficiency in this respect. This includes the development of a new Capital Expenditure Governance Policy, which introduces a new governance model and project management framework.

This will help us optimise our investment decisions – and execute them effectively and efficiently. Likewise, our establishment of a dedicated ERG Capital Projects company in 2019 will consolidate and enhance our project management capabilities and provide effective focus on the successful execution of strategic projects.

SECTION 1: PREPARING OUR BUSINESS FOR THE FUTURE

Development of our portfolio continued

Cobalt and copper

Our Metalkol RTR project

In 2018, we started the commissioning and ramping-up of our strategic Phase 1 Metalkol RTR cobalt and copper project, and produced first copper in the fourth quarter.

Metalkol RTR is focused on the reprocessing of historical cobalt-copper tailings at a tailings deposit in Kolwezi, which accumulated over decades of mining at the site by previous operators. By reprocessing and responsibly storing these tailings, we will:

- » Own a new, strategic source of responsibly mined cobalt to help fuel the global electric vehicle revolution – whilst delivering responsible supply chain assurance to our value chain partners through our Clean Cobalt Framework (p. 62)
- » Actively clean up tailings released into the environment (including into the Musonoi River) by previous operators since the 1950s, which would otherwise continue to pollute the local environment

Metalkol RTR: Preparing for commercialisation

We have been engaging with the market to provide assurance with respect to:

- » Our reliability as a long-term cobalt supplier, underpinned by a current resource base life in excess of 15 years (based on projected production under Phase 2 of the project)
- » Metalkol RTR's price resilience, which is underpinned by the low cost profile offered by its reprocessing model.
- » The sustainability credentials of our product, including:
 - The demonstrable exclusion of any cobalt feed sourced from third party sources (including artisanal and small-scale miners) from our cobalt hydroxide
 - Our ability to securely trace our responsibly produced cobalt hydroxide product from our operations to the point of sale (p. 62)

Whilst we produced first cobalt hydroxide at the site one month after the first copper was produced, we subsequently focused on stabilising the processing circuits to help ensure we meet relevant market specifications and are granted relevant export approvals.

Once it reaches full production, Metalkol RTR will add 15kt of cobalt and 77kt of copper annually to our portfolio.

In addition, we have started construction of Phase 2 of the project, with the aim of adding an additional 5kt of cobalt and 28kt of copper production per year.

Boss Mining

In February 2019, we announced that we were placing Boss Mining into care and maintenance. We are exploring commercially feasible ways to recommence and enhance operations at Boss Mining in future.

Frontier Cut 3 project

We continued to invest in the development of our Frontier copper mine in the DRC through an expansion of its open-pit – referred to as the Cut 3 project. This included the carrying out of continued waste stripping to support the production of an additional 364kt of copper contained in concentrate over the life of the Cut 3 project. In combination with the processing of ore stockpiles accumulated at the plant, this will extend the life of mine to 2024.

We are continuing to explore options around the future development of the mine, including a potentially much larger Cut 4 project that would further extend Frontier's life of mine by over 10 years.

ERG and China's Belt and Road Initiative

ERG is a participant in China's Belt and Road Initiative (BRI). This strategic initiative aims to improve land- and sea-based trade links and promote economic growth across around 65 countries, primarily in Eurasia (including Kazakhstan), as well as Africa. ERG is already benefiting from Chinese investment in our growth projects, as well as from Chinese construction and engineering expertise. In the longer term, the BRI is likely to play an important role in underpinning future Chinese demand for our products. Therefore, we view the initiative as a strategic driver of our future growth and success.





Aluminium

Adding value through the KAS-2 project in Kazakhstan

If it proceeds, our major KAS-2 project at our Kazakhstan Aluminium Smelter would:

- » More than double our overall aluminium smelting capacity
- » Add value to our alumina reserves and power-generating capacity by supporting further downstream integration, including the potential production of aluminium alloys

This is in the context of strong forecasted demand for our alumina and aluminium. Indeed, our updated strategic plan envisages sustaining alumina production at 1.5mt per year over the next decade.

To this end, we initiated parallel bankable feasibility studies for a potential US\$1.5 billion Engineering, Procurement and Construction (EPC) project in 2018. These studies are due for completion in 2019, following which we will select the best partner for the project.

The project is currently listed by the Government of China as falling under the Belt and Road Initiative (BRI), which enables financing from the China Development Bank, amongst others. Construction on the project is currently planned to start in 2020.

Sustaining alumina production at Aluminium of Kazakhstan

In 2018, we took the decision to maintain alumina production at Aluminium of Kazakhstan at 1.5mtpa – rather than allowing a planned production drop to 1.023mtpa by 2021 as per the previous strategic scenario.

The decision was driven by expected future demand from China, as well as an anticipated increase in ‘internal’ alumina consumption once the KAS-2 project is complete.

As a result, we decided to proceed with a series of smaller-scale capital investments that will also reduce unit costs, including (for example):

- » Increased trucking capacity
- » New pit development
- » Maintenance and equipment replacement at Aluminium of Kazakhstan's refinery

Reducing Aluminium of Kazakhstan's emissions to air through advanced filtration

In 2018, we continued work on installing advanced filtration technology at Aluminium of Kazakhstan's sintering workshop in the Pavlodar region. The first two filtration units are planned for installation in 2019.

This initiative, which is taking place under our new Air Emissions Strategy, will significantly reduce the plant's particulate emissions – and thus our contribution to air pollution linked to multiple heavy industrial and mining enterprises in the Pavlodar region (as well as domestic coal-users) (p. 69).

A new, independent approach to project due diligence and mine planning

In 2018, we further enhanced how we carry out due diligence on our own assets – and develop/approve related mining plans – in Africa and Kazakhstan. This included assessment on an independent basis using world-class mining experts. This builds on and complements our established approach, which explicitly takes into account existing infrastructure, equipment, design decisions and intra-Group synergies when assessing the viability and attractiveness of projects.

The application of an independent due diligence approach reduces the risk that we consciously exclude mine development options that do not fit with existing constraints, or that we unconsciously repeat previously adopted design decisions.

To support this new approach, we:

- » Created a new project team to support its application
- » Collated all of our existing mine data

- » Initiated the identification of new mine development options, building on existing mine models
- » Started the process of digitising the newly developed mine options

In 2019, we plan to fill any data/analysis gaps affecting new mine development options through further exploration – and use the results to further develop our new/existing mine models and mineral resource estimates. This process will augment and update mine models across the Group, enhancing:

- » Insight into the potential of our mines
- » Our ability to attract financial investment to support mine development
- » Flexibility around mine development

The outcomes of this approach are already informing the development of our 10th Anniversary mine (Kazchrome) (see right), Kacharsky Mine (SSGPO) (p. 28) and Frontier Mine (p. 26) in the DRC.

Ferroalloys

Development of the 10th Anniversary mine in Kazakhstan

In 2018, we advanced Phase 2 of the development of our 10th Anniversary mine. This is with the aim of addressing an anticipated reduction in production at other mines supplying chrome ore to our ferroalloys plants. Phase 2 would see the replacement of these volumes and will directly contribute to our broader efforts to increase Kazchrome's production volumes.

During the year, we initiated a pre-feasibility study for increased production at this world-class chrome ore body through a potential transition from existing low-productivity mining methods to large-volume, high-productivity block-cave mining. We plan to complete the pre-feasibility study by late 2019, whilst first ore from Phase 2 is planned for 2024.

In addition, we initiated a number of smaller projects to support the supply of chrome to our ferroalloy plants.



SECTION 1: PREPARING OUR BUSINESS FOR THE FUTURE

Development of our portfolio continued

Expanding production at the Aksu Ferroalloys Plant in Kazakhstan

As part of Phase 1 of the broader Workshop No.6 Renovation project, we continued the major rebuild of the Aksu Ferroalloy Plant's smelter furnace No.64. This included the gas-tight sealing of the furnace, which will allow us to harvest ferroalloy gas and use it to help heat charge materials during feeding. This is expected to:

- » Improve furnace productivity by 50%
- » Reduce energy consumption by up to 20%
- » Reduce units costs
- » Reduce emissions to air (in conjunction with the installation of two modern gas cleaning devices)

The development of the Workshop No.6 Renovation project will include the renovation of smelter furnaces No.61, 62 and 63 – pending results from Phase 1.

Other projects

Other growth and renewal projects that support the sustainability of our business include:

Advancement of the Bahia Mineração (BAMIN) project in Brazil

We continued to focus on our strategic BAMIN mine, railway and port project in 2018. This included ongoing engagement with our potential joint-venture partners. It is anticipated that such engagement will continue into 2019.

In 2018, we:

- » Took measures to further strengthen our management and operational teams in advance of the forthcoming construction phase of development
- » Initiated the development of a new strategic plan, management model and cultural change programme – to support the future construction
- » Prepared for the tendering process for the Ferrovia de Integração Oeste-Leste (FIOL) railway, which is currently being constructed by the Government of Brazil

In the meantime, China's emphasis on importing higher-quality iron ore (driven by its efforts to reduce the domestic iron sector's greenhouse gas emissions/ other emissions to air) supports BAMIN's commercial fundamentals. As configured, the project enjoys high-grade, low-impurity ore that will not only support China in its efforts to reduce its emissions, but also commands a market premium.



This supports BAMIN's position in relation to competing iron ore exports from Australia to China.

BAMIN will continue developing its team and engaging with potential business partners, with project implementation expected to start in 2019.

Construction of new iron ore processing plant at SSGPO's Kacharsky Mine

Our existing iron ore processing facility at Rudny, which has a capacity of 18 million tonnes of concentrate and 9 million tonnes of pellets a year, is approaching the end of its life. Given the majority of our iron ore reserves are located at our Kacharsky Mine, we are exploring the establishment of a new processing plant at the site. This would include utilising the latest in crushing, grinding and beneficiation technology, to reduce costs and improve product quality.

As an alternative, we are also evaluating the potential for an extensive modernisation of the existing factory complex in Rudny. Both options are being tested in a prefeasibility study to be concluded in 2020.

New Special Coke Plant at Shubarkol Komir

In 2018, we pursued the potential development of a new Special Coke Plant with a capacity of 400ktpa, as well as reconstruction of our existing special coke plant with current capacity of 210ktpa.

This is with the aim of satisfying internal demand for cost-effective reductants during the smelting process and pursuing potential sales to third parties. Whilst we prepare a feasibility study for the project, we are also in the process of reconfiguring our EPC arrangements.

Major upgrade of the Aksu Power Plant in Kazakhstan

Reconstruction work on Power Unit No.5 continued, with commissioning planned for 2019. Replacement of the core process equipment (boiler, turbine and generator) at the Power Unit will help address an anticipated intra-Group energy capacity shortage by increasing its capacity from the current 300MW limit up to 325MW. Furthermore, it is anticipated to improve operational efficiency and safety, whilst the replacement of older filters will reduce its emissions to air.

In addition, we completed a prefeasibility study for the reconstruction of Power Unit No.7 at the Aksu Power Plant and are progressing to a feasibility study and detailed engineering.

Study on potential addition of capacity at JSC 3-Energoortalyk

In 2018, ERG acquired an existing power plant at Shymkent (JSC 3-Energoortalyk) in Kazakhstan. We are conducting an early-stage study of options for the creation of additional gas powered generation capacity at the site.

SECTION 1: PREPARING OUR BUSINESS FOR THE FUTURE

Efficiency and innovation



Strategic context

» Efficiency in all that we do:

Under our 2025 Strategy, we have prioritised the pursuit of efficiency at Group and asset level. This includes reducing our unit costs by eliminating bottlenecks and improving productivity.



Relevant UN Sustainable Development Goals

UN SDG	Associated UN targets
 8 DECENT WORK AND ECONOMIC GROWTH	8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors
 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending

In line with our 2025 Strategy, we seek to achieve efficiency in all that we do. This includes through 'conventional' measures such as the optimisation of our mineral deposits, infrastructure and equipment, as well as the replacement of legacy capital assets (see Development of our portfolio).

In addition, we actively pursue innovative technological solutions that can reduce our costs, improve our productivity and support operational sustainability.

Efficiency

In 2018, our Operational Efficiency team in Kazakhstan transitioned from a focus on individual 'high-profile/high-impact' projects towards a more systems-based approach to achieving incremental improvements on an ongoing basis. In particular, this is based (in the context of our broader transformation efforts (p. 23)) on the lean principles of pursuing continuous improvement, with collaborative input from all employees – from the most junior to the most senior. Under this system, the best improvement opportunities identified by employees are selected every month, quarter and year – with prizes offered in return.

Such opportunities are communicated by a variety of means, including through:

- » **Ideas Factory:** Building on its successful introduction at SSGPO, the Ideas Factory concept was rolled out at Aluminium of Kazakhstan, Kazchrome, Eurasian Energy Corporation (EEC) and Shubarkol – and embedded as a standard process. In 2018, it was used to collect more than 3,000 employee ideas, over 1,600 of which were accepted – with anticipated savings of US\$25 million
- » **Innovators' Forum:** During the third Forum, participants considered opportunities around the digitalisation of production and shared their experiences with representatives from a range of large international companies

In 2018, this approach delivered total cost savings of US\$91.7 million (2017: 114.5 million) in Kazakhstan.

SECTION 1: PREPARING OUR BUSINESS FOR THE FUTURE

Efficiency and innovation continued

Existing programmes

Examples of ongoing programmes in 2018 include:

- » **SSGPO railroad review:** We continued to develop the Kacharsky Mine at SSGPO, by adapting transportation around the pit perimeter – generating an estimated US\$10 million in additional margin in 2019
- » **Kazchrome efficiency programme:** Following its roll-out in 2017, the programme increased high-carbon ferrochrome production at Kazchrome by 3-4%, without major capital expenditure
- » **Predictive plant maintenance:** This programme, which uses remote sensor technology, was applied across 55 units of equipment at SSGPO. This included the installation of sensors, controllers and software, as well as staff training. Within two months of operation, it enabled us to avoid losses from unplanned downtime amounting to more than US\$500,000. In 2019, we plan to implement the programme at Kazchrome, Aluminium of Kazakhstan and EEC

New initiatives

In 2018, we initiated and/or implemented the following new programmes in Kazakhstan.

Top 5 Operational Efficiency initiatives in Kazakhstan

Entity	Anticipated annual economic impact	Examples of initiatives
SSGPO	US\$10.9m	Optimisation of hauling from Kachar to Rudnyi
KAS	US\$2.9m	Increased use (by 50%) of locally produced calcined petroleum coke
Kazchrome	US\$2.5m	Magnetic flaw detection of container lifting wires
Shubarkol	US\$1.6m	Improvement of loading equipment performance
EEC	US\$1.4m	Shift of stripping transportation from railway to trucks

Innovation

Operational innovation

Finding new ways of doing things, including through the application of advanced technology, can be a key means of driving innovation. We maintain a dedicated R&D team in Kazakhstan, made up of more than 70 people, who help drive operational innovation.

Examples of initiatives that have been driven by our R&D team in 2018 include the following, some of which are examined in greater detail elsewhere in the report:

- » **Slimes 2 project at Donskoy GOK:** This will see the use of a new reprocessing facility to enrich approximately 8 million tonnes of chrome oxide-bearing tailings at Donskoy GOK and add to our output of chrome concentrate (p. 74). The initiative will also help to actively reduce volumes of existing tailings at the site

- » **Liquid Natural Gas (LNG) conversion of trucks at SSGPO:** Ongoing investigation of the potential conversion of SSGPO's diesel truck fleet to a LNG system – with the aim of reducing both costs and emissions to air (p. 71)
- » **Greenhouse gas (GHG) capture at EEC:** Ongoing investigation of methods to capture GHGs at our EEC power generation operations – and to convert them into marketable materials (p. 72)
- » **Syngas generation for Aluminium of Kazakhstan:** An ongoing technical study focused on the potential replacement of heating oil used in our calcination furnaces with synthetic gas produced from our coal. This is with the aim of reducing both costs and related emissions

In addition, we tested new dust management techniques at EEC's ash dump in Pavlodar and Kazchrome's slag dumps in Aktobe. This included the application of polymer dust suppressants using free agents. We are currently purchasing components for the implementation of these technologies.





Photo courtesy of SAP CIS

Digital innovation

We are exploring ways in which digital technology can actively drive our business by helping us make better decisions, deliver competitive advantage and add value to our business model.

It is in this context that we are developing a Group-level Digital Strategy, supported by well-aligned digital strategies at functional level. Furthermore, we have expanded our capabilities in this regard through the introduction of a robotisation team as well as the appointment of a big data specialist.

In addition, we are exploring the application of new digital technologies within our local communities to help drive independent sustainable development – including through the facilitation of local entrepreneurship.

Driving Industry 4.0 through our Manufacturing Execution System

We are continuing to make more structural preparations to bring our production in line with the Industry 4.0 concept, including a focus on data analytics and the digitalisation of production. In 2018, we continued the implementation of a single Manufacturing Execution System (MES) layer between our business units' production systems and existing, single-instance Enterprise Resource Planning (ERP) solution. This will offer new, big data insight and machine learning cases to support our production processes.

We have delivered our first operational MES module at Donskoy GOK (Kazchrome). The platform helps its production teams (from workshop level through to headquarters) trace the metal balance across the full production cycle.

Smart Mine initiative

In 2018, we continued to advance our Smart Mine initiative, which has been pioneered at our Kacharsky Mine (part of the SSGPO iron ore business). This involves the use of specialist dispatching systems and software to enhance the management of dump trucks and other moving equipment. During 2018, the initiative improved mining and transportation productivity at the Kacharsky Mine by approximately 10%.

The initiative is due to be rolled out to our other open pits at SSGPO as well as Shubarkol Komir, Aluminium of Kazakhstan and EEC. This was initially planned for 2019, but was rescheduled to 2021 due to delays in data network development, as well as supplier-induced changes to the project schedule.

Application of blockchain technology

In addition, we are exploring the potential application of blockchain technology to help us enhance the traceability of the cobalt we produce at our Metakol RTR project in the DRC. This could potentially help support our Clean Cobalt Framework by delivering efficient and reliable responsible supply chain assurance to other actors in our value chain (see p. 62 for further details).

Planning for the future

In terms of Operational Efficiency, we plan to:

- » Continue to enhance our approach towards operational innovation and R&D to help us better identify, develop and implement new technical solutions

In terms of digitalisation, in 2019, we plan to:

- » Create a virtual centre of digital excellence, to help us identify, understand and pursue related opportunities for our business
- » Roll out MES balance metals modules across our business units in Kazakhstan

In addition, we plan to establish a new venture capital fund at the Astana International Financial Centre, a business promotion hub¹. Through this initiative, we plan to work with the digital start-up community to generate – or give us access to – new digital solutions that can support our business.

¹ Astana International Financial Centre, <https://aifc.kz/>



SECTION 2

Helping our people thrive

MATERIAL ISSUES INCLUDE

Health and safety

Read more on p. 35

Skills, capabilities and development

Read more on p. 41

Labour relations

Read more on p. 44

2018 HIGHLIGHTS

Reduction in our lost time injury frequency rate (employees only)¹

-15.9%

¹ This includes reported employee fatalities.



13.2M

Consecutive lost time injury-free hours achieved at our Metalkol RTR project in the DRC

Differentiated pay rises for all production employees in Kazakhstan



SECTION 2: HELPING OUR PEOPLE THRIVE

Workforce profile

69,253

At the end of 2018, we directly employed 69,253 people¹ – of which over 90% are located in Kazakhstan

24%

of our workforce is female

+90%

of the Group's employees are trade union members

Under our 2025 Strategy, we have prioritised the development and maintenance of **a happy and professional team**. This includes the development of our employees' competencies and the maintenance of their safety and well-being.

We aim to maintain a safe and healthy working environment through the ongoing enhancement of our management systems and the development of a culture that prioritises protecting our people from harm. This is not only the right thing to do; it also underpins the maintenance of our operational continuity, our efficiency and the productivity of our workforce. In this context, we remain fully committed to the achievement of Zero Harm.

The current and future success of our business also depends on our ability to attract, develop, motivate and retain a highly-

skilled global workforce. We place particular emphasis on the development of our employees' strategic skills and competencies, as well as the development of our high-potential individuals and leadership pipeline. The achievement of portfolio growth, operational efficiency and financial stability will also require the ongoing development of our corporate culture.

Finally, as a diversified natural resources business with more than 69,000 employees, labour relations have a direct impact on our productivity, efficiency and profitability. We take a truly holistic approach in this regard, driven by the significant overlap and interconnectivity between our workforce and local communities in Kazakhstan. In this context, we focus on meeting the social needs and enhancing the living standards of our employees and their families – as well as improving employee benefits and providing a comfortable working environment. In Africa, we have had to manage a significant amount of operational change, resulting in retrenchments at Boss Mining, Comide, Congo Cobalt Corporation (CCC), Chambishi Metals and our Johannesburg office (p. 47).

[Read more](#)

For further information on how we manage our workforce, please see p. 94.

Number of employees by region

Region	2018	2017
Kazakhstan	62,422	62,100
Africa	6,446	6,651
Brazil	99	103
Corporate offices ^{2,3}	286	236

Employees at Metalkol RTR by category

Category	2018	2017
Congolese nationals – permanent employees	738	40
Congolese nationals – fixed term employees	16	13
Contractors	2,212	1,818
Expatriates	72	62



¹ i.e. employees holding a written contract of employment with ERG as at 31 December 2018. This number does not include contractors.

² Includes offices in Europe, Russia, UAE and China.

³ Headcount of corporate offices in Kazakhstan, Africa and Brazil are included within each relevant region.



Health and safety


Strategic context

» A happy and professional team:

Under our 2025 Strategy, we have prioritised the maintenance of our employees' safety and well-being. This includes the delivery of safe working conditions and the improvement of employee wellness and health.



Relevant UN Sustainable Development Goals

UN SDG	Associated UN targets
	8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment

We aim to achieve Zero Harm

We are fully committed to delivering a safe, attractive, productive and stable working environment for all our employees and contractors – and to the achievement of Zero Harm. To this end, we took a number of steps in 2018 to support the continuous improvement of our safety performance.

Our operations in Kazakhstan are certified to the OHSAS 18001 occupational health and safety management systems standard.

In Africa, our existing Safety, Health and Sustainability (SHS) management system is informed by the OHSAS 18001 management system standard.

Key issues and initiatives

Employee safety in Kazakhstan Enhanced safety management system

In 2018, we commissioned an independent third party to carry out a comprehensive audit of our existing safety management system in Kazakhstan. This work will commence in 2019 and will include:

- » **Gap analysis:** A comprehensive diagnostic of our safety management system across all our entities and our corporate office to identify management elements that require development and improvement, as well as gaps in safety processes and controls
- » **Risk assessment:** The piloting of an enhanced Hazard Identification (HAZID) assessment process at our Aktobe Ferroalloys Plant (Kazchrome) and Aksu Power Plant (Eurasian Energy Corporation, EEC)

The audit results will form the basis for:

- » The development and roll-out of a long-term safety strategy to support the continuous improvement of our occupational and process safety performance
- » The implementation of an integrated, risk-based occupational and process safety management system
- » The roll-out of HAZID risk assessment methodologies across our other entities in Kazakhstan
- » More effective safety management budgeting

SECTION 2: HELPING OUR PEOPLE THRIVE

Health and safety continued

Corporate safety improvement programme

We continued to apply our corporate safety improvement programme, which helps us define management priorities, mid-term targets and new initiatives. We also took a number of steps to enhance the programme, including the introduction of several new safety initiatives. Key areas of focus included:

Aluminium of Kazakhstan:

- » The implementation of beyond-compliance measures to ensure installation openings are safely secured to reduce the risk of falling from height
- » The roll-out of an improved process for employees to exchange safety improvement ideas
- » The provision of enhanced, modern personal protective equipment (PPE) to employees handling corrosive substances

SSGPO:

- » The installation of 'blind spot' monitoring cameras on 24 excavators and the purchase of an additional 115 sets for installation on our heavy-duty dump trucks
- » The acquisition of an additional two unmanned aerial vehicles (UAVs) to monitor compliance with safety standards in remote and hard-to-reach locations (following the acquisition of two UAVS in 2017)

Kazchrome:

- » The installation of additional safes to further enhance the storage of explosive materials
- » The implementation of enhanced safety controls near blasting areas
- » The installation of a rescue container for 15 people to enhance fire rescue procedures at DGOK

Entity-wide in Kazakhstan:

In addition, we undertook the following measures to enhance safety across all our entities in Kazakhstan:

- » The development of an enhanced safety training programme for working at heights (to be rolled out in 2019), as well as the establishment of a new safety training facility at Pavlodar Aluminium Plant; we plan to establish similar facilities at all other entities in Kazakhstan
- » The development of a programme to provide additional employees with enhanced, modern PPE up to 2021. This will be targeted at employees in higher-risk roles (e.g. metallurgists, welders and electricians, etc.)

Motivation, competencies and awareness

Embedding a safety-first culture is a key component of our safety management strategy. In 2018, we continued to evolve and strengthen our safety culture through the implementation of a range of training, awareness raising and enhanced communications initiatives. These included:

- » **Driver competencies:** The implementation of a driver training programme at Shubarkol Komir, Krasno-Oktyabrskoye mining unit and Vostochny open-pit, accredited by UK-based RoSPA (The Royal Society for the Prevention of Accidents). All drivers who took part in the training underwent subsequent theoretical and practical driving assessments in order to obtain third party certification. The training forms part of our wider transport safety programme, which also includes the installation of automated vehicle tracking systems to monitor driver safety performance
- » **Safety communication:** The integration of safety dialogues into our large-scale employee events such as our League of Professionals programme (p. 42). This aims to improve direct communication between senior management and entity-level supervisors/workers, providing an opportunity for the discussion of new ideas on safety management, as well as safety performance and objectives
- » **Flash reporting:** The revision of our 'flash reporting' process to capture greater detail on the causes of safety incidents and to inform immediate decision-making
- » **Entity-level KPIs:** The integration of lost time injury frequency rate (LTIFR) performance into the KPIs of entity-level senior management
- » **Internal reporting:** The establishment of an intranet-based safety dashboard that enables all employees to view injury statistics

These programmes were informed by the results of a detailed analysis of injury statistics from 2015-2018.

Additional safety management measures included:

- » **Enhanced monitoring:** The improvement of our video surveillance practices. This included a shift from stationary video surveillance cameras to the provision of personal video systems to employees working in higher risk roles. A total of 256 of these systems were provided to employees working in blasting roles at Donskoy GOK (Kazchrome), with plans for the purchase of a further 296 for SSGPO
- » **Safety standards:** The development of new corporate safety standards and the revision/enhancement of existing standards (where required). This includes a particular focus on:
 - Production controls
 - Higher risk work
 - Working at height
 - Fire safety
- » **Safety data management:** The development and roll-out of an automated data management and reporting system to improve efficiency and standardise the recording and monitoring of accidents at our facilities. The system includes a module that supports our ongoing compliance with the requirements of state regulatory bodies
- » **Control effectiveness:** The piloting of safety control checklists tailored to specific types of work and technical roles at the Pavlodar Aluminium Plant
- » **Industrial safety management structures:** The restructuring and standardisation of safety management structures and reporting lines at our entities, with the aim of developing a common approach to safety management that is aligned to international best practice. We also restructured and enhanced our safety function at our corporate office in Nur-Sultan
- » **Hazardous production facilities (HPFs):** The undertaking of a comprehensive review of HPFs to assess the reliability of related equipment, buildings and structures. We also began the development of an HPF database to enhance oversight and control. We plan to build on this through more detailed analysis of our HPFs which will inform future management plans and address gaps in safety performance

Employee safety in Africa and Brazil

In Africa, we continued to enhance our integrated Safety, Health and Sustainability (SHS) management system. This included:

- » The integration of fatal risk protocols into performance management for senior staff. This contributed to enhanced safety performance scores across our operations during follow-up audits carried out in 2018
- » The rollout of enhanced procedures and related audit protocols for employee health and occupational hygiene

We also rolled out an integrated Isometric software programme across our Africa region, including the introduction of a new industrial hygiene module. The programme supports the 'plan-do-check-act' cycle by tracking actions related to SHS audits and by improving central oversight and safety data analytics. This was completed at all of our African operations except for Metalkol RTR, where we plan for it to be fully operational by end-2019.

At Metalkol RTR, we further strengthened safety controls through the implementation of enhanced fatal risk procedures. These were focused on the 15 fatal risk protocols identified during safety audits carried out in 2018. We also established an onsite training centre to train employees on adherence to these safety procedures, including those focused on:

- » Working at height
- » Hot works
- » Working in confined spaces

The centre is also used to train employees and contractors on adherence to our wider safety standards.

In Brazil, we have implemented a range of measures to support the safe development of our Bahia Mineração (BAMIN) iron ore project. This includes the ongoing delivery of comprehensive safety training to all new employees and contractors as well as additional, role-specific safety training for individuals in higher risk operational roles. In 2018, we also continued to run weekly safety dialogues between management and operational staff to facilitate effective communication and safety incident reporting.

Contractor management

Contractor fatalities in 2018 demonstrated the need for ongoing action in this area. This includes the need to understand potential gaps between contractor and employee safety standards and/or behaviours.

Key steps in Kazakhstan included:

- » **Contractor assessment:** The evaluation of contractor safety compliance to inform the development of a new contractor safety standard. A number of areas were identified as requiring increased attention, including the pre-qualification of contractors and the strengthening of processes/controls for admitting contractors to site
- » **Contractor work schedules:** Adjustments to contractor work schedules to ensure that dedicated ERG safety specialists are present during the undertaking of higher risk activities (e.g. through limiting the scheduling of such activities on weekends and holidays)
- » **Enhanced supervision:** The hiring of additional safety managers to enhance supervision of contractor activities during the reconstruction of power units No. 5 and No. 7 of the Aksu Power Plant
- » **Financial sanctions:** The development of a system of financial sanctions for contractor non-compliance with our safety standards, which we plan to roll out in 2019

We also suspended the execution of works by contractors working on the Aksu Power Plant and Aktobe Ferroalloys Plant, following fatalities involving their employees, and a serious contractor lost time injury (LTI) at Aksu Ferroalloys Plant. Works were permitted to resume only after the elimination of all identified safety violations (e.g. through enhanced training and the revision of relevant safety procedures).

In 2018, we continued to hold contractor forums at all of our entities in Kazakhstan. The forums provide a platform for the communication of our corporate safety standards, the gathering of feedback from our contractors and the generation of insight into how we can continue to enhance contractor safety standards.

Efforts to further integrate contractors into our safety management processes in Africa will remain a key area of focus.



SECTION 2: HELPING OUR PEOPLE THRIVE

Health and safety continued

Employee health

Occupational health

Some of our workplace activities – if not proactively managed – can present latent risks to the health of our employees. This includes potential exposure to particulates, noise, vibrations and heat. As such, we implement comprehensive occupational health programmes for all our employees.

In Kazakhstan, this includes:

- » Mandatory annual medical examinations
- » Onsite, role-specific medical examinations
- » Workplace health risk assessments
- » Provision of relevant medical treatment

In Africa, we continued to implement an Industrial Hygiene Programme at Boss Mining, CCC, Frontier and Chambishi to protect employees' health at work, monitor and maintain regulatory compliance, and manage key health risks. In 2018, areas of management focus under the programme included the monitoring of crystalline silica dust, respirable dust, sulphuric acid mist and noise exposure.

In addition, at Metalkol RTR we established an onsite clinic equipped with modern healthcare equipment. During the year, our onsite doctors received healthcare training at medical centres in South Africa to enhance occupational health screening standards.

At our BAMIN iron ore project in Brazil, we run annual occupational health assessments for all employees. We also apply occupational health risk assessments, including ergonomic analysis.

Personal health

We are committed to addressing non-occupational diseases that can impact the health of our employees.

In Kazakhstan, we carried out cardio-screening for approximately 8,400 employees (2017: approximately 10,000)¹. A total of 1,800 of our employees in Kazakhstan who have been identified as being at high risk of heart disease are subject to regular pre-shift check-ups.

We provide enhanced healthcare cover for our employees in Kazakhstan (in excess of what is required by law). This includes, for

example, dental care, additional medication allowance and certain preventative treatments. In 2018, we invested around US\$10 million in this programme.

In Africa, we provide free medical support to employees and their families. We also:

- » Participate in government vaccination campaigns and HIV/AIDS/tuberculosis programmes
- » Implement malaria prevention measures for employees at our Metalkol RTR project and Frontier Mine
- » Provide antenatal healthcare at some of our ERG Africa clinics

In Brazil, we continued to vaccinate employees against seasonal flu and H1N1 flu. We also provide a partially funded employee health insurance plan, as well as fully funded dental care, for all employees and their families. In addition, we have established a health programme ('Saúde de Ferro'), through which we provide physical activity clubs to employees.



¹ The decrease in 2018 reflects a fall in the number of employees who are above 40 years of age (i.e. the target group for cardio screening).



Performance

We regret to report that five fatalities took place during the year (2017: 6). Of these, one involved an employee (2013: 3) and four involved contractors (2017: 3). Any fatality represents a major failure in performance. As such, we will continue to pursue Zero Harm in all that we do. We would like to express our sincere condolences to the families affected by these tragic events.

Each incident was subject to comprehensive investigation, and appropriate prevention measures have been implemented to reduce the risk of them reoccurring.

The results of the investigations in Kazakhstan showed that the causes of these fatalities, included:

- » Inadequate levels of competence amongst contractor engineering and technical managers
- » A lack of contractor control over the safe performance of work by contractor personnel
- » A lack of control over high-risk works both by contractors and ERG personnel

In response, we have:

- » Introduced new measures to enhance controls at Donskoy GOK, including the provision of personal video recorders to employees engaged in higher risk activities and the introduction of enhanced management oversight (p. 36)
- » Implemented a programme at Donskoy GOK to ensure drilling and blasting operations fully comply with national industrial safety regulations. This included:
 - Auditing of the third party organisations that we use to provide training on the safe use of explosives
 - Revision and enhancement of our training programmes
- » Enhanced control measures, including the introduction of safety control checklists, at Aluminium of Kazakhstan (p. 36)

Our investigations in Africa suggested that the two fatalities there were caused by a range of factors, including:

- » Non-compliance with internal safety regulations (including a prohibition on working on moving equipment)
- » Insufficient night-time supervision and communication between personnel
- » Equipment layout
- » Inadequate hazard identification

Key safety indicators by year	2018	2017	2016	2015
Fatalities (employees and contractors)	5	6	15	10
Fatalities (employees only)	1	3	10	9
Fatalities (contractors only)	4	3	5	1
LTIs (employees only)	70	83	84	86
LTIs + fatalities (employees only)	71	86	94	95
LTIFR (employees only, including fatalities)	0.58	0.69	0.76	0.74

Key safety indicators by region	Kazakhstan	Africa	Brazil
Fatalities (employees and contractors)	3	2	0
Fatalities (employees only)	0	1	0
Fatalities (contractors only)	3	1	0
LTIs (employees only)	66	3	1
LTIs + fatalities (employees only)	66	4	1
LTIFR (employees only, including fatalities)	0.65	0.20	4.89 ¹

- » Inadequate safety training of third party contractors, as well as the application of inadequate assessment verification, contractor selection processes and contractual controls

As a result, we have (amongst other things):

- » Enhanced our procedures (including those relating to loading)
- » Improved our emergency response capabilities (including through the maintenance of trained medical emergency personnel and emergency equipment on site)
- » Implemented regular refresher training for operators using moving equipment, as well as additional first-aid training for those working in the process plant
- » Applied improved night shift supervision – and reviewed our fatigue management plan for night shift workers
- » Provided additional radios to enhance onsite communications

In addition, we applied supplementary measures to enhance our management of/ engagement with contractors (p. 37).

In 2018, we also experienced 71 lost time injuries (LTIs) involving employees (2017: 86) resulting in a lost time injury frequency rate (LTIFR) of 0.58 (2017: 0.69)². Whilst this represents improved performance, we recognise there is still significant work to be done.

Over 13 million LTI-free hours at Metalkol RTR

In 2018, our Metalkol RTR project in the DRC recorded 13.2 million consecutive LTI-free hours. This reflects the application of consistent health and safety performance standards from the outset of the project – a noteworthy achievement given the high number of contractor staff onsite and the range of cultures and languages within the workforce (including Swahili, French, Chinese and English). Furthermore, the operation was still under construction – an inherently higher risk phase for health and safety – when it achieved this milestone.

Unfortunately, an LTI was recorded in November 2018.

1 Please note that only a limited number of hours of work took place on BAMIN in 2018.

2 Employees only. This includes the reported employee fatalities.

SECTION 2: HELPING OUR PEOPLE THRIVE

Health and safety continued

Planning for the future

Kazakhstan

We are planning further measures to reduce the risk of harm to our employees, including:

- » The completion and implementation of our new safety management system, guided by the findings of our entity-wide safety audits
- » The enhancement of our automated data management and reporting system, including the integration of new indicators to track performance on labour standards, process safety, health and safety risk assessment, and transport safety
- » The completion of a comprehensive safety audit of elevated work sites in 2019
- » The rollout of additional personal video surveillance systems to enhance monitoring
- » The ongoing implementation of our programme to provide employees with enhanced PPE up to 2021

- » The piloting of a satellite control, analytics and transport management system to reduce the frequency and severity of traffic incidents. This includes an automated vehicle tracking system to monitor driver safety performance
- » The introduction of enhanced measures to further address the root causes of safety incidents at Aluminium of Kazakhstan, including the purchase of modern devices for the dismantling of flange connections

In addition, in 2019 we plan to further enhance our contractor safety controls. This includes, for example, the revision of our safety management standard and the introduction of a unified system of penalties for safety violations.

Africa and Brazil

In Africa, we plan to further strengthen our safety performance by:

- » Conducting internal audits on new safety procedures included under our SHS management system
- » Conducting an internal audit of our safety management system at Metalkol RTR against the ISO 45001 management system standard, with a view to working towards certification
- » Expanding the scope of our Industrial Hygiene Programme at Boss Mining, CCC, Frontier and Chambishi to cover particulates monitoring, ergonomics and vibration exposure monitoring
- » Continuing our health and safety training and risk assessment procedures at Metalkol RTR

At our BAMIN project in Brazil, we plan to strengthen our health and safety standards for contractors, including through the integration of enhanced safety training into the induction process.





Skills, capabilities and development



Strategic context

»» A happy and professional team:

Under our 2025 Strategy, we have prioritised the development of our employees' competencies. This includes the building of their strategic skills and capabilities, the evolution of our corporate culture and the development of our talent pool and leadership pipeline.



Relevant UN Sustainable Development Goals

UN SDG	Associated UN targets
 4.4	By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship
 8.6	By 2020, substantially reduce the proportion of youth not in employment, education or training

We focus on embedding innovative ways of working throughout every level of our organisation, as well as the ongoing development of our corporate culture. In line with our strategic priorities, we place particular emphasis on the development of our employees' strategic skills and competencies, as well as our high-potential individuals and leadership pipeline. We also take a truly holistic approach to talent management – building our skills base across a range of age groups, levels of experience and core disciplines, to support the current and future needs of our business. These efforts are particularly important in the context of a shortage of young mining specialists, outward migration from our operating regions and the ongoing transformation of our business.

Key issues and initiatives

People management in Kazakhstan

In 2018, we continued to focus on:

- » Ensuring we have the right organisational structures and management systems in place to support the current and future needs of the business
- » Standardising our approach to human resources across our operations (including recruitment, training and talent management)
- » Providing a clear roadmap for employee development, remuneration and career progression to improve motivation and retention
- » Embedding a common, performance-based culture to support the achievement of our strategic priorities

In 2019, we plan to directly support the implementation of the Group's 2025 Strategy, through the development of a well-defined human resources functional strategy – that incorporates many of the above elements.

Organisational design and resource planning

Our approach to people management requires clear and consistent organisational structures. As such, in 2018 we:

- » Remodelled our entity-wide organisational structures to embed clearer and more consistent reporting lines, job grades and levels of management
- » Standardised entity-wide role profiles and gradings to provide a transparent framework for performance benchmarking

SECTION 2: HELPING OUR PEOPLE THRIVE

Skills, capabilities and development *continued*

Furthermore, we enhanced our human resource planning processes through, amongst other things:

- » The update of role profiles to improve budget allocation
- » The update of our long-term planning models for projected personnel requirements
- » The automation of several core processes to improve human resources data collection

Holistic talent management

We aim to continuously build our current – and future – skills pipeline across a broad spectrum of age groups, levels of experience and core disciplines. This holistic approach underpins our efforts to recruit, develop, motivate and retain the skilled employees we need to meet our strategic priorities (p. 12).

In 2018, key initiatives included:

Schools:

- » The delivery of lectures at local schools by ERG employees to raise awareness around mining professions
- » The provision of annual educational tours at ERG facilities under our Open Day programme
- » Investment of around US\$72,000 in the renovation and enhancement of secondary schools in our operating regions

Colleges and higher education institutions:

- » Ongoing financial support for higher educational institutions (and their students), including vocational colleges and universities (p. 56)
- » Participation by ERG employees in 18 job fairs to engage with prospective young employees
- » The provision of internships for university students, as well as the provision of technical training secondments for college lecturers

Young professionals:

- » The hosting of our first, three-day Forum for Young ERG Leaders during which around 200 young employees participated in activities focused on developing our corporate culture, leadership skills and team-building

Experienced professionals:

- » Ongoing implementation of our League of Professionals programme to support the development of our production specialists. In 2018, this included the hosting of two large-scale group training events focused on project management skills, improving communication with Group-level management and exploring ways to support the ERG Production System (p. 24)
- » The implementation of a performance-linked motivation system for high-performing individuals (p. 46)

In addition to the above, we have established strategic ‘talent pools’ grouped into the following categories:

- » Business leaders (i.e. executive management)
- » Entity leaders (i.e. senior managers at entity level)
- » Middle management (i.e. middle-level managers at corporate level and entity level)
- » High-potential employees (i.e. young employees with managerial potential)

We identify individuals for inclusion in these talent pools on an ongoing basis through our annual employee evaluation programme (p. 43), as well during events such as the Forums for Young ERG Leaders, the League of Professionals workshops, the Innovators’ Forum and other managerial and leadership programmes.

Training and development

In 2018, we continued to enhance and roll out our skills development programme, with a focus on embedding innovative ways of working at every level of our workforce.

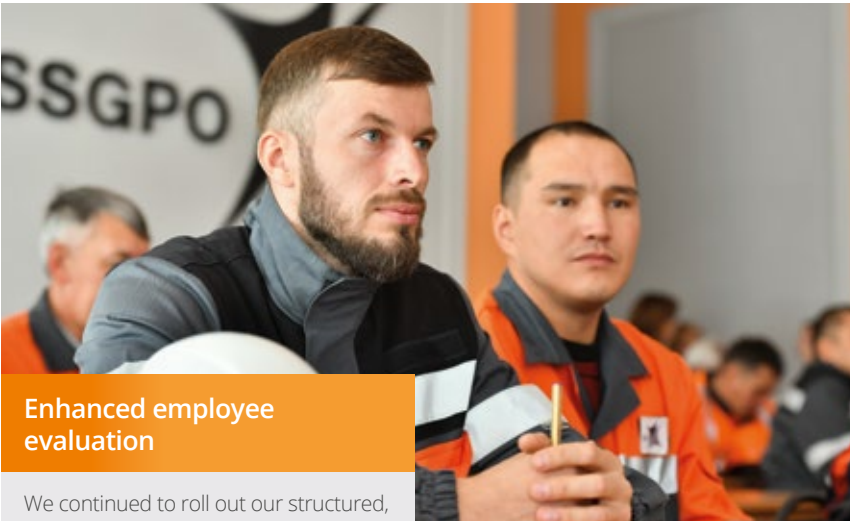
Activities included:

- » Implementation of a new Training Policy to standardise the scope/desired outcomes of our entity-wide training and development programmes
- » Delivery of training courses to employees including, for example:
 - Compulsory training on industrial safety, fire safety and environmental protection
 - Specialised functional training (such as operational efficiency, human resources and accounting)
 - Other training, including certification training, post-graduate education and personal development
- » Revision and standardisation of induction training for new starters, including training on Group-wide safety standards

We also continued to roll out strategic elements of our skills development programme through the ERG Academy. This included a particular focus on the ongoing development of our corporate culture, to help support the implementation of our Group’s 2025 Strategy (p. 12).

Finally, we took steps to enhance our internal and external training standards. For example, we trained 75 internal instructors to deliver training to their colleagues on safety and lean management, amongst other topics. We also established a database of around 200 high-quality training providers based on an evaluation of existing and new providers against Group training standards and requirements.





Enhanced employee evaluation

We continued to roll out our structured, competency-based employee evaluation programme, with more than 3,000 employees assessed during the course of the year.

This programme aims to support:

- » The development of corporate and individual training and development programmes (p. 42), and address key gaps in critical employee competencies
- » The identification of individuals for inclusion in our talent pools (see opposite)

In addition, we undertake a structured, comprehensive evaluation process for all new hires in Kazakhstan.

People management in Africa and Brazil

Africa

Significant operational changes at our Africa assets resulted in the temporary suspension of many of our skills development programmes in the region.

At Metalkol RTR, our efforts were framed by the transition of the project from construction to commissioning. In this context, we undertook an extensive recruitment campaign, which included the integration of individuals from local villages and Kolwezi city for lower-skilled roles, and the recruitment of Congolese nationals and expatriates into higher-skilled roles.

To support these efforts, we ran technical skills assessments for our new and existing employees – and rolled out targeted training programmes to fill identified skills gaps.

Finally, the employee training centre at Metalkol RTR is working towards external recognition as a certified provider of accredited training modules for our employees. This will support our ongoing efforts to align our training programmes with international best practice.

Brazil

In Brazil, we continued to implement a performance evaluation programme across all levels of our workforce – following the successful launch of the initiative in 2017. This resulted in individual professional development plans for all employees who underwent evaluation. We also initiated the development of a cultural change programme (with assistance from an external training provider) – to support the project's forthcoming construction phase.

Performance

In Kazakhstan, we invested around US\$5 million in training and skills development for our employees (2017: US\$4.2 million). This includes mandatory training delivered under ERG's subsoil licensing obligations, and other large-scale employee development events, such as our League of Professionals and Growth Portal.

In Africa, we spent around US\$295,000 on such efforts (2017: US\$340,000).

Planning for the future

In Kazakhstan, we plan to:

- » Finalise our functional human resource strategy to support the delivery of our 2025 Strategy
- » Roll out IT solutions to support our broader management efforts, including:
 - An integrated software platform and dashboard to provide enhanced data analytics on staffing requirements
 - An automated employee evaluation system
 - An e-learning system and intranet-based training library that will be accessible to all employees
- » Launch our new ERG Leader programme to support the development of senior and mid-level managers
- » Launch new development programmes for young employees, as well as prospective employees (i.e. students). This includes our Young Leaders initiative, as well as a range of engagement programmes with educational institutions
- » Establish a region-wide Youth Council to enhance communication amongst young employees and to facilitate their access to development opportunities within the company
- » Continue to implement our League of Professionals programme to support targeted skills development across a range of employee categories
- » Participate in the development of the 'Atlas of New Professions', a multi-stakeholder initiative to identify the key professions and skills needed to drive economic growth in Kazakhstan over the short, medium and long term. This initiative will provide a strategic planning tool to help young people align their career choices with emerging demand and future labour market trends

In 2019 (and beyond), we also plan to expand the use of the ERG Academy to deliver strategic training sessions that will cascade the requirements of the 2025 Strategy across every level of the workforce.

At Metalkol RTR in the DRC, we have developed a range of new leadership, competency and technical training programmes. We plan to roll these out in 2019 to support localisation, the development of our leadership pipeline, and employee talent development.

SECTION 2: HELPING OUR PEOPLE THRIVE

Labour relations



Strategic context

>> A happy and professional team:

Under our 2025 Strategy, we have prioritised the development of our employees' competencies and the maintenance of their safety and well-being. This not only includes employee wellness and health, but also the delivery of comfortable workplaces, enhanced benefits and an improved employee proposition.



Relevant UN Sustainable Development Goals

UN SDG	Associated UN targets
	8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment
	11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums

In Kazakhstan, our holistic approach to labour relations is driven by the significant overlap and inter-connectivity between our workforce and local communities. As such, we place strong emphasis on the social needs of our employees and their families in our operating regions, many of which are geographically remote and highly reliant on ERG's activities. This supports the development of a motivated, safe, productive, stable and loyal workforce – whilst supporting broader socio-economic development in our operating regions.

A key component of our Group-wide approach to labour relations is our constructive interaction with our employees' unions on issues ranging from pay and benefits to health and safety. We respect the right of all employees to join unions and to freely engage in collective bargaining. More than 90% of the Group's employees are trade union members, and collective bargaining agreements are in place at the majority of our operational entities.

Finally, we are fully committed to the principle of equal opportunity and the maintenance of a fair and non-discriminatory work environment. We treat our employees fairly, equally and without prejudice, irrespective of gender, race, age, disability or sexual orientation.



Key issues and initiatives

Labour relations in Kazakhstan

As outlined above, our holistic approach to labour relations requires action both in the workplace and outside it. Priority areas include:

- » The enhancement and standardisation of the physical working conditions of our employees – as well as the ongoing improvement of our employee benefits
- » The raising of living standards for our employees and their families in our operating regions

Actions in these areas have been prioritised on the basis of comprehensive baseline socio-economic surveys undertaken in our operating regions.

Finally, our holistic approach to talent management means we provide targeted training and development opportunities to support the professional development of our employees across each stage of their careers (p. 42).

Standardisation of workplace conditions

During 2018, we continued to enhance and standardise workplace conditions with the aim of raising all operations up to Group-wide standards. Initiatives included:

- » **Onsite facilities:** Investment of around US\$13 million in the ongoing renovation and standardisation of onsite facilities across all of our production entities (e.g. canteens, bathrooms and dormitories for shift workers)
- » **Catering:** The monitoring of 73 employee canteens to assess their progress against recommendations made during audits carried out in 2017. The results from this show that improvements have been implemented in line with Group catering standards
- » **Healthcare:** The contracting of a single external medical services provider at our entities in the Pavlodar and Kostanay regions; the auditing and standardisation of 55 onsite medical facilities; and the roll-out of more structured medical services provision across all our operations in Kazakhstan

» **Transportation:** Continued implementation of our transportation standardisation programme in 2018. Key initiatives included:

- Staged modernisation of ERG-owned and contracted transport, including the purchase of 31 new buses
- Approval and rollout of a transportation standard (i.e. defining relevant requirements) across all of our entities in Kazakhstan

We also worked with local authorities in the Aktobe, Kostanay and Pavlodar regions to modernise and improve the quality of public transport (as used by our employees).

Raising employee living standards

In 2018, we continued our efforts to raise living standards for our employees and their families in our operating regions. This included:

» **Housing:** The construction of affordable, modern accommodation and its provision to employees on preferential financial terms under a national housing programme. This included the development of three large-scale, multi-storey accommodation buildings in the Pavlodar and Aktobe regions.

Over 600 employees and their families have benefited from the programme since 2015, including 186 employees and their families in 2018. We are implementing this programme in partnership with third party financial institutions

» **Social infrastructure:** Investment in social infrastructure across our operating regions, including health centres, sports facilities, and both cultural and recreational areas (p. 57). These facilities are available to our employees and their families, with discounts provided for retired workers and disadvantaged and/or large families

» **Education and entrepreneurship:**

Investment in a range of educational and entrepreneurship programmes to support regional socio-economic development and future job prospects for community members (including the children of employees). This includes our support for STEM laboratories (p. 56), our Student Entrepreneurship Programme (p. 57) and investment in vocational schools and universities (p. 56)



Employee benefits in Kazakhstan

We provide a range of workplace benefits to our employees. This includes:

- » Competitive base salaries and bonuses for the achievement of production targets
- » Employee healthcare cover (in excess of what is required by law). In 2018, we spent around US\$10 million on this benefit
- » Additional support for retired employees and employees who have large families or children with disabilities
- » Extended maternity leave for female employees (in excess of what is required by law)
- » The provision of subsidised food at ERG canteens
- » Reimbursement of commuting costs

These are in addition to our provision of sports facilities, cultural events and leisure activities as well as the maintenance of social infrastructure used by employees in our operating regions (p. 57).

SECTION 2: HELPING OUR PEOPLE THRIVE

Labour relations continued



Supporting employee well-being in Kazakhstan

In 2018, we continued to take a holistic approach to employee well-being in Kazakhstan. This includes a particular focus on increasing employee participation in sports and improving lifestyle choices through our ERG Sports Club programme.

During the year, several thousand people (including employees and community members) participated in events organised under the programme. This included:

- » The hosting of our second Group Spartakiad – an employee sports competition in which around 700 employees participated in teams representing their entities
- » The hosting of a major running event (ERG Run Fest) held simultaneously

in the Aktobe, Pavlodar and Kostanay regions (with around 3,000 employees and external stakeholders taking part)

- » The hosting of more than a hundred other sports events for employees

In addition, we launched our sports infrastructure modernisation and standardisation programme in Kazakhstan. This included a pilot project at Donskoy GOK to modernise gyms and sports halls and enhance the management of the facilities to significantly increase employee sports participation. The ultimate aim of the programme is to deliver common facility standards and levels of access for all employees. Following completion of the pilot project in 2019, we plan to roll this out to other entities in Kazakhstan.

Employee motivation

In 2018, we implemented a new employee motivation system in Kazakhstan to further embed a performance-based culture. This included the rollout of a structured performance assessment for over 1,500 management-level employees to inform the payment of transparent, performance-linked bonuses. This is based on defined key performance indicators (KPIs), including corporate and individual targets.

In addition, we undertook the following measures to further enhance our remuneration frameworks:

- » The rollout of a structured and transparent salary and grading system, which provides a hierarchy of roles based on their value to the business, fairly evaluates employee performance and helps support career progression for our top talent
- » In-depth analysis of employee salaries across our entities, as well as external peer benchmarking. This resulted in differentiated pay rises for all production employees

Employee relations in Africa and Brazil Africa

At Metalkol RTR in the DRC, our workforce underwent significant change as the project progressed towards commissioning. This included the expansion of our full-time operational workforce. As a result, we have increased the proportion of Congolese nationals in our workforce and are employing more nationals on a full-time basis. This reflects our proactive efforts to prepare for the expiration of our local content exemptions (which only apply during the construction phase of the project). In this context, we are also implementing a comprehensive succession/localisation plan and induction process, with a focus on the development of a common corporate culture and the embedding of safe behaviours.

We also began the roll-out of our new 'Pamoja tuta Weza' programme ('Together through teamwork' in Swahili) at Metalkol RTR. This forms part of our proactive effort to build a bottom-up, shared corporate culture to drive the success of the project throughout its production phase. The programme includes a series of workshops and training sessions focused on developing shared understanding, collaborative problem-solving and team work. Several 'silent leaders' from across our workforce (e.g. community elders and/or respected senior employees) were instrumental in the development of the programme.

At our other assets in Africa, employee relations were framed by the following operational changes – all of which resulted in downsizing:

- » **Boss Mining:** The placing of Boss Mining into care and maintenance
- » **Comide:** Further reductions in Comide's cost base (with the operation already in care and maintenance)
- » **CCC:** Changes to the operational model at our CCC facility, in light of the placement of Boss Mining into care and maintenance
- » **Chambishi Metals:** Reduced production, amongst other operational changes
- » **Johannesburg head office:** A review of the organisational structure at our Johannesburg office to ensure it continues to effectively support our operations (in the context of the operational changes noted above)

All of these operational changes were conducted in full compliance with local labour laws, as well as our collective bargaining agreements.

Brazil

At our BAMIN iron ore project, we focused on enhancing two-way communication between management and the workforce – to support the development of a common corporate culture as we prepare for the project's forthcoming construction phase. This included holding new quarterly Board meetings to discuss issues raised by employees.

Performance

We did not experience any strikes in Kazakhstan in 2018. This reflects the consistent and constructive relations we maintain with the labour unions, as well as our commitment to address the social challenges faced by employees living in our local communities. We continued to strengthen our employee relations, including through the development of an action plan to address concerns raised by the workforce via union representatives.

Similarly, we did not experience any strike action in Africa in 2018. We saw successful union elections at both our Frontier Mine and Metalkol RTR. The election at Frontier Mine followed illegal strike action in 2017 which, in line with local labour law, resulted in the termination of our agreements with the former union leaders. We currently maintain constructive relations with the newly elected union leaders. At Metalkol RTR we hold scheduled meetings with union representatives on a weekly basis, as well as formal meetings on a quarterly basis. We are also actively engaging unions at our operations in the DRC regarding conditions of employment through the statutory collective bargaining framework.

No significant labour relations issues took place in Brazil during the year.

In addition, during 2018:

- » We did not identify any of our operations as presenting risks to workers' rights to freedom of association and collective bargaining
- » There were no reported incidents of discrimination at our operations

Planning for the future

In Kazakhstan, we plan to focus our activity on the following areas:

- » **Health and well-being:** Participation in the Virgin Pulse Global Challenge¹, through a pilot programme involving 3,000 employees. The initiative includes an app-based platform that educates employees about healthier lifestyle choices and supports a team-based walking challenge. It will also collect anonymised data on health indicators (e.g. blood pressure and blood sugar levels) that we will use to inform our other well-being initiatives
- » **Motivation system:** The cascading of our management motivation system to our entities
- » **Housing:** Construction of an additional seven apartment complexes under our Affordable Housing Programme, benefiting more than 500 employees and their families. We are implementing this initiative in the context of a national housing programme
- » **Transportation:** Continued standardisation of ERG-owned and contracted transport, including the purchase of new buses in 2019. We also plan to implement relevant public transportation improvement programmes with local governments in Aktobe, Rudnyi and Aksu (p. 45)

¹ Virgin Pulse: virginpulse.com.

SECTION 3

Community development and well-being

MATERIAL ISSUES INCLUDE

Community impacts

[Read more on p. 51](#)

Community investment

[Read more on p. 54](#)

Our approach to artisanal and small-scale mining

[Read more on p. 60](#)

2018 HIGHLIGHTS

US \$ **115M** 

Group community social investment



5,000 

Participants in the Student Entrepreneurship Ecosystem programme in Kazakhstan

Launch of our **Clean Cobalt Framework**



SECTION 3: COMMUNITY DEVELOPMENT AND WELL-BEING

Our 2025 Strategy commits us to **the sustainable development of our host regions**. This is particularly important to ERG, as many local communities in Kazakhstan have effectively developed around our operations. In this context, we place particular emphasis on improving the lives of our employees and their families outside of the workplace (i.e. as local community members) – whilst also investing in regional economic development to reduce, over time, community dependency on our operations.

In the DRC, our operations are located amongst disadvantaged communities that have limited access to formal employment opportunities. However, the finite nature of our operations, combined with the technical skills required to run them, means (like many of our peers) our ability to employ large numbers of local people is limited. As such, we focus on supporting community-led socio-economic investment activities.

In this context, we are also committed to actively managing both our positive and negative impacts on local communities. This – as well as close, ongoing engagement with our communities – is vital for the maintenance of our social licence to operate and our continued access to new growth opportunities.

Finally, there is considerable concern amongst international value chain actors (including battery and electrical vehicle manufacturers in particular) regarding:

- » Potential negative impacts associated with illegal artisanal and small-scale mining (ASM), including child labour
- » Broader ethical challenges around mining and the mineral trade in the DRC

Whilst none of our production comes from ASM sources, we are determined to deliver the highest levels of assurance with respect to our responsibly produced cobalt, and to improve conditions for local communities in the process. Similarly, we intend to give stakeholders confidence that we are applying highest ethical standards in all that we do in the DRC.

[Read more](#)

For further information on how we manage our interactions with local communities, please see p. 94.





Community impacts

Strategic context

» Sustainable development of our host regions:

Under our 2025 Strategy, we have prioritised our contribution to the socio-economic development and well-being of communities in our regions of operation. This includes the maintenance of international environmental standards, as well as support for entrepreneurship and the development of the business environment in our host countries.



Relevant UN Sustainable Development Goals

UN SDG	Associated UN targets
	3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination
	6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally
	11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage
	12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimise their adverse impacts on human health and the environment

Responsibly managing our potential negative impacts is not only the right thing to do; it also helps us maintain constructive relations with a range of stakeholders. Furthermore, we seek to maximise the positive impacts of our operations – ranging from employment creation to local procurement (p. 79). These efforts are underpinned by ongoing community engagement to help ensure we remain responsive to the concerns, priorities and aspirations of local people.

Key issues and initiatives

Managing our impacts – Kazakhstan Community consultation

We conduct comprehensive impact assessments and community consultations whenever undertaking any major developments or operational changes – in line with national legal requirements and relevant international standards.

For example, we conducted a range of public hearings in 2018 related to project changes, including:

- » The construction of a solid waste landfill site at Aluminium of Kazakhstan in Pavlodar
- » The reconstruction of Power Unit No 7 at Aksu Power Plant
- » The construction of the Sarbai open-pit at SSGPO

SECTION 3: COMMUNITY DEVELOPMENT AND WELL-BEING

Community impacts continued

In addition, we conduct large-scale surveys of community members (including ERG employees) and carry out benchmarking of socio-economic conditions in our mining towns in Kazakhstan. This helps us to proactively identify stakeholder priorities and informs our regional development strategy (p. 56).

Managing planned closure at Arkalyk

We are implementing measures to manage potential impacts on our employees and local communities in the city of Arkalyk in the Kostanay region, ahead of the planned closure of our Torgay Bauxite Mine in 2021. The mine provides employment for around 700 people in the city.

In 2018 for example, we undertook a comprehensive employee survey to help ensure our approach to closure is responsive to the needs of our employees and their families. This was supported by another in-depth survey of the local business environment, carried out in collaboration with the National Chamber of Commerce. This was with the aim of identifying potential commercial opportunities for new start-ups, as well as alternative employment opportunities. Based on the outputs from these surveys, we plan to:

- » Support employees in transitioning to other roles within ERG
- » Work with the National Chamber of Commerce to help employees find alternative jobs in Arkalyk, whilst also providing support to those seeking employment elsewhere in Kazakhstan or abroad
- » Implement a joint programme with the local Chamber of Commerce to support the development of small- and medium-sized businesses, including through the provision of retraining as well as preferential loans

Managing our impacts – Africa

In Africa, we continued to further improve our management systems. For example, we strengthened our Safety, Health and Sustainability (SHS) management system to address findings from the internal audits carried out in 2017 at our operations in the DRC – and Chambishi Metals in Zambia. This included the implementation of new management modules focused on human rights and ASM (p. 61). We also continued to roll out Isometrix software to provide a centralised SHS data management platform and to facilitate more effective impact and grievance management.

The findings from the 2017 internal audits were also used to update our environmental and social impact assessments (ESIAs) in the DRC. As a result, in 2018:

- » The updated Frontier Mine ESIA was accepted by the government, following its submission in 2017
- » The updated Metalkol ESIA was completed and accepted by the government, and we are in the process of developing the environmental and social management programmes to support its implementation

The updated ESIA for Boss Mining is in the process of being implemented, after it was accepted by the government in 2017. Finally, the ESIA for Comide was finalised and is under management review.

Managing our impacts – Brazil

In Brazil, Bahia Mineração's (BAMIN's) ESIA was completed and accepted by the government in 2019. In addition, under our licence we continued to fund research to deepen our understanding of fishing activities and aquatic fauna near the BAMIN port development, Porto Sul. Monitoring has been undertaken since 2013 and is maintained by a joint team drawn from BAMIN, a local university, the community and the local fishing industry. In 2018, BAMIN invested around US\$142,000 (2017: around US\$200,000) in this programme.



Resettlement at Metalkol RTR

In 2018, we concluded the successful resettlement of 16 families from the Samukonga community near our Metalkol RTR project in the DRC. During the course of the year, we spent US\$1.1 million on the resettlement. The need for resettlement was identified through our ESIA due to the proximity of the families to the new tailings storage facility – and was carried out in line with Congolese law and the IFC Performance Standards. We have established a related grievance mechanism and an ongoing engagement plan to identify and address potential concerns and complaints.

The families have been relocated to a newly constructed village, which offers a better standard of accommodation and is equipped with a water supply system and solar power.

In 2018, we also:

- » Worked with a local NGO to provide training in water, sanitation and hygiene (WASH) best practice
- » Acquired 35 hectares of additional land for residents, which will be used as part of a livelihood restoration programme in 2019

Separately, we paid compensation to 972 community members near Metalkol RTR, whose agricultural land and crops have been affected by the construction of the new tailings storage facility. This compensation totalled over US\$582,350 in 2018. These local community members also benefit from our alternative livelihood programmes and capacity building initiatives (p. 58).

Managing grievances

We have a grievance mechanism procedure in place across our African operations, which supports the continuous identification of our actual and potential impacts. In 2018, we took steps to enhance our management of grievances to ensure we remain fully responsive to community concerns. This included:

- » The integration of our grievance mechanism into the Isometrix software platform to enhance oversight and management
- » The hiring of an SHS officer at Comide and Metalkol RTR to enhance and speed up our response to community requests, incidents and grievances
- » The establishment of 'good neighbourhood committees' at Comide (comprising employees, security personnel and community members) to provide an additional channel for the early identification of issues and their resolution before they become formal grievances
- » The enhanced communication of our community grievance mechanism at Metalkol RTR (as well as our approach to human rights and the Clean Cobalt Framework (p. 62, 85))

At our BAMIN iron ore project in Brazil, we have set up a dedicated phone line through which local community members can raise complaints. In addition, we have established a working group – comprised of representatives from BAMIN, the local mayor's office, the environmental regulator and local communities – which meets on a quarterly basis to discuss potential challenges relating to project development.

Legacy complaint against ENRC

In April 2018, the UK National Contact Point (NCP) for the OECD Guidelines for Multinational Enterprises issued a Follow-Up Statement relating to a legacy complaint against ENRC. The complaint was originally made in 2013 on behalf of the chiefs of the Kisankala and Lenge villages and their communities near the Comide concession. The Follow-Up Statement sets out the NCP's conclusions on actions taken to satisfy the recommendations made in its Final Statement After Examination of Complaint in March 2016 (based on responses from the parties).

Whilst the complaint relates to ENRC legacy issues, we remain committed to responding to the concerns of our local communities. As such, we have set out below some of the steps we took in 2018 to continue to address each of the NCP's recommendations:

Communications channels and grievance procedures:

- » We increased the frequency of community engagement to bi-monthly meetings between ERG, community chiefs and elected sustainable development committees in Lenge and Kisankala
- » Regular engagement also takes place with impacted groups in both communities (such as farmers' associations)

Staff/security personnel standards of conduct and mining schedule:

- » We continued to deliver human rights training to all private and public security personnel operating at Comide. This included training on our Code of Conduct for security personnel, which is based on the Voluntary Principles on Security and Human Rights
- » This training was followed by public consultations with the local community to ensure they are aware of the rules contained in the Code of Conduct, as well as the grievance procedure if these rules are not followed

Use of influence to ensure continuing unrestricted community access to the water supply provided in 2007-2008:

- » Local communities continued to benefit from clean water supplied from solar-powered installations provided by ERG in Kisankala and Lenge. During the year, we handed over management of the installations to two community-led water committees

Early work on community facilities:

- » This is being addressed in line with our Participatory Rural Appraisals (PRAs) and Community Action Plan (CAP) processes to ensure development efforts are fully led by the Kisankala community itself. In 2018, this included:
 - The establishment of community-led farmers committees and related agricultural programmes in Lenge and Kisankala
 - The completion of three new classrooms at a school in Kisankala (p. 59)

Performance

In Kazakhstan, we conducted 31 public hearings related to project changes. No significant grievances were raised during these hearings or through any of the available community relations channels.

In the DRC a total of 85 grievances were raised by local community members. These primarily related to complaints around compensation payments, local employment opportunities and damage to property. A total of 73 of these were resolved, with the remaining 12 requiring additional follow-up action.

No significant grievances were raised through the grievance mechanism established at the Samukonga resettlement village near Metalkol RTR in the DRC (i.e. any issues raised related to straightforward administrative issues concerning the facilities at the new village).

Finally, we did not register any significant grievances via our dedicated community telephone line at our BAMIN iron ore project in Brazil.

Planning for the future

As noted above, in Kazakhstan we plan to mitigate the impact of the planned closure of our TBRU mine in the city of Arkalyk. This will include the transfer of employees to other entities or external roles where possible, as well as the development of local SMEs (and by extension alternative income-generating opportunities).

In Africa, we plan to implement the following measures to enhance the management of our community impacts in 2019:

- » The development of an alternative livelihoods programme to support the Samukonga resettlement village in DRC
- » The expansion of the 'good neighbourhood committees' programme to our Frontier and Boss Mining operations in the DRC, building on the success of the initiative at Comide

SECTION 3: COMMUNITY DEVELOPMENT AND WELL-BEING

Community investment



Strategic context

» Sustainable development of our host regions:

Under our 2025 Strategy, we have prioritised our contribution to the socio-economic development and well-being of communities in our regions of operation. This includes improving community well-being and prosperity, whilst also supporting entrepreneurship and the development of the local business environment.



Relevant UN Sustainable Development Goals

UN SDG	Associated UN targets
 1 NO POVERTY	1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day
	1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions
 2 ZERO HUNGER	2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment
 4 QUALITY EDUCATION	4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship
 6 CLEAN WATER AND SANITATION	6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all
	6.B Support and strengthen the participation of local communities in improving water and sanitation management
 8 DECENT WORK AND ECONOMIC GROWTH	8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services
 10 REDUCED INEQUALITIES	10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status
 11 SUSTAINABLE CITIES AND COMMUNITIES	11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums



In Kazakhstan, our community social investment (CSI) efforts are driven by our inextricable, long-standing relationship with local communities in our operating regions. We place particular emphasis on improving the lives of our employees and their families outside of the workplace (i.e. as local community members). We also invest in initiatives that support regional economic diversification and youth job creation (including for the children of our employees). This helps reduce community dependency on our operations over the long term.

In Africa, our CSI efforts are focused on addressing the most material development challenges facing communities in our operating regions, many of which live in conditions of extreme poverty. We support communities in the identification of their own development priorities and the implementation of related community-led solutions. In this context, we focus our community investment activities on agricultural and alternative livelihood programmes to address food insecurity, clean water distribution and improving educational facilities, amongst other priorities.

In addition, we place significant focus on addressing the socio-economic drivers behind, and negative impacts of, child labour in artisanal and small-scale mining.

Key issues and initiatives – Kazakhstan

Our holistic approach to CSI in Kazakhstan is focused on four key elements, as set out below.

OUR APPROACH TO CSI IN KAZAKHSTAN IS FRAMED BY:



LEGACY COMMUNITIES



EMPLOYEES AND LOCAL COMMUNITIES



REGIONAL GOVERNMENT PARTNERSHIPS



NATIONAL-LEVEL SOCIAL INVESTMENT

Many local communities have effectively developed as a result of our operations. However, we are aware of the need to reduce community dependency on ERG through, for example, strategic investment in regional economic diversification and youth skills development.

This is in the context of the finite nature of natural resources, our increasing application of automation and the current lack of alternative income-generating opportunities in our operating regions.

Our unique community context means we actively target part of our CSI spending on improving the lives of our employees and their families outside of the workplace (i.e. as local community members).

These efforts focus on ensuring that our operating regions are places where multiple generations of employees and their families will choose to live and work over the long term. Essential to this is our support for long-term economic diversification in our operating regions.

A significant proportion of our CSI spending is invested through negotiated strategic partnerships (or ‘memoranda of understanding’ (Regional MoUs)) signed annually with regional governments.

These partnerships are critical for delivering broader socio-economic development to local communities, with a particular focus on infrastructure development, education and youth development, sport, healthcare and social cohesion.

We have a long and proud heritage in Kazakhstan, and our positive impact on national economic development extends far beyond our operating regions (p. 82).

In this context, we also contribute to national-level social investment initiatives to help address some of the principal socio-economic challenges facing Kazakhstan and to support our national culture and heritage.

SECTION 3: COMMUNITY DEVELOPMENT AND WELL-BEING

Community investment *continued*

Projects that benefit our local communities (including, where relevant, employees and their families) are set out below. Projects that only target employees are covered in 'Labour Relations' on p. 44.

Improving living standards

We invest in improving living standards across our operating regions. Much of this is delivered through our Regional MoUs.

In 2018, this included:

- » The upgrading of the main heating supply system in the city of Rudnyi in the Kostanay region (US\$693,000)

- » The modernisation of electric and heating supply infrastructure, as well as the renovation of a garden courtyard at a multi-storey accommodation block in the Aktobe region (US\$159,000)
- » The redevelopment and improvement of the main water supply system in Gornyatsky village in the Kostanay region (US\$179,000)
- » The ongoing reconstruction of the central embankment of Aksu city in the Pavlodar region (US\$596,000)

In addition, we funded the construction of affordable modern accommodation for community members and their families in the Pavlodar and Aktobe regions under a national housing programme (p. 45).

Entrepreneurship and business incubation

We invest in the future of our local communities through our support of entrepreneurship, business incubation and capacity-building programmes. This includes a particular emphasis on youth-focused initiatives to generate alternative economic opportunities for future generations (i.e. outside of our operations).

Education

We invest in local educational programmes focused on scientific, digital and technical capacity building. This is again with the aim of supporting future youth employment opportunities and regional economic diversification. These efforts are also vital for the development of ERG's own future skills pipeline and provide assurance to current and future employees that their children can look forward to promising futures in their home towns.

For example, in 2018 we invested a further US\$235,543 to support the establishment of STEM¹ laboratories across our operating regions, following the successful launch of the programme in 2017. We are doing so in partnership with local educational authorities and educational charity Bolashak Engineering. The laboratories provide training in future-orientated skills, including engineering, computer programming, robotics and 3D modelling. Our funding was used to construct the first 11 laboratories at schools in Pavlodar, Aktobe, Karaganda and Nur-Sultan. Construction was completed in 2018, with the new laboratories anticipated to benefit over 9,000 pupils.

We also support a range of educational institutions (and their students) in Kazakhstan, including mine training centres and vocational colleges. In 2018 this included:

- » Support for the purchase of technical equipment at the Lisakovsky Technical College (US\$11,000)
- » Support for the Aksu College of Ferrous Metallurgy (US\$42,000), including for the scholarships and the purchase of training equipment
- » Support for the fifth Kazakhstan 'Olympiad' for young geologists (US\$30,000)



Regional development strategy in Kazakhstan

In 2018, we finalised a new strategy to support long-term socio-economic development in our operating regions.

The new strategy is based on in-depth analysis of the specific development context in each operating region to support a more targeted, bottom-up approach to addressing key development priorities. This analysis was developed through a series of comprehensive social surveys carried out across our regions. In 2018, this included the surveying of around 9,000 community members (including 5,000 ERG employees) as well as the benchmarking of local socio-economic conditions against relevant UN Standards and national urban development standards. Many of these development priorities are already being addressed as part of our existing Regional MoUs.

They include:

- » Housing and utilities infrastructure
- » Public transport
- » Improvement of urban space
- » Education and youth skills development
- » The modernisation of medical institutions and the provision of advanced medical training for doctors
- » The promotion of sports and well-being, including the development of community sports infrastructure and youth sports leagues

The new strategy will be rolled out from 2019 and will inform the implementation of our Regional MoUs.

¹ Science, Technology, Engineering, Maths.

Healthcare

We finance modern healthcare infrastructure to support the well-being of our current and retired employees, their families and the wider communities in our operating regions. In 2018, for example, we provided funding for specialist medical equipment at a rehabilitation centre for children with cerebral palsy in Karaganda (US\$74,000).

Healthcare will remain an area of focus under our new regional development strategy (p. 56). For example, we plan to invest US\$800,000 to fund the purchase of modern medical equipment at a municipal hospital in Aktobe region, as well as a further US\$27,000 to support young doctors working at the hospital.

Sports, culture and well-being

True community well-being is about more than narrow economic development. In recognition of this, we make strategic investments in the broader social fabric of local communities.

Key investments in regional sport (under our Regional MoUs) included:

- » The construction of a track and field arena for local communities in the Aktobe (US\$2.08 million)
- » Support for the development of regional volleyball in Aktobe (US\$1.08 million) and Pavlodar (US\$1.20 million)
- » The construction of an ice-skating arena for local communities in Pavlodar (US\$2.98 million)
- » Support for the development of regional football in Pavlodar (US\$3.87 million)

Key investments in cultural activities and infrastructure (again, under our Regional MoUs) included:

- » The construction of a national cultural centre in Kostanay (US\$4.77 million)
- » The renovation of a museum in Pavlodar (US\$936,000)

- » Co-funding of the construction of the Peace Wall monument in Nur-Sultan (US\$596,000)

'Smart Cities' in Kazakhstan

ERG is investing in the development of 'Smart Cities' in Kazakhstan, in cooperation with our strategic partners.

This includes plans to develop a platform to provide community members with an integrated communications channel. This will focus on linking up a range of stakeholders (including citizens, businesses, local government and national government) through their connected devices – to their mutual advantage.



Supporting youth innovation and job creation through the Student Entrepreneurship Ecosystem programme in Kazakhstan

One of the most pressing socio-economic challenges facing Kazakhstan is how to generate opportunities for a growing youth demographic through sustainable, high-tech industrial growth. This challenge is particularly acute in our remote operating regions, as many young people are choosing to seek opportunities in major domestic cities or abroad.

Part of our response to this challenge is the Student Entrepreneurship Ecosystem programme. The programme supports the transformation of regional universities into hubs of entrepreneurial excellence, with the long-term goal of helping develop new start-up businesses throughout our operating regions.

The programme was first piloted in 2016 at Pavlodar State University, with assistance from the Tel Aviv University Friends Association in the Republic of Kazakhstan. In 2018, we provided additional funding for the programme, offered our facilities for student-led research and development, and engaged senior business experts to mentor students on the commercialisation of their ideas.

The programme is now live across eight universities and one college in Kazakhstan (including in our Aktobe, Karaganda, Pavlodar and Kostanay operating regions). During the year, over 5,000 students participated – generating over 1,200 new ideas for potential start-ups – and more than 200 university teachers received training in the core modules of the programme.

SECTION 3: COMMUNITY DEVELOPMENT AND WELL-BEING

Community investment *continued*

Key issues and initiatives – Africa and Brazil

Participatory Rural Appraisals in Africa

We believe that local communities should play an active role in – and take ownership of – their own sustainable development. In support of this, we have undertaken Participatory Rural Appraisals (PRAs) with 19 local communities in the DRC¹ (all of which were successfully completed in 2017). The PRA process helps local communities to identify their own development priorities – and supports them in the delivery of sustainable Community Action Plans (CAPs) to address these needs. Each CAP is managed by a community-led committee (with support from ERG where required).

In 2018, we supported communities in their efforts to address some of the key priorities raised during the PRAs. Most notably, this included:

- » Support for local farming to enhance food security
- » Potable water distribution
- » Educational access
- » Healthcare

This section details how we support local communities in these areas.

Alternative livelihoods and food security

In the DRC we face heightened community expectations around employment provision that we are, due to the nature of our operations, unable to meet. Nonetheless, over 90% of our workforce are Congolese nationals, as required under national law. In 2018, our ability to provide direct employment to local communities was further restricted (at least over the short term) by restructuring and related retrenchments at our Boss Mining and Comide operations (p. 47).

In this context, we support alternative livelihoods in our local communities – with a focus on sustainable agriculture. This aims to address food insecurity, a lack of formal employment opportunities and the presence of illegal Artisanal and small-scale mining (ASM) activity. Food security was identified as one of the top three priorities by communities consulted during the 2017 PRAs. This challenge is primarily driven by low agricultural productivity and output (as a result of weak farming methods), and is exacerbated by weak internal transportation networks.

Potable water distribution at Metalkol RTR

We invest in a range of infrastructure improvements near the Metalkol RTR project in the DRC. Most notably, this includes improvements to potable water distribution – which our PRAs identified as one of communities' top priorities. In response – and in light of some of our own project impacts, including the fencing-off of the Kingamyambo tailings, which restricted water access for some community members – we launched a potable water programme in 2017. This included the installation of wells and solar-powered water distribution facilities in the communities near the project. We completed the first phase of the programme in 2018, investing US\$582,000 during the year.

In line with our PRA process, the facilities are managed by community-led water committees (with our ongoing support). Community members pay a small fee to use the facilities, which the water committees then reinvest into the maintenance and operation of the systems. Water provision will remain a key area of focus for our operations in DRC in 2019 and beyond (p. 59).



Sustainable Agriculture Programme in the DRC

In 2018, we launched a Sustainable Agricultural Programme in partnership with local communities near our Frontier, Comide and Boss Mining operations. With the assistance of local partners, the programme aims to help boost local agricultural productivity and support income generation from the sale of surplus crops. The long-term aim is to develop a self-sustaining programme that outlives the lifespan of our operations.

In the project's first phase, we and our local partners provided community members (around 500 individuals in total) with seeds, equipment and technical support to farm maize on around 500 hectares of land located near our operations.

In line with our PRA process, community members were selected based on capacity and needs – and work within community-led agricultural committees.

The committees will reinvest a proportion of profits from the sale of surplus crops back into the programme. These funds will contribute towards seeds and equipment for the following years' harvest – as well as a fund to strengthen community resistance to low yield harvests. In the fourth year, it is envisaged that the committees will assume full management of the programme, which will operate fully independently.

¹ Including eight linked to Metalkol RTR, in addition to 11 linked to our other operations in the DRC (as reported in 2017).

In Brazil, we are working to address communities' limited access to clean water. In 2018, we completed a project to pump clean water from neighbouring properties to meet the needs of the nearby community in Fazenda Lapa. The project provides 15 families who were resettled in 2011 with clean water for agricultural production.

Improving educational access

Access to adequate formal education is an acute challenge for local communities in the DRC.

In 2018, we completed the renovation of a school in Kisankala near our Comide operation (with construction having started in 2017). The need for the project was identified through the PRA process after communities raised concerns that the inward migration of the children of artisanal miners was putting pressure on the school's capacity. Support included:

- » Construction of three new classrooms to accommodate an additional 150 children
- » The upgrading of an additional three classrooms
- » Construction of a new office building and new toilet facilities

We also provide ongoing subsidisation for the salaries of 11 teachers at the school.

Finally, we continued to support more than 7,000 students and 200 teachers through our educational initiatives in Kakanda.

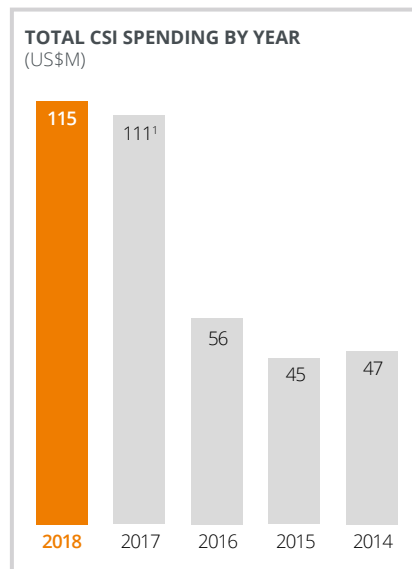
Healthcare

The prevalence of relatively weak health indicators in our local communities in the DRC means we also focus efforts on improving healthcare services and behaviours. This includes the provision of support to government-run initiatives to address HIV/AIDS, cholera and polio. For example, in 2018 we provided funding for medicine, equipment and awareness training to support government efforts to address a cholera outbreak.

In Brazil, BAMIN provides support to the São José – Santa Casa de Misericórdia Hospital in the city of Ilhéus, which faces significant funding challenges. This includes funding to support catering for employees, patients and visitors. In 2018, we invested around US\$187,000 in this regard.

Performance

In 2018, ERG's worldwide CSI contributions were US\$115 million (2017: US\$111 million). This included investment of US\$20.4 million to fund Regional MoUs with local governments in Kazakhstan. We also continued to support national-level social investment projects. Most notably, this included a donation of US\$59 million to the Foundation of the First President of the Republic of Kazakhstan – Elbasy (the Foundation) (2017: US\$61 million), which was primarily used for healthcare, educational and cultural projects.



Planning for the future

We plan to build on our existing CSI programmes in Kazakhstan through a range of strategic initiatives including, but not limited to:

- » The implementation of our ambitious three-year regional development strategy (p. 56). This will focus on strategic investment to materially improve living standards and drive regional development in our operating regions
- » The further expansion of the Student Entrepreneurship Ecosystem Programme, including a new initiative to support young female entrepreneurs in our operating regions. We also plan to train more university teachers in business mentoring, work with our partner universities to introduce creative entrepreneurship modules, and upgrade our university entrepreneurship centres into regional hubs

In the DRC, we are planning to:

- » Continue our support for a range of initiatives aimed at promoting socio-economic development in the context of ASM activity in the DRC. This includes our work with the Good Shepherd International Foundation and Pact (p. 65)
- » Install additional wells and solar-powered distribution facilities to improve access to potable water for communities near Metalkol RTR (prioritising communities with higher population rates to maximise impact)
- » Implement the second phase of our Sustainable Agriculture Programme. This will focus on diversifying the crop mix as well as significantly increasing the number of participants

GROUP CSI CONTRIBUTIONS BY REGION (US\$M)

	2018	2017
Kazakhstan	107.9	105.5
Africa	6.9	5.5
Brazil	0.3	0.2

CSI CONTRIBUTIONS IN KAZAKHSTAN BY TYPE (US\$M)

	2018	2017
Direct investment	87.5	87.7
Social partnership projects	20.4 ²	17.8

1 The significant increase in overall CSI spending between 2016 and 2017 reflects donations totalling US\$61 million to the Foundation of the First President of the Republic of Kazakhstan – Elbasy (the Foundation). The Foundation primarily used this funding to enhance community recreation and healthcare facilities, as well as for the reconstruction of the Foundation's building in Almaty, which is used to deliver youth projects.
 2 Including projects outside operational regions in Kazakhstan.

SECTION 3: COMMUNITY DEVELOPMENT AND WELL-BEING

Our approach to artisanal and small-scale mining

Strategic context

>> Sustainable development of our host regions:

Under our 2025 Strategy, we have prioritised our contribution to the socio-economic development and well-being of communities in our regions of operation. This includes a focus on the responsible production of cobalt in the DRC and addressing potential risks associated with illegal artisanal mining. Furthermore, we seek to harness opportunities to drive sustainability along the cobalt value chain, including in partnership with others.



Photo courtesy of Good Shepherd International Foundation/Nyokabi Kahura

Relevant UN Sustainable Development Goals

UN SDG	Associated UN targets
 8 DECENT WORK AND ECONOMIC GROWTH	8.7 Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms
	8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment
 16 PEACE, JUSTICE AND STRONG INSTITUTIONS	16.1 Significantly reduce all forms of violence and related death rates everywhere
	16.2 End abuse, exploitation, trafficking and all forms of violence against and torture of children
 17 PARTNERSHIPS FOR THE GOALS	17.16 Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilise and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries
	17.17 Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships

Artisanal and small-scale mining (ASM) activity is present in the vicinity of all our DRC sites, with the exception of Frontier. None of our cobalt or copper production comes from ASM – and our Clean Cobalt Framework (p. 62) pursues a goal of no ASM-sourced material in our product. Nonetheless, we acknowledge the important role that ASM plays in supporting much-needed livelihoods in the DRC, as well as the potential dangers illegal ASM activity can entail for those participating in it and for communities living nearby. In this context, we support:

- » A range of external initiatives focused on addressing the socio-economic drivers behind, and negative impacts of, illegal ASM – including the use of child labour in particular (p. 65)
- » Advocacy for the achievement of responsible external value chains for cobalt (i.e. outside of our own production) (p. 65)

The electrical vehicle (EV) revolution has contributed to strong global demand for cobalt, which is used in lithium-ion batteries. However, there is considerable concern amongst value chain actors (including battery and EV manufacturers, civil society, consumers and government) about the potential social and environmental risks associated with cobalt extracted, transported and traded in the DRC.

This is in light of potential negative impacts associated with illegal ASM including, for example, child labour. Such concern is particularly acute given the DRC is the source of more than half the world's cobalt

and home to approximately half of global cobalt reserves.¹ In this context, we are determined to deliver (via our Clean Cobalt Framework, p. 62) responsibly produced cobalt, support alternative livelihood programmes and help children transition out of ASM activity.

Key issues and initiatives

Addressing ASM activity at our operations in the DRC

We manage ASM activity and associated risks through an integrated SHS Management System, which includes dedicated policies, procedures and management plans for human rights and ASM management. We also maintain ongoing dialogue with ASM communities to help build constructive relations. Any potential grievances are managed through our established grievance mechanism procedure (p. 53), although we did not receive any grievances from small-scale miners in 2018.

In addition, we support associated CSI initiatives. For example, in August 2018 ERG hosted a Summer School for approximately 200 students (aged 12-18) from the Kakanda and Kisankala communities near our Boss Mining and Comide operations. The initiative aimed to reduce the risk of the children spending their summer holidays working in ASM, whilst also providing the opportunity to learn using modern technology such as tablets/laptops. The teaching sessions focused on a range of topics including gender equality, agricultural skills and career options.

Performance

Our investment in the Good Shepherd International Foundation initiative (p. 65) is helping vulnerable children to access basic education and other services (e.g. counselling, healthcare and access to referral systems for physical abuse).

In 2018 and early 2019, the initiative also contributed to:

- » The protection of 1,929 children from the worst forms of child labour, including ASM activity
- » The training of 182 girls and 64 women to help them access the labour market
- » 281 women gaining alternative livelihood skills and improving their income

Planning for the future

Future planning in the DRC is currently focused on:

- » Support for the rollout by Pact of the 'Children Out of Mining – Northern Kolwezi' programme (p. 65), which will include capacity-building interventions as well as vocational training for children at risk of involvement in ASM activities
- » The launch, through the Global Battery Alliance, of a coalition to address child labour in the cobalt supply chain, and the publishing of a draft field guide for implementing formal ASM standards



Photo courtesy of Good Shepherd International Foundation/Nyokabi Kahura

¹ US Geological Service, Mineral Commodity Summary, Cobalt, <https://minerals.usgs.gov/minerals/pubs/commodity/cobalt/>.

Our Clean Cobalt Framework

In December 2018, we launched our Clean Cobalt Framework at our Metalkol RTR project in the DRC. Metalkol RTR is poised to become one of the major global sources of cobalt – and is thus expected to play an important role in driving the electric vehicle revolution.

Our Clean Cobalt Framework will enable us to deliver high levels of assurance regarding the ethical provenance of our responsibly produced cobalt – whilst also helping improve conditions for local people.



Delivering value-chain assurance to customers – and other downstream actors

Controlled by ERG and approved third party providers

1. MINING



100% of feed derived from legacy tailings stockpiles at ERG's industrial Metalkol RTR operation in DRC

2. PROCESSING



Re-processing of these fine tailings carried out onsite by Metalkol RTR to produce cobalt hydroxide (no third party sources are involved)

3. PRIMARY TRANSPORT



Transportation of tamper-proof, GPS-tagged bags of cobalt hydroxide by road

SECTOR LEADERSHIP

- » Building sustainability and responsibility into cobalt supply chains
- » Initiating, supporting and participating in international initiatives
- » Knowledge sharing and advocating for a more responsible cobalt industry

TRACEABLE COBALT

- » Applying chain of custody procedures across origination, processing and transportation
- » Implementing controls/IT system with automatic checks and alerts

NOT SOURCED FROM ASM

- » Mining fine materials from reclaimed legacy tailings
- » Screening and reconciling material through rigorous processes in closed loop facility
- » Implementing our ASM policy, procedures and management system

SOURCED WITHOUT CHILD LABOUR

- » Zero tolerance of child labour embedded into all policies and management systems, including for contractors
- » Implementing strict controls during on-boarding and access control
- » Excluding ASM material from the supply chain

RESTORING THE ENVIRONMENT

- » Decontaminating Musonoi River and Kingamyambo Dam legacy sites
- » Increasing viable land and water resources for agriculture/aquaculture
- » Improving biodiversity and sustainable waste management systems

COLLABORATING FOR SUSTAINABLE DEVELOPMENT

- » Supporting regional community development with NGO partnerships and multi-stakeholder initiatives
- » Prioritising stakeholder relationships and collaborating with communities through participatory approaches

Controlled by customers/downstream actors

4. SALES 

Ownership is transferred from ERG to the customer – either at pick-up from the security warehouse or at the port of transshipment

5. SECONDARY TRANSPORT 

Cobalt hydroxide is transported by the customer or its partners – either from the warehouse (by road) or the port of transshipment (by sea)

6. SMELTING/ REFINING 

Cobalt hydroxide is further refined prior to transfer to end-consumers

7. USE IN MANUFACTURING 

Cobalt is integrated into: (1) Batteries used in mobile phones, electric/hybrid vehicles and other applications; and (2) Super-alloys used in jet engines, gas turbines and other applications

SECTION 3: COMMUNITY DEVELOPMENT AND WELL-BEING

Responsible supply chains: Our Clean Cobalt Framework

The Clean Cobalt Framework at Metalkol RTR will help us embed responsible business practices in what is a sensitive operating environment. Furthermore, it will support our ongoing efforts to comply with – and go beyond – the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas ('OECD Guidance').

This will help us address concern amongst value chain actors about the potential social and environmental risks, as well as poor business practices, associated with cobalt produced in the DRC – whilst also improving conditions for local people.

Respect for human rights at Metalkol RTR

Metalkol RTR has – in the context of its application of the OECD Guidance – established a Metalkol Human Rights Statement of Commitment. This sets out its salient risks and its approach towards respect for human rights, including associated governance structures.

In 2018, a Human Rights Working Group was established to oversee the implementation of the Clean Cobalt Framework and the Human Rights Statement of Commitment. This Working Group is chaired by the General Manager of Metalkol RTR and comprises representatives from senior management in relevant functional areas. It is responsible for establishing and maintaining a Human Rights Risk Assessment and monitoring any changes to risk profiles, new risks and the progress of mitigation measures. The Working Group met five times during 2018.

Metalkol RTR has developed a plan to proactively engage with employees, contractors, suppliers and community stakeholders on human rights issues. This has included stakeholder meetings, poster campaigns in all relevant languages and the distribution of related documents.

The Clean Cobalt Framework has been supported by the development and application of more than 40 new, cross-functional compliance policies, procedures and guidance documents at Metalkol RTR, as well as the employment of five new community and responsible mineral development specialists.

Initial analysis of Metalkol RTR by PwC carried out in 2018 helped identify areas for further improvement with respect to – for example – procedures around the capture, recording and follow-up of issues raised during stakeholder engagement, as well as our grievance mechanisms.

Metalkol RTR has developed and implemented a Supplier Code of Conduct, which guides the approach to conducting business with suppliers. We apply contractual clauses requiring adherence to the Code and applicable policies. Furthermore, we undertake supplier due diligence and related training. We started auditing our suppliers in 2019.



In 2019, we produced our first performance report and received an independent third party assurance opinion from PwC. This concluded that (as of 1 March 2019) Metalkol RTR has implemented processes and controls for its cobalt production in line with the principles and goals of the Clean Cobalt Framework and in accordance with the OECD Guidance.

Application of the IBM Blockchain Platform

In 2018, we began developing a pilot programme using the IBM Blockchain Platform to enhance the traceability of our cobalt hydroxide product. It is envisaged that the pilot, which will take place at Metalkol RTR, will help support our Clean Cobalt Framework.

External partnerships

In line with our Clean Cobalt goals, we support a range of initiatives to help improve the lives of local communities near Metalkol RTR. This includes a focus on helping children and adolescents transition out of ASM, and on strengthening the capacity of local communities to address this important challenge. In 2018, this support included:

- » **The Good Shepherd International Foundation:** Continued support for a three-year partnership with the Foundation, which aims to improve living conditions in local communities, especially for women and children. First launched in 2017, more than US\$1 million has been pledged to support the programme. In 2018, this included:
 - Funding to support the construction of a child protection centre in Kolwezi, scheduled for completion in 2019. The centre will be managed by the Foundation, and aims to offer the only source of free, local education
 - Continued support for the Bon Pasteur Alternative Livelihood programme in Kolwezi, which is run by the Foundation. This provides children involved in ASM activities with educational support, as well as capacity-building support for young women

- » **'Children Out of Mining – Northern Kolwezi' programme:** In December 2018, ERG announced a major one-year partnership with Pact, an international development organisation and co-founding member of the Global Battery Alliance (see below)¹. The programme aims to raise awareness and strengthen child protection in communities near Metalkol RTR. It will also support miners aged between 15 and 17 by delivering a six-month vocational training programme and apprenticeships. These will be accompanied by short-term remuneration to help them transition into alternative employment

Broader advocacy and cooperation on cobalt value chains

In 2018, we also continued to support advocacy for the achievement of responsible global cobalt supply chains through external value chain partnerships. These included:

- » **The Global Battery Alliance (GBA)²:** ERG is a founding member and co-chair of the GBA, an initiative of the World Economic Forum launched in 2017. The GBA seeks to catalyse, connect and scale up efforts to create a socially responsible, innovative, and environmentally and economically sustainable battery value chain



As a driver of the formation of the Global Battery Alliance and the pursuit of sustainable, responsible and transparent sourcing of cobalt, ERG is making it possible to scale proven interventions that are vital to children's ability to transition out of mining and is helping to provide a network of contiguous support for children across the region.

Mark Viso, Former President and CEO of Pact

- » **The Cobalt Institute:** In response to increased concerns regarding the cobalt supply chain, the Cobalt Institute worked with its members (including ERG) to develop the Cobalt Industry Responsible Assessment Framework (CIRAF)³. The CIRAF, which was launched in January 2019 and adopted by Metalkol RTR, aims to enable member companies, and the cobalt industry more broadly, to conduct enhanced risk management in line with industry good practice and global standards for the responsible sourcing of minerals (including the OECD Guidance)

1 Pact: pactworld.org
 2 WEF Global Battery Alliance: weforum.org/projects/global-battery-alliance
 3 The Cobalt Institute: cobaltinstitute.org

SECTION 4

Environmental stewardship

MATERIAL ISSUES INCLUDE

Pollution prevention

Read more on p. 68

Energy and climate change

Read more on p. 70

Waste management

Read more on p. 73

2018 HIGHLIGHTS

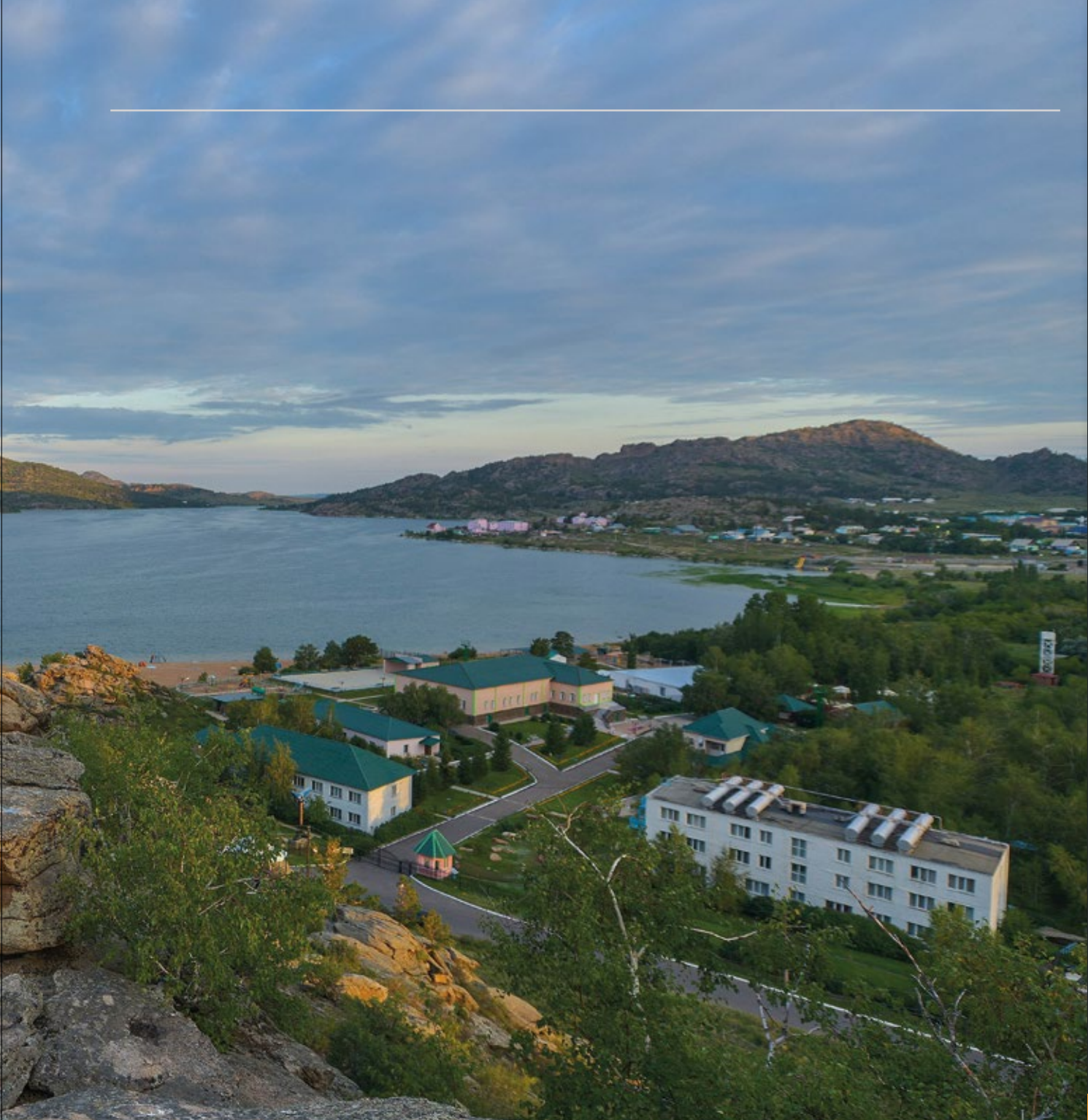
Development of a long-term **Air Emissions Strategy** in Kazakhstan

OVER 2,000 Tj

of energy saved as a result of energy efficiency initiatives in Kazakhstan

1,328kt

of historical tailings reprocessed at Metalkol RTR in the DRC



Under our 2025 Strategy, we have prioritised **the sustainable development of our host regions**. As set out in other chapters, this means promoting social welfare and well-being (p. 48) whilst supporting local economies (p. 76). As importantly, it also means minimising any environmental harm we might cause, and responsibly managing the waste that we produce. This is particularly the case given that our business activities – mining, smelting and refining, logistics and power generation – have the potential to

negatively impact our local environments and to contribute to climate change.

Failure to responsibly manage such issues would have significant implications for the Group in terms of our compliance obligations, our social licence to operate, our liabilities and our reputation. Importantly, it would also run counter to our commitment to environmental stewardship and the responsible use of resources.

The majority of our operations in Kazakhstan are certified to the ISO 14001 environmental management systems standard. In Africa, our existing Safety, Health and Sustainability (SHS) management system is informed by ISO 14001.

 **Read more**

For further information on how we manage our environmental impacts, please see p. 95.

SECTION 4: ENVIRONMENTAL STEWARDSHIP

Pollution prevention






Strategic context

» Sustainable development of our host regions:

Under our 2025 Strategy, we have prioritised our contribution to the well-being of communities in our regions of operation. This includes a focus on avoiding and/or minimising any potential negative environmental impacts to support local well-being, including through the maintenance of international operational standards relating to water, air and soil.



Relevant UN Sustainable Development Goals

UN SDG	Associated UN targets
	3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination
	6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally
	8.4 Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programmes on sustainable consumption and production, with developed countries taking the lead
	9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities
	12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment



Like other extractive and heavy industrial companies, our activities can present a range of pollution risks that require proactive management. These include:

- » Contamination of water resources
- » Excessive discharges to air

As such, our international standard environmental management systems are heavily focused on the detection, prevention and/or minimisation of such impacts. Examples of key control measures include:

- » Treatment of process water to bring it within relevant regulatory water quality limits prior to discharge to the environment
- » The treatment of emissions to air (including through filtration)
- » Ongoing air quality and water quality monitoring in and around our operational sites
- » Technical and engineering controls to minimise the risk of ground and water pollution

Key issues and initiatives

In Kazakhstan, our most significant impact on air quality takes place in the heavily industrialised city of Pavlodar and the surrounding region. As well as hosting a range of third party industrial activities, including oil refining, chemical production and heavy manufacturing, the city of Pavlodar is also the location of Aluminium of Kazakhstan, KAS and Pavlodar Machinery Plant. In addition, Eurasian Energy Corporation (EEC) and Aksu Ferroalloys Plant are located in nearby cities. Whilst our facilities are fully compliant with applicable regulatory limits on their emissions to air, we are conscious that the collective impact of all relevant industrial actors in the area – plus the widespread use of coal for domestic heating – has implications for both the environment and human health.

As a significant contributor to these collective impacts (including through our power generation and metallurgical activities in particular), we are actively working to reduce our emissions. In addition to reducing our own impact, this will help us play an active role in Kazakhstan's transition towards a 'Green Economy'.

Long-term Air Emissions Strategy

In 2018, we developed a new long-term Air Emissions Strategy, intended to bring ERG's assets in Kazakhstan closer in line with relevant EU air quality standards relating to particulate matter. This is part of a proactive, 'beyond compliance' effort to pre-empt the potential introduction of EU air quality standards by the Government of the Republic of Kazakhstan. The Strategy is primarily focused on our energy generation and metallurgical assets, which collectively generate a high proportion of our overall emissions.

It is hoped that implementation of this Strategy will significantly reduce our emissions to air by 2030. Key areas of focus include the following (with priority being placed on our operations in Pavlodar):

- » Introduction of advanced gas treatment technologies to relevant assets, e.g. the sintering shop of Pavlodar Aluminium plant and our coal power plants. This is not only expected to reduce their emissions to air, but also to improve their overall energy efficiency
- » Conversion of our power plants to gas (where possible)

In support of these efforts, in 2018 SSGPO began the conversion of its Kacharsky power and heat plant from coal to gas. The conversion, which follows a feasibility study, is expected to be commissioned in 2021, and is anticipated to:

- » Increase the plant's production output and energy efficiency
- » Reduce its SOx and particulate emissions
- » Ensure our future compliance with environmental regulations in Kazakhstan

Whilst the conversion takes place, additional filters will be installed at the Kacharsky plant as an interim measure to remove the particulates.

Air monitoring technology

Building on our existing efforts to enhance our management of emissions to air, we have implemented two new air quality monitoring programmes in Kazakhstan:

- » **Piloting of automated atmospheric monitoring at Aluminium of Kazakhstan (Pavlodar).** This uses remote air monitoring stations on the edge of defined 'sanitary protection zones' around Aluminium of Kazakhstan's facilities. These deliver real-time air quality data to the environmental team, giving them an accurate, timely assessment of short-term exposure levels. This enables us to adjust our production activity accordingly to minimise the risk of excessive emissions.
- » **Application of a high-tech mass spectrometer across our operations.** This technology, which was specifically developed for ERG, gives us greater insight into the exact composition of our emissions to air, meaning we are better able to manage them.

Performance

In 2018, our particulate and gas emissions to air in Kazakhstan were well within permitted limits. However, in 2018 we experienced an increase in our emissions. This was partly driven by an increase in emissions in the Pavlodar region, reflecting changes in Aluminium of Kazakhstan's bauxite feedstock.

Planning for the future

As noted above, our long-term Air Emissions Strategy includes a focus on fuel conversion (where possible) and the application of advanced filtration technology. Our future activity in this area will be informed by this Strategy. For example, in 2019 Aluminium of Kazakhstan will commence the upgrade of the two filters at its sintering shop.

We are also planning to pilot (under the Air Emissions Strategy) an innovative system to capture our greenhouse gases (GHGs) and clean our emissions to air at one of the boilers at Vostochny pit (EEC). This system, which was developed in Kazakhstan, is expected to remove the full range of air pollutants from our emissions – including NOx, SOx and GHG emissions.

SECTION 4: ENVIRONMENTAL STEWARDSHIP






Energy and climate change

Strategic context

» **Sustainable development of our host regions:**
Under our 2025 Strategy, we have prioritised our contribution to the well-being of communities in our regions of operation. Our focus on maintaining international environmental standards to support local well-being includes the management of our carbon emissions and the use of renewable energy.



Relevant UN Sustainable Development Goals

UN SDG	Associated UN targets
 7 AFFORDABLE AND CLEAN ENERGY	7.2 By 2030, increase substantially the share of renewable energy in the global energy mix
	7.3 By 2030, double the global rate of improvement in energy efficiency
 8 DECENT WORK AND ECONOMIC GROWTH	8.4 Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-year framework of programmes on sustainable consumption and production, with developed countries taking the lead
 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities
 12 RESPONSIBLE CONSUMPTION AND PRODUCTION	12.2 By 2030, achieve the sustainable management and efficient use of natural resources
 13 CLIMATE ACTION	13.2 Integrate climate change measures into national policies, strategies and planning
	13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning

ERG remains one of the largest electricity producers in Kazakhstan. The total installed capacity of our power plants is 3,362 MW. In 2018 we produced 18%¹ of all electricity in the country (2017: approximately 19%), the majority of which is used by our own operations.

Of the power we produce, 83% (2017: 86.5%) is generated using coal extracted from our Vostochny open-pit mine (EEC), making us a significant contributor to Kazakhstan's total carbon emissions. In this context, we are continuing to seek ways in which we can support efforts by the government to move towards a greener economy and its commitments under the Paris Agreement on Climate Change ('Paris Agreement').

All of our energy-producing entities in Kazakhstan (i.e. Kazchrome, SSGPO, EEC and Aluminium of Kazakhstan) are certified to the ISO 50001/EN 16001 energy management system standard. All other entities in Kazakhstan apply energy management systems that are aligned with the standard. During the year, we started to make preparations for re-certification of relevant assets in Kazakhstan to the 2018 update of the standard by 2021 – including relevant enhancements with respect to risk management and management roles. The results of energy audits carried out at our energy-producing entities between 2014 and 2016 have informed our 2016-2020 Energy Efficiency Programme.

In the DRC, the majority of electricity we consume is generated through hydropower. As such, our GHG emissions in the region are linked to fuel consumption (i.e. relating to mining, hauling and logistics).

Key issues and initiatives

Policy context

Kazakhstan is a signatory to the Paris Agreement. However, the 2017 National Plan and associated emissions trading scheme do not currently apply any restrictions on our emissions. Nonetheless, plans are in place to reduce national GHG emissions by 15% (unconditional) / 25% (conditional) by 2030. Therefore – and in anticipation of the imposition of future restrictions – we are proactively working to reduce our carbon footprint. If we fail to do this, it could materially impact our future operational continuity, capital allocation needs and profitability.

Liquid Natural Gas (LNG) conversion of trucks at SSGPO

Our R&D team is investigating the potential conversion of SSGPO's diesel truck fleet to a LNG system. This is with the aim of reducing fuel costs by 20-30% – equivalent to up to US\$5 million per year – whilst also reducing harmful emissions to air and increasing engine life. A pilot programme is planned for one dump truck at the Kurzhunkulsky open-pit, following which the decision will be made as to whether to convert the rest of the fleet.

Energy efficiency Kazakhstan

In 2018, we applied 122 energy-saving measures across our operations in Kazakhstan under our 2016-2020 Energy Efficiency Programme (in addition to other projects). Collectively, these resulted in a total reduction in consumption of 2,021 terajoules and cost savings of US\$2.2 million.

Examples of such measures – many of which are relatively small-scale by nature – include:

- » Installation of auxiliary condensate return systems at our boiler houses
- » Replacement of existing pumps with more efficient versions
- » Automation – and enhanced localised control of – our domestic heating systems
- » Disconnection of our transformers when idling

In addition, we continued to modernise our lighting systems. This includes an energy service contract entered into by SSGPO that will see the replacement of more than 12,000 energy-intensive bulbs with high-efficiency LED bulbs (following a pilot programme at Aksu). By the end of 2019, this is anticipated to generate energy savings of more than 120 terajoules per year.

Energy security in Africa

In the DRC, existing hydropower supplies generated by Société Nationale d'Électricité (SNEL) have been insufficient to meet the demand of industrial users in the country – resulting in outages and heavy reliance on expensive diesel generators. As such, many producers import power via Zambia and Zimbabwe (including power ultimately sourced from South Africa's national grid).

We took a number of steps to maintain and/or enhance supply of affordable and secure energy to our operations. These included:

- » The establishment of a new, 10-year energy supply contract for our Metalkol RTR project. This will support commissioning of the project, ensure security of supply and reduce our reliance on diesel generation
- » Use of a repayment mechanism to invest over US\$14 million in the refurbishment of a SNEL-owned hydropower station (a process that was completed in 2018). This is with the aim of improving security of supply for Boss Mining and beyond. Our payments to SNEL for this power will be offset against our initial investment
- » Renewal of an energy supply contract for our Frontier Mine, using imported power



Carbon footprinting of aluminium and ferrochrome production in Kazakhstan

In 2018, we worked with an external consultancy to complete the cross-lifecycle carbon footprinting of our aluminium and ferrochrome products in Kazakhstan (including direct and indirect GHG emissions).

The outputs of this exercise will help us in our efforts to produce these (and possibly other) metals in a more energy-efficient and less carbon-intensive way. It will also help our aluminium and ferrochrome customers better understand the ultimate carbon footprint of their own products.

¹ Excluding Shymkent power plant (JSC 3-Energoortalyk).

SECTION 4: ENVIRONMENTAL STEWARDSHIP

Energy and climate change continued

Energy consumption breakdown (terajoules)

Type	Energy source	2018	2017	2016
Direct	Coal	227,368	226,405	225,288
	Petrol	147	144	160
	Residual fuel	7,284	7,185	6,909
	Diesel	8,606	8,038	8,079
	Natural gas	28,949	19,921	18,338
	Kerosene	9	15	15
	Subtotal		272,362	261,708
Indirect ¹	Electricity	2,943	2,537	2,377
	Heat	211	207	278
	Steam	80	69	77
	Subtotal		3,234	2,813
All	Total	275,596	264,521	261,521

Greenhouse gas emissions (tonnes CO₂e)

	2018	2017	2016
Direct emissions ²	24,672,108	24,014,808	23,768,926
Indirect emissions ³	59,026	55,572	365,746
Total	24,731,134	24,070,380	24,134,672

¹ Excluding internal purchases of internally-generated power.

² i.e. GHG emissions that result from the consumption of direct energy for generation of electricity, heat/steam, used in mining, production, and for ERG-controlled transportation activities. CO₂, CH₄ and N₂O only. Conversion factors from 2006 IPCC Guidelines for National Greenhouse Gas Inventories – Stationary and Mobile Combustion.

³ i.e. GHG emissions that result from the consumption of indirect energy purchased from third parties not owned or controlled by ERG. Based on operational control of assets. Conversion factors: (1) Purchased electricity – Country-specific WBCSD and WRI: GHG Protocol – Calculation tool for purchased electricity v4.3 (2008 values); and (2) Purchased heat and steam – Supplier data and default factors from 2006 IPCC Guidelines for National Greenhouse Gas Inventories – Stationary and Mobile Combustion.

Renewable energy

Kazakhstan's 2013 Presidential Decree on a 'Green Economy' established national targets for the share of energy to be generated using alternative sources:

- » 3% by 2020 (wind and solar)
- » 10% by 2030 (wind, solar and hydro)
- » 50% by 2050 (wind, solar, hydro and nuclear)

These targets are supported by related regulations requiring energy-producing organisations – including our EEC business – to purchase renewable power as part of their overall energy portfolios. This is typically more expensive than the purchase of conventional power.

We currently have plans to construct our own renewable energy capacity of 150-180MW (depending on capacity factors) by the end of 2021. This mixed wind and hydropower capacity will help us to optimise our capital costs, balance out seasonal variations in power output and integrate our renewable projects into the national power grid. In this context, in 2018 we started wind monitoring to determine the suitability of two potential sites for wind farms in the

Aktobe and Pavlodar regions – one near Donskoy GOK (Kazchrome) and one near EEC's Vostochny coal mine. Monitoring will take place over 12 months to determine the viability of installing wind turbines, a necessary first step before we can attract third party investment.

In Africa, we are continuing to explore opportunities to improve our carbon performance by including our GHG emissions in our environmental and social impact assessments. This means that renewable energy/less carbon-intensive energy sources will be considered for new projects.

Performance

In 2018, we consumed 275,596 terajoules of energy globally (2017: 264,521 terajoules), with 83.5% of direct energy sourced from coal (2017: 86.5%). This moderate increase in energy consumption was driven by increased production in Kazakhstan. This, in effect, has increased our GHGs, which totalled 24.7 million tonnes of CO₂e (2017: 24.1 million tonnes CO₂e).

Planning for the future

In 2019, we plan to further explore how to reduce our GHG emissions in Kazakhstan. This will help us proactively deliver assurance to our customers and end-users, whilst avoiding and/or reducing potential future liabilities that could otherwise be induced by post-2020 regulatory changes driven by the Paris Agreement.

In addition to piloting new technology to capture GHGs (see below), we are continuing to investigate a range of additional measures to improve our energy performance and reduce our carbon emissions. These include:

- » Efficiency enhancements at existing power and metallurgical plants
- » Carbon storage and capture – as well as the marketing of related products (see below)
- » The development of new sources of renewable energy
- » Potential fuel diversification, including the use of ferrogas and/or coke oven gas to generate energy

GHG capture at EEC

We are in the process of identifying the best means of capturing GHGs from the flues of our EEC power generation operations as well as exploring their potential commercialisation in the form of dry ice, syngas and methane, etc. Potential methods include:

- » Absorption/desorption using liquid or physical sorbents (a well researched technology for capturing GHGs)
- » Treatment using integrated membrane systems, considered one of the most promising carbon capture technologies and a potential competitor for conventional chemical absorption
- » Carbon sequestration using filters

Next steps include further research into the economic aspects of each method, including costs, as well as the potential use of renewable energy to support GHG capture.



Waste management



Strategic context

>> Sustainable development of our host regions:

Under our 2025 Strategy, we have prioritised our contribution to the well-being of communities in our regions of operation. Our focus on maintaining international environmental standards with respect to water, air and soil includes strict regulatory compliance regarding the physical and environmental management of our waste.



Relevant UN Sustainable Development Goals

UN SDG	Associated UN targets
	9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities
	12.2 By 2030, achieve the sustainable management and efficient use of natural resources 12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment 12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse

Tailings and other high-volume waste

Like any mining company, we produce large volumes of waste rock, tailings and sludges as a by-product of our activities – whilst our generation of coal-fired power produces large volumes of fly ash.

All such waste is managed in accordance with our established environmental management systems and relevant legal requirements. This includes a focus on the physical integrity of relevant storage facilities, as well as the prevention of groundwater and surface water pollution.

In 2019, we completed an assessment of the risks associated with our tailings dams at all Group entities. We have since defined an action plan, which includes the engagement of third party expertise to support our risk management efforts.

In Brazil, we have changed our planned tailings dam at our Bahia Mineração (BAMIN) iron ore project from an upstream design to a downstream design, aligned with international best practice. We received regulatory approval for the change in March 2019.

Other industrial waste

Our operations also produce a range of operational waste such as wood, metal and other materials.

In Kazakhstan, such waste is categorised as 'Green', 'Amber' or 'Red' to reflect the relative hazard levels they represent. The minority of our waste is classified (for the purposes of its hazardous potential) as Red or Amber. This type of waste is collected, transported, recycled and/or disposed of by suitably qualified specialist service providers and is disposed of in line with national law.

SECTION 4: ENVIRONMENTAL STEWARDSHIP

Waste management *continued*

As part of this process, we check:

- » That our contractors have appropriate processing areas, equipment, transport and qualified staff to take and process relevant waste, as well as relevant environmental permits
- » That the recycling or processing method to be employed by the contractor or their subcontractors is specified in our contracts

In Africa, scrap steel is collected by a government-approved company and waste oil is collected by our supplier or used (with government approval) by a local cement factory.

Key issues and initiatives

Cleaning up historical waste at Metalkol RTR

Once our Metalkol RTR project near Kolwezi in Southern DRC reaches full production, it will make us a major player in the global cobalt market (p. 26). This means we will be indirectly supporting global efforts to spread affordable and environmentally friendly battery technology into the mainstream (p 15).

Furthermore, the project will actively remediate decades' worth of historical waste and land degradation that took place prior to our ownership. Under historical practices, tailings were deposited in the main local river valley, impacting local water quality and the broader water system, while dry-stacked tailings that produce dust were deposited at the Kingamyambo Tailings Dam.

In September 2018, Metalkol RTR started reprocessing the tailings in and around the Musonoi River valley and at Kingamyambo. These reprocessed tailings are being consolidated into a centralised tailings storage facility. It will be subject to a dedicated Tailings Management System that includes inspection, monitoring and reporting. As such, the project will progressively 'clean up' the local site – improving conditions not only for local fauna and flora, but also local communities. It will be a rare example of an extractive project that will leave the local environment significantly better at the end of its life, than it was at the start.

Given the environmental legacy in the area, as well as the presence of artisanal and small-scale mining communities and other industrial mining operations, we will need to demonstrate to downstream communities that the Metalkol RTR project is not contributing to the collective degradation of the local water system. Therefore, we will operate a comprehensive water and air quality monitoring system upstream and downstream of the site to help generate this assurance.

The recycling and commercialisation of our waste in Kazakhstan

We are continuing to identify opportunities to process and/or sell the waste outputs from our mining, metallurgy and energy generation activities in Kazakhstan. This reduces our environmental footprint (and, by extension, our potential liabilities), whilst establishing new revenue streams in their own right. This is not only in line with the 'circular economy' concept, but also supports the government's environmental agenda, as set out in the 2013 Presidential Decree on the transition to a 'Green Economy' and the 'Kazakhstan 2050' national strategy.

Turning waste into profit

Under our ongoing 'Turning Waste Into Profit' initiative in Kazakhstan, we continue to market:

- » Spent refractory lining of ladles, mixers, electrolyzers and induction furnaces
- » Carbon foam
- » Graphite
- » Coke dust
- » Aluminium slurry
- » Other industrial waste such as spent batteries

In addition, we are investigating a variety of additional options, including the potential production and sale of products ranging from rare earths to cement (see 'Planning for the future' opposite).

Waste reprocessing programmes

In addition to selling waste to third parties, we also have a range of reprocessing programmes to ensure we maximise the value we capture from our input materials, by-products and waste.

Key examples of such programmes include:

- » **Slimes 2 project at Donskoy GOK:** We have completed an R&D project (with third party specialists) to reprocess and enrich 8 million tonnes of old slime tailings that contain a high proportion (e.g. 17-35%) of chrome oxides – with 900,000 tonnes being added to this stockpile annually. This is with the aim of adding 600,000 tonnes of concentrate production per year for the first eight years of operation. Under current planning, the project will be operational by 2022
- » **Production of extrusion briquettes at Aktobe Ferroalloys Plant:** In 2017 we launched a facility to extrude chrome briquettes, using high-grade waste and dust produced by our primary chrome production process. These briquettes are then fed back into our primary production processes. The facility has the capacity to produce 80,000 tonnes of briquettes per year

Identification of further opportunities to generate value from waste

During 2018, we commissioned an international engineering company to help identify further opportunities to generate value from our waste. This involved an independent review of 36 different types of waste (including tailings, dust, slag, overburden and ash) and their prioritisation in terms of technical expediency and commercial opportunity.

The study identified the following five priority areas, which will be subject to conceptual studies to confirm their potential:

- » **Manganese sludge concentrate,** including the use of gravity enrichment to produce manganese concentrate
- » **Kaolin from clay,** including recovery through ultra-floatation
- » **Iron concentrate from slurries,** including wet separation using a strong magnetic field
- » **Alumina from ash and slag,** including use of sodium acid plus lime-soda sintering
- » **Garnet from iron ore tailings,** including the use of low-intensity magnetic separation to produce this industrial abrasive



Performance

In 2018, we sold around 158,000 tonnes of waste to third parties (2017: 151,077 tonnes) worth around US\$9 million (2017: US\$3.3 million). The biggest contributors in this regard were ferrous and non-ferrous scrap (US\$4.7 million) and dry ash (US\$1,578 million). In turn, this saved around US\$0.8 million in waste disposal costs (2017: US\$1.1 million).

Meanwhile in Africa, we reprocessed a total of 1,328 kt of tailings at our Metalkol RTR project, prior to their relocation to our centralised, modern tailings dam.

Planning for the future

In 2019, we plan to establish a dedicated ERG Recycling sub-division to oversee and coordinate all waste processing and marketing activities in Kazakhstan. We will also continue to pursue conceptual studies for the five value generation opportunities noted above.

In addition, we will expand our recycling activities in Kazakhstan by constructing facilities for the:

- » Beneficiation of slag at Aksu Ferroalloys Plant
- » Reprocessing of fine slag at Aktobe Ferroalloys Plant

Finally, we will also continue to advance opportunities for the production and sale of new products from waste, including:

- » Cement, mineral powders and other products derived from refined ferrochrome slags at Kazchrome
- » Rare earths from our ash dumps at EEC
- » Fertilisers and sorbents from weathered coal, as well as rare earths from associated sludge



SECTION 5

Our relationship with broader society

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MATERIAL ISSUES INCLUDE

Value generation and distribution

Read more on p. 78

Compliance

Read more on p. 84

Government relations and policy

Read more on p. 90

2018 HIGHLIGHTS

Board approval for our updated **Group Tax Policy**

US
\$827M

paid to governments in taxes and duties



25th World Mining Congress АСТАНА 2018 • КАЗАКСТАН



INTRODUCTION

PREPARING OUR BUSINESS FOR THE FUTURE

HELPING OUR PEOPLE THRIVE

COMMUNITY DEVELOPMENT AND WELL-BEING

ENVIRONMENTAL STEWARDSHIP

OUR RELATIONSHIP WITH BROADER SOCIETY



Our generation and distribution of economic value represents one of the most important benefits we deliver to our host societies.

It is in this context that we have made **financial stability** a Group priority under our 2025 Strategy, so that we are able to deliver decent dividends to our shareholders. This includes the Government of the Republic of Kazakhstan, which has a 40% shareholding in ERG.

Focusing on the commercial sustainability of our business will also underpin our ability to continue distributing value to our contractors and suppliers, employees, local communities and finance providers.

Beyond this, we have also prioritised **the sustainable development of our host regions**. This includes the promotion of social welfare and well-being, not only through community social investment, but also through our generation of

local employment and the payment of taxes and royalties to local and national government. It also means promoting local content to support regional employment, entrepreneurship and wealth creation.

In this context, we are committed to fulfilling our obligations towards our partners – including our host governments – and to nurturing relations of trust and respect with others.

SECTION 5: OUR RELATIONSHIP WITH BROADER SOCIETY





Value generation and distribution

Strategic context

- » **Sustainable development of our host regions:**
Under our 2025 Strategy, we have prioritised our contribution to the socio-economic development of communities in our regions of operation. This includes our distribution of economic value, locally, regionally and – more broadly – nationally.



Relevant UN Sustainable Development Goals

UN SDG	Associated UN targets
	1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions
	8.1 Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries 8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value
	9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries
	10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status

Our long-term ability to generate value for our shareholders is ultimately contingent on our generation of shared economic benefits for our other stakeholders. This includes our host governments who license us to extract finite national mineral resources, our host societies who grant us our social licence to operate, our contractors and suppliers who provide us with goods and services, and our employees whose labour we rely upon. If our business model is overly focused on short-term shareholder returns to the exclusion of others, it will not last.

Key issues and initiatives

Promotion of broader economic development

Our activities generate a range of benefits for our host economies – and beyond. The most important example of this is our extraction and processing of mineral resources and the subsequent delivery of high-quality, responsibly sourced minerals and metals to industrial customers around the world – including China, Russia and the European Union.

In turn, this facilitates the production and commercialisation of a wide range of third party products – ranging from heavy construction materials used in infrastructure development, to affordable battery technology used in electric vehicles (p. 15). Similarly, the power we generate and the rail services we provide in Kazakhstan are not only used by our own operations, but also benefit a range of domestic and industrial customers.

In terms of direct value distribution, the most significant impact we have is through:

- » The wages and benefits we deliver to our employees and individual contractors, most of whom live in or near our local communities
- » The purchase of goods and services from our contractors and suppliers, many of which are located in our countries of operation
- » The interest on debt and dividends that we pay to our finance providers
- » The taxes and royalties we pay to our host governments
- » The community social investment spending we distribute in our local communities and beyond

Updated tax policy

In 2018, the Board approved our updated Group Tax Policy. The policy has been developed in the context of ongoing international scrutiny of base erosion and profit shifting (BEPS) and other international tax trends. Amongst other things, the Policy commits us to:

- » Complying with all local applicable laws, rules and regulations
- » Taking account of the spirit as well as the letter of relevant tax laws and regulations
- » In the context of transfer pricing:
 - Conducting all transactions between Group companies on an arm's length basis
 - Determining pricing in accordance with the nature of the economic functions performed by each company (including the use of capital) and following the specific methods and principles outlined in the OECD Transfer Pricing Guidelines and/or local transfer pricing laws
 - Retaining adequate documentation for each intercompany transaction to establish the terms and conditions of the transaction and to demonstrate that the company has complied with the transfer pricing principles set out above

Payment transparency

We are dedicated to providing transparency around payments we make to our host governments. We continue to actively engage with the Extractive Industries Transparency Initiative (EITI) processes in the countries where we have our main operations: DRC (which is currently subject to an EITI validation process), Kazakhstan and Zambia.

Extractive Industries Transparency Initiative (EITI) status of host countries¹

Actual/potential extraction locations	EITI status (assessment)
Brazil	Non-participant
DRC	Participant (validation commenced on 1 Oct 2018)
Kazakhstan	Participant (meaningful progress)
Mali	Participant (meaningful progress)
Mozambique	Participant (meaningful progress)
Zambia	Participant (meaningful progress)
Zimbabwe	Non-participant

Local content

In line with relevant local content requirements – and subject to our equal opportunities policies – we seek to employ and develop nationals and to purchase goods and services from companies in our host countries?

Key categories of products and services that we currently source from local suppliers in Kazakhstan include (for example): fuels and lubricants, explosives, rails, electrodes, filter materials, stripping, exploration, drilling and blasting.

Our ability to incorporate local suppliers and contractors into our supply chain is determined by:

- » The size and quality of local skills pools
- » The capabilities of local companies – including not only their technical capabilities, but their broader business capabilities (e.g. around corporate governance, organisational flexibility and pricing, etc.)
- » The relative cost of local goods and services compared to imported goods and services

We recognise that it is incumbent on us to build local capacity and competitiveness where we are able to do so. For example, in 2018 we continued to focus on a range of related initiatives in Kazakhstan, including:

- » Collaboration with the Ministry of Industrial Development and the National Chamber of Commerce to promote investment in / the local development of new businesses to support our activities.
- » Participation in the Student Entrepreneurship Ecosystem Programme (p. 57)
- » Entrepreneurship-focused community social investment (CSI) via our memoranda of understanding with local governments (p. 56)
- » Explanation of our procurement process to local manufacturers during dedicated open door sessions, forums and round tables
- » Simplification of assessment procedures for suppliers, including for local producers who participate in ERG procurement

1 Extractive Industries Transparency Initiative, Countries: eiti.org/countries

2 In Kazakhstan, for example, our guidelines note that when choosing between domestic and foreign suppliers, preference will be given (all other things being equal) to domestic suppliers. In addition, local law integrates measures to encourage the selection of domestic suppliers during tender processes, whilst our subsurface licences also incorporate local content requirements.

SECTION 5: OUR RELATIONSHIP WITH BROADER SOCIETY

Value generation and distribution *continued*

In addition, we focused on a number of new initiatives in Kazakhstan, including those that will ultimately help benefit our own business. This included collaboration with international IT and start-up centre, Astana Hub¹, through the provision of a 'lake' of our production data. This can be used by the scientific, technical and start-up communities to further their data research and support the development of new data applications. We also plan to establish a new venture capital fund at the Astana International Financial Centre; which will invest in, amongst other things, IT and digital projects, including a focus on the local digital start-up community.

Performance

In 2018, we generated US\$5,353 million in revenues (2017: US\$5,048 million) and distributed a total of US\$4,381 million to our stakeholders (2017: US\$3,944 million).

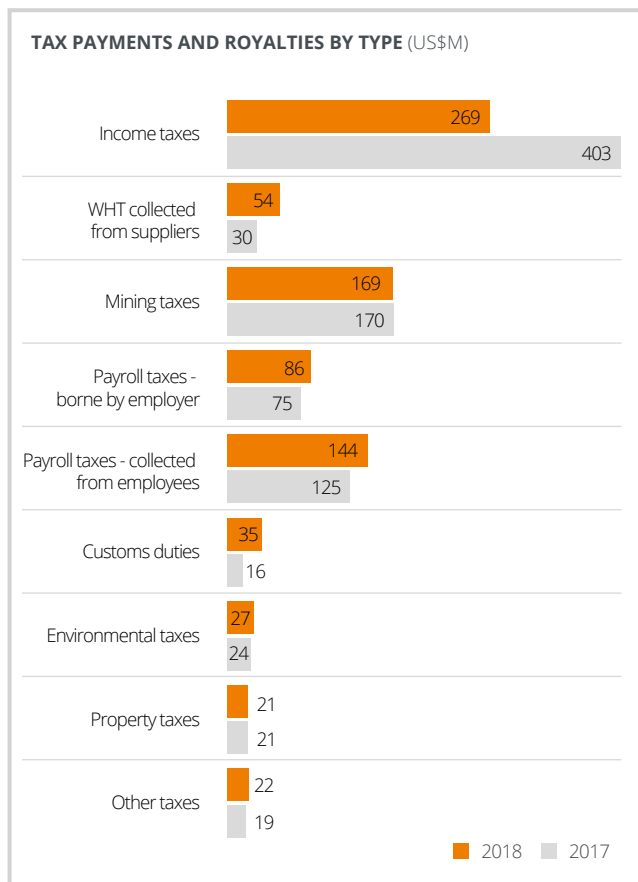
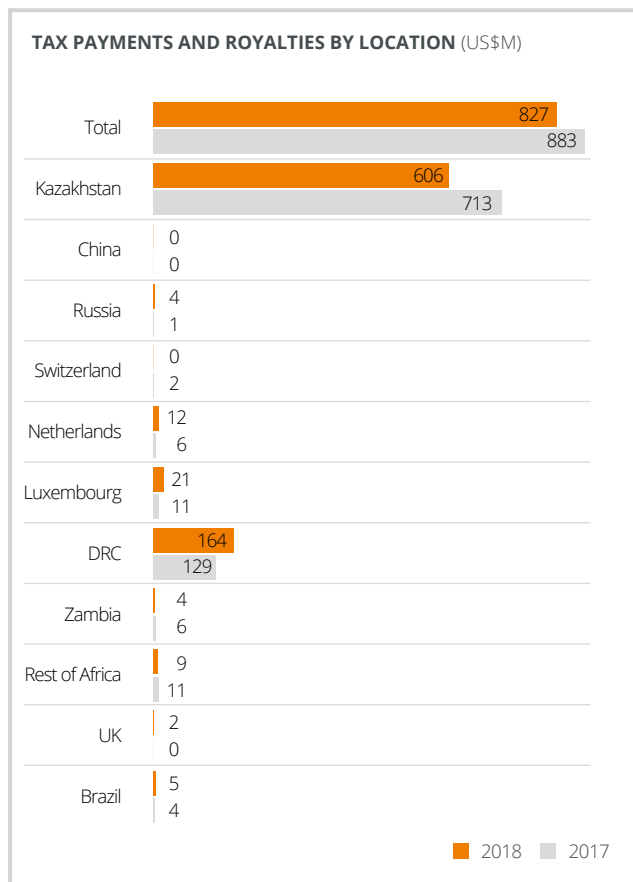
This reflected:

- » Higher levels of payments to suppliers +US\$364 million
- » Higher payments to employees +US\$103 million
- » Higher payments to providers of capital +US\$37 million
- » Lower payments to government -US\$71 million
- » Higher community investment spending +US\$4 million
- » Lower retained economic value -US\$132 million

These changes were driven by, for example, increased costs in Kazakhstan due to higher prices for input materials and higher sales volumes.

We also saw increased employment costs linked to salary increases in Kazakhstan, increased headcount in Russia and the EU, redundancy payments at Boss Mining and Congo Cobalt Corporation (CCC), and the launch of our Metalkol RTR project. Meanwhile, our financing costs were impacted by the increased dividends to shareholders.

In 2018, we paid US\$827 million to governments in taxes and duties (2017: US\$883 million). Our effective corporate income tax rate reflects the statutory corporate income tax rates in the countries where we have our mining and processing operations, and where we pay more than 93% of our Group taxes (2017: more than 96%).



¹ Astana Hub, astanahub.com.



Economic value generated and distributed (US\$M)

Type	Detail	2018				Total	2017
		Kazakhstan	Africa	Brazil	Other		Total
Economic value generated	Revenue	4,319	1,035	-	(1)	5,353	5,048
	Payments to suppliers (operating costs)	(1,474)	(643)	(1)	(37)	(2,155)	(1,791)
Economic value distributed	Employee wages and benefits	(528)	(207)	-	(122)	(857)	(754)
	Payments to providers of capital	(389)	(3)	-	(273)	(665)	(628)
	Tax expenses ¹	(450)	(110)	-	(29)	(589)	(660)
	Community investment spending	(108)	(6)	-	(1)	(115)	(111)
	TOTAL	(2,949)	(969)	(1)	(462)	(4,381)	(3,944)
Economic value retained		1,370	66	(1)	(463)	972	1,104

Local content spending in Kazakhstan (US\$M)

Procurement spend type	2018	2017	Increase %
Total volume of purchases from local producers (including intercompany procurement)	1,559	1,183	32%
Total volume of purchases from local producers (excluding intercompany procurement)	918	574	60%
Share of local procurement in overall procurement	47%	39%	21%

In 2018, our entities in Kazakhstan purchased 15%² of their goods and services from local producers operating in our mining towns³. Where appropriate, we involve local producers from disadvantaged groups in our value chain, such as the Society of the Blind in Kostanay, Aktobe and Pavlodar regions.

In the DRC and Zambia our local procurement spending with locally registered companies was around 50% of our overall procurement spend (excluding Metalkol RTR, where the bulk of our procurement spend is on our Chinese Engineering, Procurement and Construction contractor, NFC). This includes, for example, contracts relating to the supply of diesel and lubricants, sulphuric acid, limestone, power as well as mining and drilling services.

In Brazil, 98% of procurement is from domestic suppliers and contractors, and around 35% is from entities located in the state of Bahia itself.



Planning for the future

Our direct and indirect economic impact will grow as the company grows. Therefore, the development of our portfolio will deliver additional future benefits to the full range of our economic stakeholders.

One of the most prominent examples of this has been the start of commissioning at Phase 1 of our Metalkol RTR cobalt and copper project in the DRC in 2018 (p. 26). Likewise, 2018 saw the extension of our Frontier Mine's life as a result (in combination with the processing of ore stockpiles) of the Cut 3 project (p. 26).

Other projects that are likely to make a further difference in this regard include:

- » Phase 2 of the Metalkol RTR project, which is expected to add further cobalt and copper production by the end of 2020 (p. 26)
- » Initiatives to expand production at Kazchrome (p. 27)
- » The construction of a new aluminium smelter in Kazakhstan under the KAS-2 project (p. 27)
- » The development of the Bahia Mineração iron ore project in Brazil (p. 28)

[Read more](#)

For further details on these and other portfolio development projects, please see p. 25.

¹ This line excludes capitalised costs and employee taxes borne by employees.

² Please note, the percentage quoted in ERG's Sustainable Development Report 2017 included subsoil use contracts only. The percentage quoted in this report is based on an expanded definition.

³ The following mining towns are included in calculations: Aksu, Ekibastuz, Arkalyk, Lisakovsk, Rudnyi and Khromtau.

Supporting socio-economic development in Kazakhstan

We have a long history in Kazakhstan, spanning 80 years. Over this period, we have generated value, created employment, supported public revenues and promoted socio-economic development in its areas of operation.

We are proud of this heritage, of our relationship with the Government of the Republic of Kazakhstan (a 40% shareholder in ERG) and of our role in the domestic metals and mining sector (of which we account for one-third). In 2018, we continued to deliver material benefits to society, at both local and national levels.

Key figures in 2018

US \$606_M¹
Taxes paid

US \$918_M
Spent on purchases from local suppliers

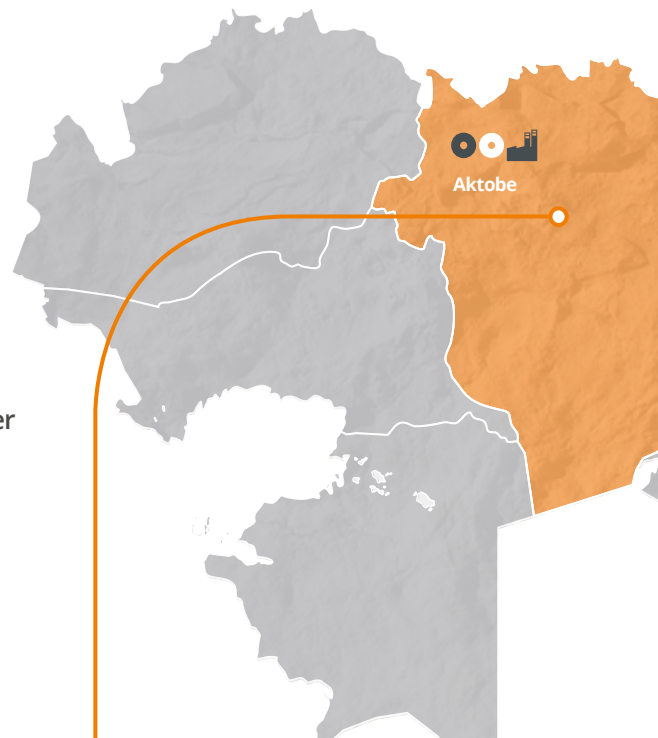
US \$77_M
Spent on national-level social investment projects

62,422
Permanent employees

Over US \$19_M
Spent on social partnership projects in our operating regions

450,000
Approximate number of people living in ERG's six mining towns

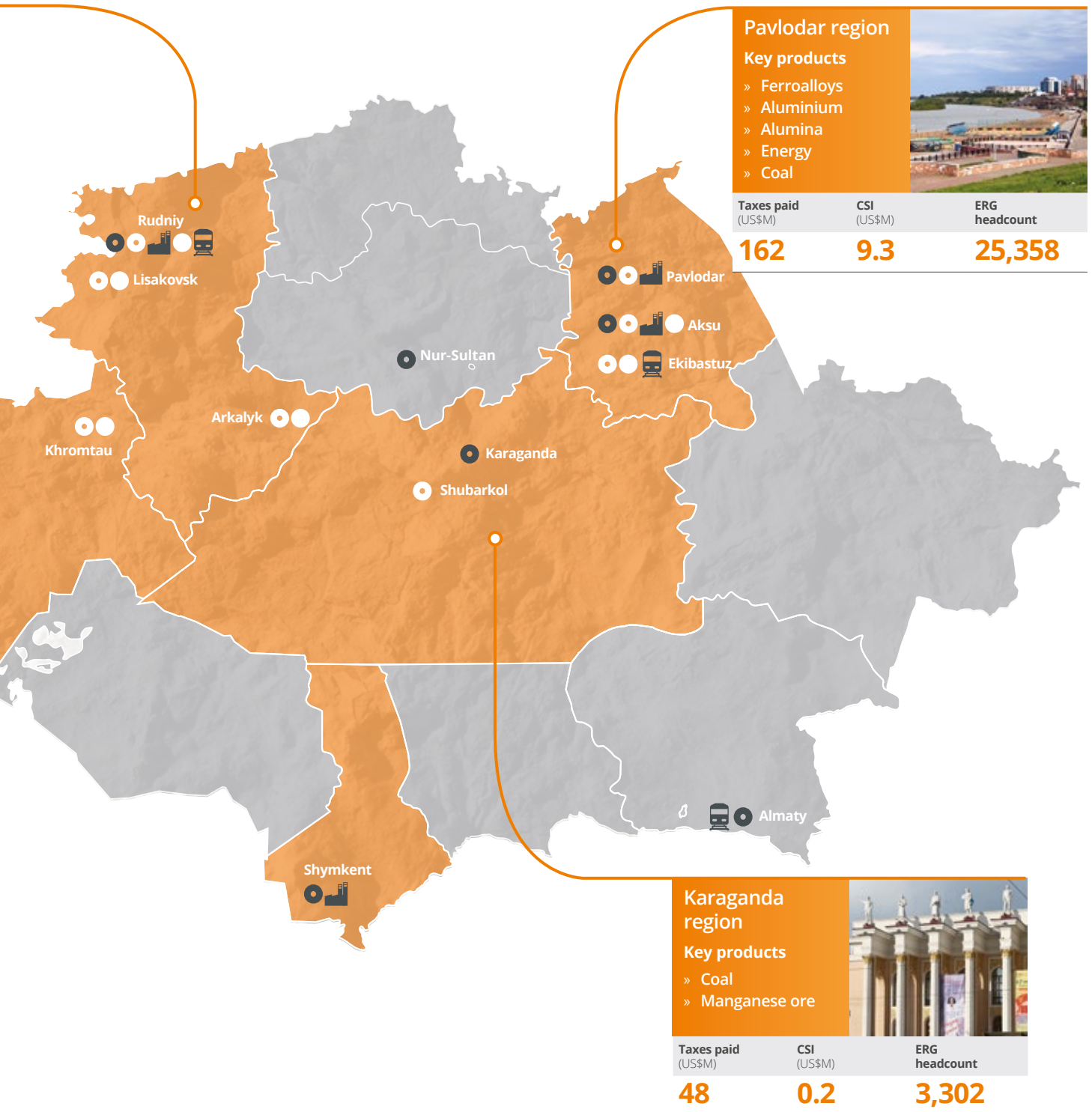
Kostanay region		
Key products		
» Iron ore		
» Bauxite		
Taxes paid (US\$M)	CSI (US\$M)	ERG headcount
131	6.2	18,129



Aktobe region		
Key products		
» Chrome ore		
» Ferroalloys		
Taxes paid (US\$M)	CSI (US\$M)	ERG headcount
225	3.4	12,682



¹ Including taxes paid in Nur-Sultan, Almaty and other regions in Kazakhstan.



- Key operating regions ○ Mining towns ● Corporate offices ⊕ Operations
- 🏭 Power stations 🚂 Logistics and transportation

SECTION 5: OUR RELATIONSHIP WITH BROADER SOCIETY



Compliance

Strategic context

» Compliance with the laws of our host countries – and the application of strong ethical standards – underpins all that we do. Any failure in this regard not only has serious legal implications, but has the potential to damage our reputation, undermine our business relationships and impact the achievement of our long-term business objectives. This, and the cross-cutting nature of our compliance requirements, makes it a key area of business focus.



Relevant UN Sustainable Development Goals

UN SDG	Associated UN targets
	10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status
	16.3 Promote the rule of law at the national and international levels and ensure equal access to justice for all
	16.5 Substantially reduce corruption and bribery in all their forms
	16.6 Develop effective, accountable and transparent institutions at all levels

ERG is committed to conducting its activities in accordance with all applicable laws and regulations, as well as high ethical standards of business conduct. Furthermore, we are opposed to all forms of bribery and corruption, and do not engage in or tolerate their occurrence in any circumstances. It is against Group policy to offer, solicit, give or accept bribes in any form, for any purpose.

Our compliance efforts are overseen by our Board of Manager's Compliance Committee, comprised of two Board members and an independent chairperson. The Committee reviews, oversees and approves our Group Compliance Programme, compliance policies, systems and controls, whilst also monitoring the effectiveness of the compliance function. The committee met five times in 2018, with all members attending.

At an executive level, we established a dedicated Risk and Compliance Committee in 2016 and this commenced operation in 2017.

Policy framework and implementation
Our policy framework is based on our values, Code of Conduct (Code) and all our policies and procedures, which address specific risks and are subject to regular review.

Relevant Group policies include the following:

- » **Anti-bribery and Corruption Policy:** This commits us to always acting responsibly, honestly and with integrity, and to not engaging in or tolerating any form of bribery or corruption
- » **Agents Compliance Policy:** This requires agents acting on our behalf to comply with applicable laws and regulations, as well as our policies and Code
- » **Anti-Money Laundering Policy:** This commits us to not knowingly engaging in transactions involving money laundering or terrorism financing
- » **Human Rights Policy:** This requires ERG and its employees and contractors to abide by human rights norms. For further information on how we manage human rights, 'Clean Cobalt' and responsible battery value chains, please see p. 94, p. 62 and p. 65.
- » **Competition Compliance Policy:** This commits us to not engaging in or tolerating any form of conduct that fails to comply with applicable anti-trust and competition laws

- » **CSR Projects and Sponsorship Policy:** This sets out the process, criteria and approvals necessary for ERG to commit to and manage corporate social responsibility (CSR) projects or sponsorship arrangements
- » **International Economic Sanctions Compliance Policy:** This commits us to avoiding breaching international economic sanctions imposed by relevant governments, as well as supranational or international organisations

These are in addition to our Code, which is binding on all our employees, managers and Board members. It applies a range of obligations with respect to:

- » Compliance with laws, rules and regulations
- » Anti-bribery and corruption
- » International trade, export controls and financial and political sanctions
- » Human rights
- » Political and non-political contributions, donations and sponsorships by ERG

Our compliance policies and guidelines are implemented by our Group, regional and local Compliance managers, with assurance oversight provided at Group level. Compliance managers are full-time compliance employees who provide professional, dedicated compliance support to the business.

Human rights

Under our Human Rights Policy, we are committed to respecting universally recognised human rights and labour standards (p. 94). We do not employ bonded, forced or compulsory labour or child labour. We conduct ongoing monitoring and have a robust action plan in place to prevent any form of these practices.

We do recognise, however, the risk that such practices could exist among suppliers in Africa. We assess this risk on an ongoing basis through supplier assessments undertaken during the Counter-Party Due Diligence (CPDD) process. Suppliers are selected based on their full compliance with our Human Rights Policy. We also conduct risk-based monitoring of suppliers to test and verify their compliance with our Policy.

In addition, our regional compliance officers conduct office/asset human rights risk assessments at appropriate intervals, and identified risks (and associated controls) are recorded in our regional and Group compliance risk registers. These assessments are focused on Africa.

In 2018, over 500 of our employees received dedicated, face-to-face human rights training, covering issues such as the use of force, inhuman or degrading treatment, and discrimination. This helps ensure employee awareness of our human rights expectations and appropriate conduct towards third parties.



SECTION 5: OUR RELATIONSHIP WITH BROADER SOCIETY

Compliance continued

Risk-based management approach

Risk-based management sits at the heart of our Group Compliance Programme, helping ensure we remain in compliance with our policies, legal requirements and stakeholder expectations.

Risk assessment

Our approach to compliance risk assessment is aligned with the Group Risk Management Framework (p. 16). In 2018, we updated and formalised our compliance risk management procedure to help us identify, assess and evaluate the compliance risks we face in our jurisdictions, develop appropriate mitigation plans and maintain relevant records in our Compliance Risk Register.

Regional and Group compliance officers conduct compliance risk assessments on a regular basis, in line with our Group risk management methodology. This includes onsite and offsite risk interviews and business process analysis, as well as consideration of the factors affecting our operations that may influence compliance risk exposure. We maintain our Compliance Risk Register (an integral part of the Group Risk Register) to identify, evaluate and control identified compliance risks (including those relating to corruption). If control gaps are identified, we implement remediation or apply new controls (e.g. new policies and procedures), as appropriate. In addition to supporting effective risk management, these assessments help us to keep our compliance policies relevant and up to date.

Risk assurance

We have embedded a consolidated compliance testing and monitoring programme, which is mapped against our Compliance Risk Register. This programme evaluates the effectiveness of our risk controls and corrective measures. Our Compliance team reports the outcomes of this process to the executive Risk and Compliance Committee and to the Board of Manager's Compliance Committee.

Key issues and initiatives

Training, awareness-raising and whistleblowing

We emphasise the importance of our policies and guidelines in our business activities, including during the recruitment and on-boarding process. Indeed, training, awareness-raising and strong leadership are essential components of our Group Compliance Programme. These help ensure that our employees understand our ethical



standards and the behaviour expected of them in their daily activities and decision-making. Our training and awareness-raising programme is tailored to our risk profile and covers target audiences (i.e. those exposed to higher levels of compliance risk) across the Group.

We have delivered training on anti-corruption as part of both our Code and our Compliance policies training programme.

Our employees (and business partners) are able to submit any reports or queries they might have regarding ethical and compliance risks. This includes through our confidential, anonymous and 24-hour Group Hotline (which is operated by an independent third party) and a related email address (see <http://erg.ethicspoint.com>). We are committed to protecting whistleblowers who report suspected violations in good faith and to maintaining confidentiality where requested.

Anti-corruption

Our countries of operation pose relatively high levels of latent corruption risk, making compliance with our high ethical standards of business conduct a particularly material issue for the company. In 2018, we continued – with the strong support of our senior management – on our journey of bringing ERG policies and activities further in line with international best practice.

In particular, we are moving towards a more proactive, risk-based and integrated approach that encourages 'beyond compliance' decision-making and a values-driven business culture. This builds upon the significant progress already made in 2017, which included membership of the World Economic Forum's Partnering Against Corruption Initiative (PACI)¹. This is a cross-sector agenda-setting platform that works with business leaders, international organisations and governments to address corruption, transparency and risks in emerging markets.

¹ World Economic Forum, Partnering Against Corruption Initiative: weforum.org/communities/partnering-against-corruption-initiative

Activities in 2018

In 2018, we participated in PACI's 'The Future of Trust and Integrity'¹ project, which aims to identify and develop practical solutions that promote trust and integrity through behavioural change, organisational innovation and the adoption of technology. ERG's CEO and Chair of the Compliance Committee have participated in PACI activities through 2018 and this engagement will continue through 2019.

Our Group compliance function continued to take a number of steps to support the effective management of bribery and corruption risks:

- » Monitoring of applicable legislation and regulatory requirements and the delivery of regular briefings to senior management and shareholders about relevant changes as well as the development of new anti-corruption initiatives
- » Regular communication from the Group CEO and Head of Regions, in line with the commitments of the company, its shareholders, its managers and its employees to adhere to principles of ethical business conduct
- » The holding of a special campaign every 9 December (International Anti-Corruption Day), based on the following steps:
 - The CEO communicates details of the ERG anti-corruption programme to all employees
 - In coordination with our PR function, our compliance teams implement awareness campaigns to draw additional attention towards the fight against corruption and intolerance to any of its manifestations

These were supplemented in 2018 by the following new initiatives:

- » The updating of our Anti-Corruption Policy and the cascading of our CSR Policy to the regional level
- » The delivery of a comprehensive e-learning training programme for employees
- » The holding of additional employee meetings during which compliance issues are discussed, including at the Forum for Young ERG Leaders in Kazakhstan
- » Continued improvement of our Compliance Assurance Programme (including our compliance controls) in the context of interactions with third parties

In addition, we worked with International Compliance Services (Russia and CIS) – the exclusive provider of services to, and regional partner of, the International Compliance Association (ICA) – to carry out a gap analysis of our current compliance practices and processes against the ISO 19600 Compliance management systems² standard and the ISO 37001 Anti-bribery management systems³ standard. The outcomes of the exercise will be used to continue the development of our comprehensive, Group-level Compliance Assurance Programme.

SFO Investigation into ENRC

The Serious Fraud Office's (SFO) investigation into ENRC (the Company) commenced on 25 April 2013. The focus of the investigation is stated, by the SFO, to be allegations of fraud, bribery and corruption relating to the acquisition of mineral assets in Africa. On 14 May 2015, the SFO confirmed that it was not 'actively investigating' the Company's Kazakh operations, and on 23 October 2018 confirmed again that they were not part of its investigation. During the course of the investigation, the Company has complied with all statutory requests made by the SFO in addition to voluntarily providing a large volume of material at the request of the SFO.

It is common for the SFO to investigate cases for a number of years due to their complexity. There are a number of possible outcomes to an SFO investigation, one of which is the investigation coming to an

end with no charge being brought against any party. At this stage, it is hard to predict exactly how long the SFO's investigation into ENRC will last, nor is it possible to say what the result of the investigation will be.

Relationships with third parties

Given the complexity of the external business environment, in 2018 we prioritised the enhancement of our third party risk management practices. This included the updating of our CPDD Manual to reflect evolving best practice and integrate further risk-based assessment processes.

We also implemented a revised compliance risk assessment approach, based on:

- » The nature of/relationship with the counterparty (e.g. identity, nature of goods/services, works, etc.)
- » The jurisdiction in which the counterparty operates (e.g. in terms of latent corruption and sanctions risks)
- » The type of transaction (e.g. deal structure, contract value, etc.)

CPDD reviews are conducted by dedicated and well-trained compliance managers across the Group, using reputable information providers and professional compliance databases. This allows us to assign risk ratings in each case and identify appropriate mitigation actions. Training is provided on the CPDD requirements.



1 PACI, 'The Future of Trust and Integrity': weforum.org/projects/paci-the-future-of-trust-and-integrity

2 ISO 19600 Compliance management systems standard: iso.org/standard/62342.html

3 ISO 37001 Anti-bribery management systems standard: iso.org/publication/PUB100396.html

SECTION 5: OUR RELATIONSHIP WITH BROADER SOCIETY

Compliance continued



Agents

Our Agents Compliance Policy requires all agents acting on our behalf (including sales agents, tax consultants, lawyers, customs agents, acquisition intermediaries, etc.) to be subject to documented due diligence and comply with our Code and all compliance policies. They are also required to confirm in writing on an annual basis that they have not engaged in any illegal, corrupt or unethical conduct in the performance of their duties for ERG, and that they remain in compliance with all applicable laws, regulations, rules and Group policies.

International sanctions

In 2018, the sector faced a number of challenges with respect to international sanctions. Given our overriding compliance focus, we enhanced (in the context of our broader Group Compliance Programme) our management of sanctions-related risks.

ERG is committed to upholding and complying with all sanctions applicable to our business and to all transactions in which we engage. Our International Economic Sanctions Compliance Policy – implemented via our Group Compliance Programme – sets out our approach, as well as clear guidance to all our employees on how to manage sanctions risk. Key elements of our Sanctions Compliance Programme include:

- » Monitoring of existing sanctions, detection and analysis of new sanctions, and actions to ensure full compliance with sanctions in current/future contractual arrangements and transactions at Group and regional levels
- » Informing business and executive management on potential sanctions risks and the development of appropriate risk management strategies to comply with relevant sanctions legislation
- » Delivery of extensive communications and training on sanctions compliance and monitoring

In April 2018, the United States Treasury placed a number of Russia-linked entities, including a Russian aluminium producer, on its sanctions list. Our commitment to comply with the requirements of applicable international economic sanctions laws and regulations meant that a degree of disruption was unavoidable as we adjusted our commercial and financial relationships accordingly. Nonetheless, a resulting rise in the aluminium price softened any related financial impacts. Following these events, we took steps to avoid the re-occurrence of such disruption and to further minimise any risk of sanctions non-compliance, including:

- » Ongoing legal and compliance monitoring to analyse new sanctions activity
- » Ongoing compliance checks against our CPDD database for existing and new sanctions
- » A comprehensive review (with specialist external legal advisors) of our Sanctions Compliance Programme, including the application of our International Economic Sanctions Compliance Policy.
- » The development of alternative sanctions scenarios with our Group risk function and Group management to support future business continuity
- » The updating (with external legal specialists) of our third party risk management policy and CPDD procedure, with the aim of establishing additional compliance measures at different stages of the contractual cycle
- » Development of a risk-based awareness and training programme to ensure that business owners properly understand sanctions risk identification and evaluation and have timely information regarding new sanctions developments

Data protection

In May 2018, the European Union's (EU) General Data Protection Regulation (GDPR) entered into force, applying to all companies operating within the EU and the personal data that they process. This applies to personal data processed within the EU, and abroad, if such data has been exported from the EU.

We took a number of steps to comply with the new regulation, including the:

- » Establishment of GDPR compliance governance across the Group, including relevant policies, procedures and assurance processes
- » Revision of our Group Data Protection Policy (which has been endorsed by external legal counsel) to incorporate relevant GDPR data principles
- » Appointment of a Data Protection Officer who reports directly to the Group Head of Compliance and is responsible for the implementation of the Group Data Protection Policy
- » Implementation of a GDPR risk assessment in the context of our broader compliance risk management system
- » Updating of our training and awareness-raising programme to support the implementation of GDPR controls
- » Delivery of relevant e-training or face-to-face training to all employees in our EU offices, and also personnel in our non-EU offices who work with EU personal data

Performance

During the year, we assessed all of our sites in Africa, Brazil and Kazakhstan for corruption-related risks as part of the regional and Group-level application of our Group-wide risk management system (p. 86).

In 2018, we communicated our anti-corruption policies and procedures to over 12,000 business partners, governance body members and employees (via e-learning, face-to-face engagement and on-boarding assessments). Individuals who frequently interact with third parties receive additional trainings hours.

We saw an increase in the number of reports and queries raised by our employees and business partners through our Hotline. These rose from 327 in 2017 to 351 in 2018. Our analysis suggests that the increased number of reports is not reflective of a worsening in our business environment or an increase in corrupt activity, but instead reflects the growing strength of the 'speak-up' culture that we are encouraging within the business, including through training.

In 2018, ERG was not subject to any:

- » Material judicial findings or regulatory sanctions (including those linked to its social, economic and/or labour impacts)
- » Investigations, legal actions or findings in relation to anti-competitive behaviour and/or internationally applicable sanctions

Planning for the future

Given the increased importance of corporate speed and agility, in 2019 we will focus on further integrating effective compliance management into all our business and assurance processes. We will also focus on effective compliance monitoring to ensure we provide our management with real-time access to compliance data, and support the responsible implementation of our 2025 Strategy.

Beyond this, our key strategic objectives for 2019 include the further development of:

- » Compliance team competencies
- » Our compliance risk management system, with a focus on control activities and monitoring. This includes the continued updating of our compliance policies in line with international best practice, as well as the introduction of 'compliance self-testing' for all high-risk transactions and processes (e.g. including those involving procurement, CSR, gifts and entertainment, etc.)
- » (In collaboration with the ERG Academy) our training and awareness-raising programme, based on international best practice



SECTION 5: OUR RELATIONSHIP WITH BROADER SOCIETY



Government relations and policy

Strategic context

» Our host governments count amongst our most important stakeholders, due to the impact of public policy, legislation, regulation and the awarding of new licences on our business. Furthermore, the Government of the Republic of Kazakhstan's shareholding in ERG makes it a particularly important actor with respect to the whole of our business.



Relevant UN Sustainable Development Goals

UN SDG	Associated UN targets
	16.5 Substantially reduce corruption and bribery in all their forms
	17.16 Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries 17.17 Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships

When dealing with governments, ERG adheres to the high principles of ethical business conduct established in its Code of Conduct (Code) and in its compliance policies.

In accordance with our Code, ERG does not, directly or indirectly, other than in exceptional circumstances approved in advance by the ERG Board of Managers, make political contributions. Any political contribution must be authorised in accordance with internal ERG policy and procedures, and applicable law.

We respect the right of our employees to participate in political activities. However, employees who join a political group must make it clear that such activities are being conducted purely in a personal capacity, not during working hours and with no ERG resources involved.

Key issues and initiatives

Relationship with the Government of the Republic of Kazakhstan

Our relationship with the government is defined by its holding of a 40% interest in ERG and its representation on our Board of

Managers. Furthermore, our business plays a strategic role in Kazakhstan's economy, particularly with respect to its mining and metals, power generation and logistics sectors.

As such, our relationship with the government is characterised by constructive engagement with respect to our business plans and corporate strategy. Likewise, we are proud to positively support (where it fits with our business objectives) the government's broader national vision and strategy.



Key examples of this relationship in action include our:

- » Focus on organisational transformation, innovation and efficiency – as well as employee capabilities – in the context of the government's efforts to boost economic growth and national capabilities
- » Application – and promotion of – digital innovation (p. 31)
- » 'Beyond compliance' approach to environmental management in the context of the government's 'Green Economy' concept and its commitments under the Paris Agreement on Climate Change (p. 71)
- » Promotion of social development in our regions of operation (and beyond), in cooperation with – and supplementing the efforts of – the public authorities (p. 82)
- » Participation in China's Belt and Road Initiative (BRI), which is expected to deliver significant trade and investment benefits to Kazakhstan and beyond (p. 26)

In 2018, we continued to engage with the government through a multi-stakeholder working group focused on the updating of Kazakhstan's new Environmental Code – in line with international best practice, and EU regulation in particular. Amongst other things, this anticipates the introduction of best-available environmental technologies by business, waste reduction incentives, consolidation of the 'polluter pays' principle and 'green investment' incentives.

In addition, our engagement also focused on:

- » Amendments to the Law on the Electric Power Industry regarding the participation of industrial groups in the capacity market
- » The Subsurface Code, which came into force in 2018 and addresses accumulated mineral-bearing waste deposits (including the potential transfer of state-owned deposits to existing subsoil users for reprocessing/recycling)
- » Tax amendments to promote investment in an innovation hub for information technology (p. 80)

Belt and Road Initiative

ERG remains a participant in China's strategic BRI – the Chinese-backed development strategy framework focused on improving trade links with a wide range of countries in Eurasia and Africa, and promoting economic growth. The geographical location of Kazakhstan – as well as its logistical infrastructure, natural resources and trade networks – means it has a key role to play.

Events in Africa

New DRC Mining Code

In 2018, the new DRC Mining Code (2018 Code) was published, overriding the tax stability clauses in the 2002 Mining Code.

Depending on how the terms of the 2018 Code are applied, there is a risk that it might reduce vital investment. We fully recognise that the people of the DRC should benefit from the extraction of their national mineral resources. Therefore, we will continue to seek dialogue with the government to find mutually acceptable outcomes.

Gécamines and Boss Mining in the DRC

Congolese state mining company Gécamines has been pursuing a 'strategy of consensual redefinition of its partnerships' with its joint-venture partners in the country – including many of our peers.

In this context, in October 2018 we concluded an agreement with Gécamines addressing a number of key points of cooperation in relation to Boss Mining. These included, amongst other things, shareholding structure, recapitalisation, pas-de-porte payments and restructuring plans.

The agreement offers a new, more sustainable relationship with Gécamines. Furthermore, it will help ensure that – in cooperation with Gécamines, and with the support of the government – we can achieve the full potential of Boss Mining.

In February 2019, we announced that we were placing Boss Mining into care and maintenance. We are exploring commercially feasible ways to recommence and enhance operations at Boss Mining in future.

Elections in the DRC

In 2018, there was considerable concern about the potential for political tensions over the DRC's delayed presidential elections to result in serious disruption. This included risks relating to insecurity, civil unrest and

logistical disruption. Whilst we made relevant contingency plans to avoid and/or mitigate the potential impact of such disruption, the elections did not materially affect our operations.

Tax changes in Zambia

In September 2018, the Government of Zambia announced it would introduce new mining taxes and increased royalties, which came into force in January 2019.

Performance

In 2018, ERG did not make any contributions (financial or in-kind) to political parties.

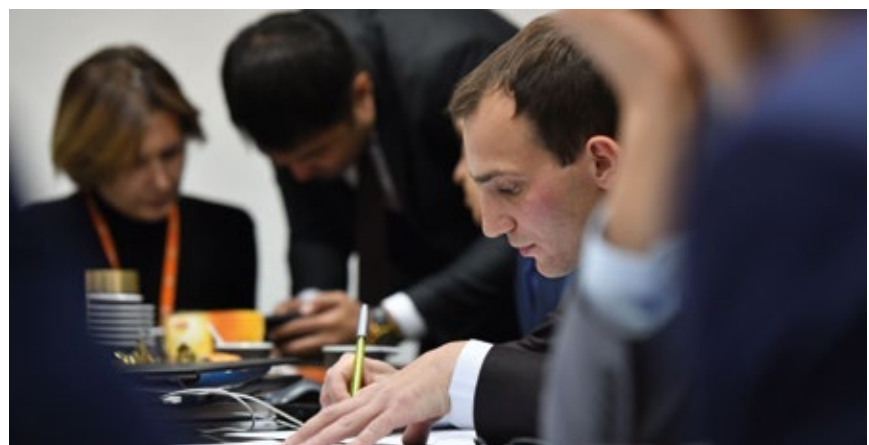
We continue to work with regional governments in Kazakhstan to support socio-economic development in our areas of operation. These include:

- » Community projects implemented in partnership with regional governments ('memoranda of understanding'). These include projects aimed at improving the living conditions of our employees, their families and local communities more broadly, whilst also supporting the achievement of the government's community development objectives (p. 56)
- » Mandatory socio-economic and infrastructure development contributions in the regions required under our operating licences. These include direct payments to the government, which then implements corresponding programmes informed by national and regional policy

Planning for the future

In 2019, we plan to:

- » Work with Gécamines to explore ways in which to prolong the commercial sustainability of Boss Mining
- » Continue representing our interests with respect to the development of Kazakhstan's new Environmental Code



ANNEX

Governance overview

A clear, well-defined governance structure

Corporate governance

ERG is guided by its Board of Managers (the Board), comprised of three founding shareholders and two representatives of the Government of the Republic of Kazakhstan.

The Board is committed to ensuring that the Group strives to meet the highest business and ethical standards, and complies with local and international laws wherever ERG operates. The Board approves our Group policies, including our Code of Conduct.

The Board has established four committees to help it discharge its responsibilities in key governance areas. All Board committees have clearly defined terms of reference, which describe in detail their duties and the extent of their authority:

» **Audit Committee:** Responsible for overseeing the integrity of ERG's financial reporting, its internal controls and risk mitigation actions, the effectiveness of its Internal Audit function and the engagement of external auditors

» **Compliance Committee:** Responsible for review, oversight and approval of the Group compliance systems, policies and controls – and for monitoring the effectiveness of the Group compliance function

» **Remuneration Committee:** Responsible for overseeing the remuneration of ERG's senior managers and monitoring the Group remuneration system

» **Sustainable Development and Mergers and Acquisitions (M&A) Committee:** Responsible for overseeing M&A activity (including due diligence, the assessment and mitigation of related risks, structuring and implementation of projects and post-acquisition integration), as well as the integration of Sustainable Development principles into our business (through the Sustainable Development Council)

Business Sustainability leadership

Our Sustainable Development Council (SDC) acts as the working body of the Board's Sustainable Development and M&A Committee. Reflecting our more integrated approach to Sustainable Development, the SDC is responsible for considering key issues and initiatives in the following areas, all of which are aimed at supporting our business sustainability:

- » Strategy development and strategic planning
- » Architecture improvement and innovation
- » Leadership programmes
- » Financial and non-financial key performance indicators
- » Business transformation

Corporate governance structure



Regional health, safety, environment and communities management

Kazakhstan

We have established the following two committees, which are made up of senior regional management and the General Directors of our production entities:

- » Environmental Protection Committee
- » Industrial and Occupational Safety Committee

These committees:

- » Define our environmental and safety strategy
- » Review relevant policies, procedures and initiatives
- » Receive regular progress reports on the implementation and improvement of controls

The Industrial and Occupational Safety Committee also defines our safety culture.

In addition, there are two working bodies that oversee our community social investment (CSI) in Kazakhstan:

- » A working group dedicated to the management of our memoranda of understanding with local governments (which account for a significant proportion of our CSI spending) (p. 59)
- » Our Sponsorship and Donations Committee, which aims to ensure that our CSI spending is carried out in a transparent and efficient way

Africa

In Africa, our Safety, Health and Sustainability (SHS) performance is reported on a monthly basis to regional Executive Committee members, including ERG Africa's CEO; site General Managers; site SHS managers; and selected senior employees. Participants in this process meet to analyse and discuss the cause of serious incidents, as well as preventative measures.

The implementation of such measures is monitored by managers on a quarterly basis until issues are resolved. Specific attention is given to:

- » The causes of incidents
- » Environmental compliance
- » Progress against internal/external audit reports
- » Corporate social responsibility
- » Artisanal and small-scale mining
- » Human rights

At our operations in the DRC, we operate a formal Safety and Hygiene Committee as required under local law.



KEY EXTERNAL MANAGEMENT SYSTEM STANDARDS APPLIED BY ERG IN KAZAKHSTAN

OHSAS 18001	Occupational health and safety management system standard
ISO 50001/ EN 16001	Energy management system standard ¹
ISO 14001	Environmental management system standard
ISO 9001	Quality management system standard

KEY EXAMPLES OF GROUP AND REGIONAL LEVEL PARTICIPATION IN MULTI-STAKEHOLDER ORGANISATIONS

Level of participation	Organisation
Group	<ul style="list-style-type: none"> » World Economic Forum (Strategic Partner Associate), including: <ul style="list-style-type: none"> • Global Battery Alliance (founding member) • Partnering Against Corruption Initiative • The Global Platform for Shaping the Future of Inclusive Economies and Societies » International Chromium Development Association » United Nations Global Compact (as of March 2019)
Kazakhstan	<ul style="list-style-type: none"> » Eurasian Industrial Association » Association of Mining and Metallurgical Enterprises » National Chamber of Entrepreneurs of Kazakhstan 'Atameken' » Association of Taxpayers of Kazakhstan » Kazakhstan Foreign Investors' Council » Kazakhstan for Sustainable Development Association
DRC and Zambia	<ul style="list-style-type: none"> » Cobalt Institute (UK – Board representation) » Chamber of Mines of the DRC » Chamber of Mines of Zambia » Zambia Institute of Human Resource Management
Brazil	<ul style="list-style-type: none"> » Brazilian Mining Institute » Bahia Ports User Association » Federation of Industries of the State of Bahia » Agency for Technological Development of the Brazilian Mining Industry

¹ Energy-generating assets only (i.e. Kazchrome, SSGPO, EEC and Aluminium of Kazakhstan).

ANNEX

Management approach

Our Values

In 2018, we went through an extensive process to define a common set of corporate Values. These reflect how we want to do business and will help guide us on our journey towards true business sustainability. Our Values will be applied in every decision we make, at all levels of our business:

- » Safety
- » Unity
- » Efficiency
- » Development
- » Responsibility

How we manage our workforce

Our commitment

We are committed to delivering a safe, attractive, productive and stable working environment for all our employees and contractors. Our commitments in this regard are supported by the requirements of our Health, Safety and Environment (HSE) Policy Statement, Human Rights Policy and our Code of Conduct.

Our HSE Policy Statement commits us to:

- » Continually improving our performance
- » Assessing and managing our risks
- » Carrying out training, communication and reporting
- » Implementing audit and review processes

Under our Human Rights Policy, we are committed to respecting universally recognised human rights and labour standards. The policy includes commitments in relation to:

- » The provision of safe and healthy work conditions
- » Respect for employees' rights to freedom of association and collective bargaining
- » The provision of a secure work place
- » The prevention of forced and child labour
- » Respect for equality, diversity and non-discrimination

These commitments are supported by the terms of our Code.

Implementation of our commitments

In Kazakhstan, our overall approach to employee management is executed through entity-level human resource policies and frameworks. Our Staff and Remuneration Committee in Kazakhstan, which meets on a monthly basis, supports regional-level coordination in relation to a range of areas, including: organisational planning; recruitment; employee motivation; remuneration; talent management and social benefits.

Furthermore, our operations in Kazakhstan are certified to the OHSAS 18001 occupational health and safety management systems standard.

In 2018, we began the process of developing an integrated, risk-based occupational and process safety management system in Kazakhstan (p. 35).

We apply an SHS management system at our African operations that is informed by OHSAS 18001.

At our Bahia Mineração (BAMIN) iron ore project in Brazil, we have established health and safety procedures that apply to both our employees and contractors.

We respect the right of our employees to join trade unions and bargain on a collective basis. More than 90% of our employees across the Group are trade union members.

Emergency preparedness

Emergency preparedness plans have been rolled out across our entities in Kazakhstan. We conduct regular emergency scenario exercises in line with these plans as well as periodic risk assessments. This helps ensure the competency of our emergency response teams, identify additional training needs and ensure our response equipment is fit for purpose.

In Africa, we maintain an emergency management system procedure which forms part of our integrated SHS management system.

Emergency response plans will also be developed during the execution phase of our BAMIN iron ore project in Brazil.

How we manage our interactions with local communities

Our commitments

We are fully committed to supporting community investment programmes that maximise our positive socio-economic impacts. In line with our Group Corporate Social Responsibility (CSR) Projects and Sponsorship Policy, we focus on a range of issues including:

- » Infrastructure and social welfare
- » Education and support for youth initiatives
- » Sports and promotion of healthy lifestyles
- » Community training and development programmes

This is supported by close, ongoing community engagement to help us align our programmes with community concerns, needs and aspirations (p. 51).

We are equally committed to minimising our negative impacts on local communities. In line with our Group Human Rights Policy, this includes:

- » Respecting the rights, cultural heritage and customs of local communities
- » Engaging with local communities to assess the potential impact of our activities – including a focus on risks, impacts, remediation, mitigation and monitoring
- » Integrating engagement feedback into project planning and community investment activities
- » Seeking to avoid involuntary resettlements, and, where this is unavoidable, constructively engaging with local communities in line with relevant laws and international standards

We manage artisanal and small-scale mining (ASM) activity at our operations in the DRC through an integrated SHS Management System which includes:

- » A dedicated ASM Policy
- » Related ASM procedures, including those concerning:
 - Engagement with ASM communities and relevant governmental authorities
 - The responsible management of ASM activities on our concessions (where it takes place). This includes procedures to ensure our operations do not purchase or profit from ASM-sourced ore

Implementation of our commitments

In Kazakhstan, we implement our Group CSR Projects and Sponsorship Policy through a systematic process framework. This ensures a comprehensive, well-targeted approach to the identification, implementation, monitoring and review of our community investment.

Community investment in our operating regions in Kazakhstan takes place through two channels:

- » **Direct social investment:** Targeted at maximising our positive impacts and minimising our negative impacts on local communities
- » **Social partnership investment:** Negotiated strategic partnerships (or 'memoranda of understanding') with local authorities targeted at broader socio-economic development of local communities (some of which are undertaken as part of our licensing obligations)

In Africa, we implement an SHS management system. Amongst other things, this provides a systematic framework to:

- » Identify, assess and manage negative impacts on communities
- » Manage, monitor and control community grievances and issues
- » Maintain open and enduring relationships with community leaders
- » Proactively engage and consult with communities through the project lifecycle
- » Recognise the value of cultural heritage and cultural diversity, and protect cultural sites
- » Identify and support the development of sustainable social projects, with a focus on education, health, alternative livelihoods and the prevention of child labour

How we manage our environmental impacts

Our commitment

We are committed to preserving and maintaining healthy, natural environments through the application of sustainable practices wherever we operate. Our commitment is supported by the requirements of our Group Health, Safety and Environment (HSE) Policy Statement, which, amongst other things, requires us to:

- » Develop, implement and improve HSE management systems and programmes that are consistent with international best practice
- » Ensure the accountability of senior ERG managers at all sites for improving HSE performance through risk assessment
- » Ensure that all personnel understand their HSE responsibilities
- » Ensure HSE issues are taken into account in business planning and decision-making

This is supplemented by ERG Africa's Safety, Health and Sustainability (SHS) Policy, under which we have committed to:

- » Systematically identify, assess and manage all negative environmental impacts
- » Strive for continuous improvement in environmental performance through the 'plan, implement, check and review' steps
- » Minimise pollution, disturbance and/or degradation of ecosystems
- » Comply with and, where appropriate, exceed applicable laws and regulations in the countries in which we operate. This includes working towards full compliance with applicable good international industrial practice guidelines, such as the IFC Performance standards and the relevant SHS components of the OECD Guidelines for Multinational Enterprises.

Implementation of our commitments

The majority of our operations in Kazakhstan are certified to the ISO 14001 environmental management systems standard.

In Africa, we are committed to striving to continuously improve our environmental performance and to working towards compliance with relevant international standards. Our existing SHS Management System (embodied in our SHS Management Manual and associated procedures) is informed by the ISO 14001 management system standard.

Community engagement

We recognise the close link between our environmental performance and our social licence to operate, and thus the need for us to engage with our community stakeholders and civil society organisations in a transparent and constructive manner. For example, in Pavlodar (one of our main operating regions in Kazakhstan), we work closely with a range of local community representatives and NGOs on environmental management issues. This includes, for example, multiple community engagement events, such as those relating to biodiversity, conservation, planting and awareness-raising with respect to our environmental management programmes.

Since 2016, we have submitted our environmental monitoring results to the national authorities for publishing via Kazakhstan's National Pollutant Release and Transfer Register, a structured database that provides transparency and facilitates public scrutiny.

In both Kazakhstan and Africa, we also carry out community consultations focused on the environment in the context of our impact assessment activity.





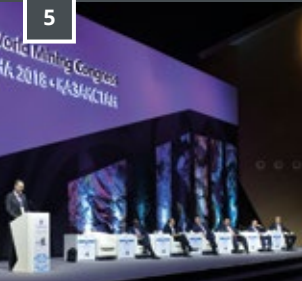
For further information on our environmental and social impact assessment activity (e.g. in relation to significant project changes), please see p. 52.

How we manage our interactions with society

- » Please see relevant content in our Sustainable Development Report 2018 on p. 76.

ANNEX

What are ERG's most material issues and why?

THEME	ISSUE	RELEVANCE TO ERG
Preparing our business for the future 	Transformation	» Support for business sustainability – including through enhanced resilience, effectiveness and decision-making
	Efficiency and innovation	» Support for business sustainability – including through reduced costs, enhanced competitiveness and higher levels of productivity
Helping our people thrive 	Health and safety	» The right thing to do – as well as the maintenance of our operational continuity, efficiency and the motivation of our employees
	Skills capabilities and development	» Maintenance of our ability to generate value and to transform our business by attracting, developing, motivating and retaining high quality, skilled employees
	Labour relations	» Nurturing a productive, positive workplace culture that directly supports our productivity, efficiency and profitability
Community development and well-being 	Community impacts	» Responsible management of ERG's impacts, as well as the maintenance of constructive stakeholder relations
	Community investment	» Maintenance of our social licence to operate and the delivery of positive living standards for our employees in our local communities. This is in addition to the fulfilment of relevant legal obligations required under our operating licences
	Artisanal and small-scale mining	» The delivery of assurance to our customers regarding the provenance and conditions of extraction of our cobalt and copper. This is in addition to the need to address the negative impacts of illegal and/or hazardous ASM activity on our operating environment
Environmental stewardship 	Pollution prevention	» Legal compliance and the maintenance of our social licence to operate through the avoidance/minimisation of our negative environmental impacts
	Energy and climate change	» Compliance with current and/or future emissions regulations, minimisation of future carbon tax liabilities, reduced costs (associated with energy consumption) and the maintenance of our broader social licence to operate
	Waste management	» Compliance and operational continuity requirements around the physical and environmental management of large volumes of waste (including waste rock, tailings, sludges and industrial waste) – plus potential commercial opportunities around waste processing
Our relationship with broader society 	Value generation and distribution (incl. local content)	» The need to generate revenue and profits in order to sustain ERG as a going concern – and achieve future growth
	Compliance	» Compliance with relevant law, the maintenance of the trust of our partners and the protection of our reputation – as well as the enhancement of our operating environments
	Government relations and policy	» The potential impact of governments on ERG revenue generation and profitability via public policy, taxation legislation and regulation – as well as the awarding of new licences. In addition, the status of the Government of the Republic of Kazakhstan as a 40% shareholder in ERG

RELEVANCE TO STAKEHOLDERS	RELEVANT 2025 STRATEGY GOAL	RELEVANT UN SDGS
» Impact on returns, the protection of shareholder/finance provider value and the sustainability of economic value distribution (see below)	Efficiency in all that we do	
» Impact on returns, the protection of shareholder/finance provider value and the sustainability of economic value distribution (see below)	Efficiency in all that we do	
» Protection of employees and contractors from occupational injury and illnesses	Happy and professional team	
» The professional advancement of employees – and their ability to reach their full socio-economic, technical and personal potential	Happy and professional team	
» The delivery of positive working conditions, fair pay and benefits, and a responsive management culture – as well as the meeting of the social needs and living standards of our employees and their families in our mining towns	Happy and professional team	
» The delivery of positive impacts from ERG's operations, as well as the potential for mining (unless properly managed) to undermine the interests of local people	Sustainable development of our host regions	
» The addressing of socio-economic challenges in local communities in Kazakhstan (which are remote, economically undiversified and rely on ERG for employment and public services) and Africa (which lack formal employment opportunities and suffer from high levels of poverty)	Sustainable development of our host regions	
» The addressing of negative social and environmental impacts linked to illegal and/or hazardous ASM activity on artisanal diggers, local communities and the environment. This is in addition to the need to demonstrate high levels of due diligence to customers	Sustainable development of our host regions	
» The potential for ERG activities to result in discharges to the environment that result in possible human and ecological harm in local and downwind/downstream areas	Sustainable development of our host regions	
» The potential for ERG activities to contribute (over the long-term) to climate change and its associated negative environmental and socio-economic impacts	Balanced portfolio growth Sustainable development of our host regions	
» The need to responsibly manage waste that could otherwise result in ground, water or air contamination – and/or catastrophic physical impacts with human and/or environmental consequences	Sustainable development of our host regions	
» The positive economic impact on suppliers, employees, capital providers, government and communities – including associated indirect and induced economic impacts	Sustainable development of our host regions	
» The potential undermining of legitimate economic, social, political and business interests – as well as the broader governance environment. In addition, the avoidance of association with such behaviour and related reputational harm	Compliance is a cross-cutting issue that is relevant to all aspects of our 2025 Strategy	
» The need for transparent and constructive interactions between business and government to avoid the undermining of the legitimate interests of other stakeholders – and to support balanced, well-informed public policy.	Government relations and policy is a cross-cutting issue that is relevant to all aspects of our 2025 Strategy	



ANNEX

Stakeholder engagement overview

Stakeholder engagement

We select stakeholders for engagement on the basis of:

- » Their actual/potential impact on ERG's achievement of its business objectives
- » ERG's actual/potential impact (positive and negative) on them

The identification, prioritisation and engagement of our stakeholders helps us:

- » Understand the impact we have on others
- » Minimise our negative impacts and maximise our positive impacts
- » Monitor the effectiveness of our management activities
- » Understand the risks and opportunities that our stakeholders represent to our business – and how these are affected by our activities
- » Identify and support partnerships

Engagement takes place at the following levels:

- » Corporate level (i.e. strategic issues)
- » Regional level (i.e. strategic/operational issues)
- » Site level (i.e. operational issues)

CATEGORY	STAKEHOLDER GROUP
Commercial 	Customers Suppliers, business partners and contractors
Financial 	Shareholders Lenders
Governments 	National governments Regional governments Regulatory bodies
Society 	Local communities NGOs, civil society organisations and media
Workforce 	Broader society Employees and their representatives Senior managers



ENGAGEMENT CHANNEL	ISSUES OF INTEREST	RELEVANT REPORT SECTION
<ul style="list-style-type: none"> » Interaction relating to product development » Responding to customer surveys 	<ul style="list-style-type: none"> » Supply stability/predictability » Product quality/price » Responsible production of cobalt 	1, 3
<ul style="list-style-type: none"> » Engagement through business associations and initiatives » Ongoing dialogue in relation to health and safety, training and auditing of performance 	<ul style="list-style-type: none"> » Contract stability » Predictable payments 	1
<ul style="list-style-type: none"> » Updates to website, posting news, statements and operational reports » Meetings and road shows » Engagements focusing on financial services, their structure, volumes and value 	<ul style="list-style-type: none"> » Sustainable business development » Dividend generation » Corporate reputation » Cost performance 	1
<ul style="list-style-type: none"> » Engagement regarding the issuing of permits, compliance with regulations and supervision of activities » Development of regulations and public policy » Development of business/government partnerships (e.g. memoranda of understanding in Kazakhstan) » Implementation of projects for socio-economic development 	<ul style="list-style-type: none"> » Business performance » Successful project execution » Borrower risks » Interest payments and principal debt 	1
<ul style="list-style-type: none"> » Engagement regarding the issuing of permits, compliance with regulations and supervision of activities » Development of regulations and public policy » Development of business/government partnerships (e.g. memoranda of understanding in Kazakhstan) » Implementation of projects for socio-economic development 	<ul style="list-style-type: none"> » Development of domestic skills and capabilities » Innovative production approaches » Legal/fiscal regime for mining in the DRC 	1, 2, 5
<ul style="list-style-type: none"> » Development of regulations and public policy » Development of business/government partnerships (e.g. memoranda of understanding in Kazakhstan) » Implementation of projects for socio-economic development 	<ul style="list-style-type: none"> » Regional socio-economic development 	2, 3
<ul style="list-style-type: none"> » Public hearings and meetings » Socio-economic surveys » Community social investment projects » Information in local media » Participatory Rural Appraisals 	<ul style="list-style-type: none"> » Environmental impacts, including emissions to air » Workplace fatalities and injuries 	2, 3, 4, 5
<ul style="list-style-type: none"> » Public hearings and meetings » Socio-economic surveys » Community social investment projects » Information in local media » Participatory Rural Appraisals 	<ul style="list-style-type: none"> » Quality of life » Employment generation » Emissions to air » Access to water » Security and artisanal and small-scale mining in the DRC 	1, 3, 4, 5
<ul style="list-style-type: none"> » Membership in industry sector initiatives » Multi-stakeholder initiatives and partnerships » Implementation of CSI projects » Press releases and other publications on CSI projects, financial information, information on project development 	<ul style="list-style-type: none"> » Information access and transparency » Business ethics » ENRC legacy impacts in the DRC 	3, 5
<ul style="list-style-type: none"> » Press releases and other publications on CSI projects, financial information, information on project development 	<ul style="list-style-type: none"> » Environmental impacts » Employment generation 	1, 4
<ul style="list-style-type: none"> » Ongoing dialogue between the management and teams » Internal communication channels (Intranet, corporate publications, internal events, etc.) » Suggestions for ideas to improve productivity » Meetings and surveys 	<ul style="list-style-type: none"> » Conditions of employment » Training and development » Occupational health and safety » External living conditions for employees and families 	2
<ul style="list-style-type: none"> » Ongoing dialogue through established industrial relations channels » Collective bargaining agreements Accident investigations 	<ul style="list-style-type: none"> » Skills development » Professional development 	2

ANNEX

GRI Index Table

The following table presents the selection of GRI Standards Disclosures and GRI G4 Mining and Metals Sector Disclosures that were used to guide the contents of ERG's 2018 Sustainability Report.

GRI Standards 102: General Disclosures

Disclosure No.	Disclosure description	Page	Comment
Organisational profile			
102-1	Name of the organisation		Front and back cover; throughout the report
102-2	Activities, brands products and services	2-3, 6-11	
102-3	Location of headquarters		ERG's headquarters are in Luxembourg
102-4	Location of operations	2-3	
102-5	Ownership and legal form	77	
102-6	Markets served	2-3, 6-7	
102-7	Scale of the organisation	Inside front cover, 2-3, 6-7, 10-11, 25-28, 34	
102-8	Information on employees and other workers	Inside front cover, 34	
102-9	Supply chain	6-9, 12-13, 22-31, 62-65	
102-10	Significant changes to the organisation and its supply chain	6-9, 12-13, 22-31, 62-65	
102-12	External initiatives	3, 5, 14-15, 62-65, 90-91	
102-13	Membership of associations	93	
Strategy			
102-14	Statement from senior decision-maker	4-5	
102-15	Key impacts, risks and opportunities	6-7, 12-17, 51-53	
Ethics and integrity			
102-16	Values, principles, standards, and norms of behaviour	5, 84-85, 94-95	
Governance			
102-18	Governance structure	92-93	
102-21	Consulting stakeholders on economic, environmental and social topics	18, 44-47, 90-91, 93-95, 98-99	
102-22	Composition of the highest governance body and its committees	92	
102-29	Identifying and managing economic, environmental, and social impacts	25-28, 45-47, 51-53, 71, 79, 94-97	
102-30	Effectiveness of risk management processes	16-17, 86-87	
102-31	Review of economic, environmental, and social topics	18-19	



Disclosure No.	Disclosure description	Page	Comment
Stakeholder engagement			
102-40	List of stakeholder groups	98-99	
102-41	Collective bargaining agreements	44, 47	
102-42	Identifying and selecting stakeholders	18, 98-99	
102-43	Approach to stakeholder engagement	18-19, 99	
102-44	Key topics and concerns raised	19, 99	
Reporting practice			
102-46	Defining report content and topic boundaries	Inside front cover	
102-47	List of material topics	19, 96-97	
102-48	Restatements of information		None
102-49	Changes in reporting		None
102-50	Reporting period		1 January 2018 – 31 December 2018
102-51	Date of most recent report		August 2018
102-52	Reporting cycle		Annual
102-53	Contact point for questions regarding the report		sdreport@erg.net
102-54	Claims of reporting in accordance with the GRI Standards		This report is guided by the GRI Standards and the GRI G4 Mining and Metals Sector Disclosures. It does not make a 'GRI-referenced' claim nor an 'in accordance' claim
102-55	GRI content index		This GRI table
102-56	External assurance	Inside front cover	The report has not been subject to third party assurance
GRI Standards 200: Economic Disclosures			
Management approach			
103-1	Explanation of the material topic and its boundary	18-19, 96-97	
103-2	The management approach and its components	78-79, 82-83, 94-95	
103-3	Evaluation of the management approach	78-79, 82-83, 94-95	
Economic performance			
201-1	Direct economic value generated and distributed	79-81	
Indirect economic impacts			
203-1	Infrastructure investments and services supported	54-59, 82-83	
203-2	Significant indirect economic impacts	54-59, 82-83	
Procurement practices			
204-1	Proportion of spending on local suppliers	79, 81	

ANNEX

GRI Index Table continued

GRI Standards 200: Economic Disclosures continued

Disclosure No.	Disclosure description	Page	Comment
Anti-corruption			
205-1	Operations assessed for risks related to corruption	89	
205-2	Communication and training about anti-corruption policies and procedures	86-89	
205-3	Confirmed incidents of corruption and actions taken	89	None
Anti-competitive behaviour			
206-1	Legal actions for anti-competitive behaviour, antitrust, and monopoly practices	89	None

GRI Standards 300: Environmental Disclosures

Management approach			
103-1	Explanation of the material topic and its boundary	18-19, 96-97	
103-2	The management approach and its components	68-75	
103-3	Evaluation of the management approach	68-75	
Energy			
302-1	Energy consumption within the organisation	7, 71-72	
302-2	Energy consumption outside of the organisation	7, 71-72	
302-4	Reduction of energy consumption	30, 66, 71-72	
Water and effluents			
303-1	Interactions with water as a shared resource	53, 56-59	
303-2	Management of water discharge-related impacts	68-69	
303-3	Water withdrawal	7	
Emissions			
305-1	Direct (Scope 1) GHG emissions	72	
305-2	Energy indirect (Scope 2) GHG emissions	72	
305-5	Reduction of GHG emissions	72	
Effluents and waste			
306-4	Transport of hazardous waste	73-75	



GRI Standards 400: Social Disclosures

Disclosure No.	Disclosure description	Page	Comment
Management approach			
103-1	Explanation of the material topic and its boundary	18-19, 96-97	
103-2	The management approach and its components	34-43, 44-47, 50-65, 94-95	
103-3	Evaluation of the management approach	34-43, 44-47, 50-65, 94-95	
Employment			
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	45	
Occupational health and safety			
403-1	Occupational health and safety management system	4, 35, 37, 40, 94	
403-2	Hazard identification, risk assessment, and incident investigation	35-39	
403-3	Occupational health services	35-39	
403-4	Worker participation, consultation, and communication on occupational health and safety	35-40	
403-5	Worker training on occupational health and safety	36-40	
403-6	Promotion of worker health	38	
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	39-40	
403-9	Work-related injuries	39	
403-10	Work-related ill health	38	
Training and education			
404-2	Programs for upgrading employee skills and transition assistance programs	42-43	
404-3	Percentage of employees receiving regular performance and career development reviews	43	
Non-discrimination			
406-1	Incidents of discrimination and corrective actions taken	47	None
Freedom of association and collective bargaining			
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	47	None

ANNEX

GRI Index Table continued

GRI Standards 400: Social Disclosures continued

Disclosure No.	Disclosure description	Page	Comment
Child labour			
408-1	Operations and suppliers at significant risk for incidents of child labour	61, 85, 94	
Forced or compulsory labour			
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labour	85	
Security practices			
410-1	Security personnel trained in human rights policies or procedures	53	
Human rights assessment			
412-1	Operations that have been subject to human rights reviews or impact assessments	64, 85	
412-2	Employee training on human rights policies or procedures	85	
412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	64	
Local communities			
413-1	Operations with local community engagement, impact assessments, and development programs	52-53, 94-95	
413-2	Operations with significant actual and potential negative impacts on local communities	52-53, 94-95	
Public policy			
415-1	Political contributions	91	None
Socio-economic compliance			
419-1	Non-compliance with laws and regulations in the social and economic area	89	None



GRI G4 Mining and Metals Sector Supplement Disclosures

Indicator	Indicator description	Page	Comment
Labour/management relations			
MM4	Number of strikes and lock-outs exceeding one week's duration, by country	47	None
Local communities			
MM6	Number and percentage of significant disputes relating to land use, customary rights of local communities and indigenous peoples	53	
MM7	The extent to which grievance mechanisms were used to resolve disputes relating to land use, customary rights of local communities and indigenous peoples, and the outcomes	52-53, 61, 64	
Emergency preparedness¹			
DMA	Report on the existence of emergency plans, how they are prepared (consultation, rehearsal, regular review and modification), and their content (arrangements for the management of crises should they arise)	39, 94	
Artisanal and small-scale mining¹			
MM8	Number and percentage of company operating sites where artisanal and small-scale mining (ASM) take place on, or adjacent to, the site; the associated risks and the actions taken to manage and mitigate these risks	26, 60-61	
Resettlement¹			
MM9	Sites where resettlements took place, the number of households resettled in each, and how their livelihoods were affected in the process	52, 59	
Closure planning¹			
DMA	Report the scope of closure planning; its associated financial provision, and its coverage of health, safety, social, environmental, legal, governance and human resource aspects.	52	
Materials stewardship¹			
DMA	Report on programs and progress relating to materials stewardship	4, 26-27, 62-63	

DMA: Disclosure on management approach.

¹ Represents sector-specific aspects, which may or may not contain indicators.

NOTES

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