

# Resilient, agile and delivering societal value

Eurasian Resources Group S.à r.l.  
Sustainable Development Report 2022



We are a global metals and mining company, with a workforce of around 69,000<sup>1</sup> and integrated exploration, mining, processing, energy and logistics operations in Kazakhstan, Africa and Brazil. We are a major supplier of critical minerals that are enabling the global energy transition.

### 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 unlock the potential of the Earth and its people, ensuring the prosperity of those who rely on us.

### OUR VALUES



Safety



Unity



Efficiency



Development



Responsibility

For further details on our Values see p. 75

### YEAR AT A GLANCE

#### Financial

\$3,392<sub>M</sub>

Underlying EBITDA  
(2021: \$4,210M)

\$7,924<sub>M</sub>

Revenue  
(2021: \$8,530M)

\$481<sub>M</sub>

Free cash flow  
(2021: \$1,830M)

#### Operational

1,553<sub>kt</sub>

Ferroalloys production  
(2021: 1,540kt)

23<sub>kt</sub>

Saleable cobalt  
hydroxide production  
(2021: 20.7kt)

100<sub>kt</sub>

Saleable copper  
metal production  
(2021: 95kt)

#### Sustainability

0.91

Lost time injury  
frequency rate (LTIFR)  
(2021: 0.93)

29.9<sub>Mt CO<sub>2</sub>e</sub>

GHG emissions  
(2021: 30.3Mt CO<sub>2</sub>e)

\$7,254<sub>M</sub>

Economic value  
distributed  
(2021: \$6,240M)



For more information visit [eurasianresources.lu](https://eurasianresources.lu)

<sup>1</sup> Excluding contractors.



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Resilience



p. 9

Agility



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Societal value

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### About this report

This annual Sustainable Development Report covers ERG's sustainability performance during the 2022 calendar year. This includes ERG's mining, processing, power generation, project development and transportation.

This report has been prepared with reference to the Global Reporting Initiative (GRI) Standards, and is focused on our most material Sustainable Development issues (p. 15). Its content has not been subject to third-party assurance, but has been subject to internal validation and verification.

ERG is a signatory to the United Nations (UN) Global Compact Principles – and this report supports our ongoing commitment to report on our progress in implementing the same.

Please note that this report is produced in English, Kazakh, Russian and Chinese. 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.

This document includes forward-looking statements. For more information, please refer to the inside back cover of this document.

Please note that the scales / borders of any maps in this report are indicative only.

We welcome feedback on this report. Please forward any comments or requests for additional information to [sd.report@erg.net](mailto:sd.report@erg.net).

## ERG AT A GLANCE

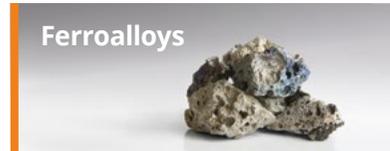
# A diversified resources group, positioned for the energy transition

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 substantial supplier of iron ore, aluminium and alumina in Eurasia, as well as a provider of energy, railway services and industrial equipment.

Our Metalkol operation in the DRC is the world's second largest producer of cobalt. Furthermore, we are a major producer of copper in the DRC, with development projects focused on other minerals and metals in Mali, Mozambique, South Africa and Zimbabwe. We also operate a cross-border road haulage business in the region, SABOT.

In Brazil, we are continuing to develop our BAMIN integrated iron ore mining and logistics operation.

### OUR DIVISIONS



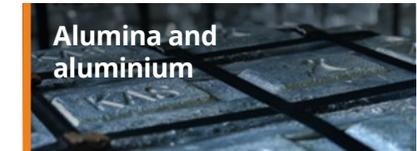
**\$2,813M**  
Revenue

**\$1,465M**  
EBITDA



**\$1,122M**  
Revenue

**\$435M**  
EBITDA



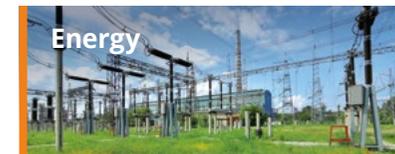
**\$1,178M**  
Revenue

**\$303M**  
EBITDA



**\$2,392M**  
Revenue

**\$1,028M**  
EBITDA



**\$657M**  
Revenue

**\$196M**  
EBITDA



**\$303M**  
Revenue

**\$60M**  
EBITDA

### WHAT MAKES US DIFFERENT



> A diversified portfolio, with low-cost operations and significant growth potential



> Integrated mining, processing, energy, logistics and marketing operations



> One of the world's largest suppliers of responsibly produced cobalt



> A diverse and long-standing global customer base



> Participation in China's Belt and Road Initiative – strategically positioned in the heart of Eurasia



> An enduring presence in Kazakhstan, with a global operational footprint

## ERG AT A GLANCE

# Our global footprint

- Production regions: Brazil | DRC | Kazakhstan | Zambia<sup>1</sup>
- Development regions: Mali | Mozambique | Saudi Arabia | South Africa | Zimbabwe



KAZAKHSTAN

Kazakhstan is home to the majority of our operations and workforce. It hosts a number of ERG's businesses, including Kazchrome, SSGPO, Kachary Ruda, Aluminium of Kazakhstan, Kazakhstan Aluminium Smelter (KAS), Eurasian Energy Corporation (EEC), Shubarkol Komir, 3-Energoortalyk, Transcom and ERG Service. In addition to its other outputs, the region produces aluminium and ferroalloys, which are playing an important role in the global energy transition.

### Key products and services

Ferroalloys, Iron ore, Alumina, Aluminium, Energy, Logistics

### Employees

64,246

### Economic value distributed

\$4,339M

### LTIFR

0.99

**Sustainability context:** We are focused on improving socio-economic conditions in our remote mining towns, as well as the improvement of our air quality performance. Beyond this, we make an important contribution to national-level socio-economic development (p. 40). We also recognise the importance of reducing our greenhouse gas (GHG) emissions in the country, including through the development of renewable energy projects (p. 51).



AFRICA

Metalkol reprocesses historic tailings in the DRC and is a major global cobalt producer – as well as producing copper metal. Our Frontier mine sits on the DRC / Zambia border and produces copper sulphide concentrate. In December 2022, we restarted production at our Boss Mining cobalt and copper operation in the DRC<sup>2</sup>. Our SABOT logistics business serves our own operations as well as third-party customers.

### Key products and services

Cobalt, Copper, Logistics

### Employees

4,062

### Economic value distributed

\$1,858M

### LTIFR

0.26

**Sustainability context:** None of our production comes from artisanal and small-scale mining. Nonetheless, we are addressing some of the challenges that can be linked with this activity. In addition, Metalkol is reducing the environmental impact of historic tailings deposits by reprocessing them and storing them safely. In 2022, the RMI's RMAP assessment was completed at Metalkol, which was found to conform to the relevant RMI standards (p. 65).



BRAZIL

Our integrated BAMIN operation in the state of Bahia consists of the Pedra de Ferro iron mine (which offers particularly high quality ore), a stretch of the FIOLE transcontinental railway and the Porto Sul deep-water port. It represents one of the largest infrastructure development projects in Brazil, with planned production of 26 million tonnes of iron ore.

### Key products

Iron ore

### Employees

277

### Economic value distributed

\$235M

### LTIFR

0.0

**Sustainability context:** As a major infrastructure project, BAMIN requires the close management of its environmental and social impacts. It is expected to generate significant economic benefits for the state, including through the establishment of a major, shared logistical corridor (p. 22), and will export high-grade, low-impurity iron ore.

### Corporate offices

Europe: Amsterdam | Luxembourg | Steinhausen

Asia: Astana | Beijing

Africa: Johannesburg | Lubumbashi | Mauritius

Middle East: Dubai | Jeddah

South America: Salvador

<sup>1</sup> Our Chambishi Metals operation in Zambia is currently in care and maintenance.

<sup>2</sup> Note that in June 2023, operations at Boss Mining were temporarily suspended. See p. 38 for further details.

# Positioning ourselves for the future



We continued to position our business to help drive the global energy transition and benefit from what we believe will be a sustained commodity super-cycle

In 2022, we again demonstrated our ability to navigate a range of external challenges – including a fall in commodity prices, higher interest rates and the ongoing conflict between Russia and Ukraine. We acted with resilience and agility, helping limit the impact of these factors on our operational and financial performance.

At the same time, we continued to position our business to help drive the global energy transition and benefit from what we believe will be a sustained commodity super-cycle.

We also continued to advance our efforts to apply international best practice – including with respect to emissions to air, responsible value chains, human rights due diligence and tailings management.

Nonetheless, it is with great sorrow that I report the loss of five of our employees and two contractors in work-related safety incidents in Kazakhstan. Each of these incidents represents an unacceptable failure and the elimination of fatalities remains our top priority. It is in this context that we are implementing a range of targeted initiatives to enhance safety across our global operations.

This includes a major five-year programme focused on strengthening our safety performance in Kazakhstan, which we plan to launch in 2023 (p. 29). Sadly, another colleague also died due to COVID-19. On behalf of the whole team, I would like to express our heartfelt condolences to the families, colleagues and friends of those who have passed away.

Similarly, it was with shock that I heard about the flooding in the DRC that affected Boss Mining and its nearby communities in March 2023. We worked with local people, relevant authorities and civil society to provide support to those impacted and to establish the facts around the natural disaster.

## BUSINESS PERFORMANCE

At the end of 2022, we experienced an almost 20% drop in our EBITDA, although this was on the back of a 108% increase in 2021. Our performance in 2022 reflected a 7% drop in revenues, due to the suspension of iron ore shipments to Russia, a surplus in the cobalt market and lower iron ore and copper prices, amongst other factors.

Nonetheless, Standard and Poor's upgraded our credit rating from B- to B and Moody's reaffirmed our B1 credit rating (both with stable outlooks).

While we increased production of copper metal (5%) and cobalt hydroxide (9%), we reduced iron ore production (-29%) in response to the suspension of exports to Russia. We also experienced a drop in aluminium production (-5%) due to a now-resolved operational incident at KAS, and reduced copper concentrate production (-12%) in line with our mine plan at Frontier in the DRC.

## SUSTAINABLE DEVELOPMENT PERFORMANCE

### Developing a resilient, future-ready business

In 2022, we initiated an internal restructuring to delegate more management responsibility to our regions. This will support well-targeted, region-specific decision-making and organisational efficiency.

We renewed our focus on growth and asset maintenance, increasing capex by 54%. This reflected deferred capex from 2021, as well as investment in our existing operations in Kazakhstan to ensure they are operationally, commercially and environmentally fit for the future.

Importantly, this increase in capex is also supporting our strategic efforts to grow production in Africa (with plans to double copper and cobalt output in the DRC), further develop our BAMIN operation in Brazil and build up our renewable energy capabilities.

Similarly, we are ramping up exploration activities in our existing operating regions and are also exploring new opportunities in Saudi Arabia. This includes the targeting of 'future-focused' minerals, ranging from copper through to rare earth metals.

Collectively, our efforts will help us meet a huge projected increase in demand driven by the energy transition and support growing global efforts to secure reliable supplies of responsibly produced critical minerals.

## CEO STATEMENT continued

### Focusing on our carbon intensity

We are planning to improve our long-term carbon intensity by gradually reducing our reliance on coal-generated power in Kazakhstan, as well as enhancing our energy efficiency and developing renewable energy projects. Notably, we plan to commission our 155MW Khromtau-1 wind power project near Donskoy GOK in 2024. In addition, we are applying an internal carbon price in Kazakhstan to support our longer-term decarbonisation efforts. This is, however, taking place against a backdrop of short-term national energy shortages in Kazakhstan, meaning we have increased coal-powered generation to help satisfy the country's current supply gap.

### Promoting responsible mineral value chains

I am proud of the role that ERG is playing in driving transparent, responsible and collaborative mineral value chains.

In 2022, Metalkol was subject to its first Responsible Minerals Initiative (RMI) Responsible Minerals Assurance Process (RMAP) assessment, which found it to be in conformance with the relevant RMI standards. This status was reconfirmed in 2023. In addition, we published our second and third Metalkol Clean Cobalt and Copper performance reports (with accompanying third-party assurance statements from PwC) in July 2022 and June 2023, respectively.

We continued to play a leading role in the Global Battery Alliance (GBA), an over 140-member multi-stakeholder organisation that was co-founded by ERG.

I was pleased to see the piloting of the world's first Battery Passport proof of concept, which was presented by the GBA at the annual meeting of the World Economic Forum in Davos at the start of 2023. This is designed to give stakeholders high levels of insight into the provenance – and sustainability performance – of battery input materials. We are also highly supportive of the GBA's work with other actors in this space, ranging from the Battery Pass Coalition through to the Sustainable Markets Initiative (SMI). Indeed, in 2023, it was my honour to be appointed a founding non-executive director of the SMI as it continues to advance the role of the private sector in achieving global sustainability goals.

Our efforts extend beyond battery metals; we continued to apply our Responsible Aluminium Framework, which delivers enhanced assurance with respect to our compliance with the London Metal Exchange (LME) Responsible Sourcing requirements. In addition, Kazchrome received the 'Responsible Chromium Label' from the International Chromium Development Association, as well as a Platinum Award from sustainability ratings agency EcoVadis.

### Supporting and developing our employees

An agile and resilient business needs highly skilled and motivated employees. In Kazakhstan, we provided differentiated pay raises to more than 60,000 employees, improved conditions both inside the workplace and in our mining towns, and expanded our skills development programmes (including a focus on advanced, role-specific skills). This is in addition to the ongoing transformation of our corporate culture, including through our strategic ERG Way Production System.

In Africa, we expanded our employee development programmes to help support increased operational activity (including Phase 2 ramp-up at Metalkol and owner-mining at Frontier), as well as plans for a significant expansion of production in the region. Similarly, in Brazil, where BAMIN holds a Great Place to Work® certification, our recruitment and skills development efforts are directly supporting the ramp-up of our operations.

### Delivering social value to our local communities and host countries

During the year, we distributed a total of US\$7,254 million to our stakeholders on a global basis – including employees, domestic and international suppliers, and host governments (2021: US\$6,240 million). Of this, US\$1,257 million accounted for tax expenses (2021: US\$1,426 million).

Our community social investment (CSI) spending rose to US\$96 million (2021: US\$65.2 million). Significantly, this included a donation of US\$65 million to support the establishment of the Kazakhstan Khalkyna public social fund. Through this and other efforts we are actively supporting the Government of the Republic of Kazakhstan's national-level socio-economic objectives.

Our CSI spending in the country also continues to focus on socio-economic development in our mining towns, youth skills development and the promotion of collaborative governance.

In the DRC, we continued to implement our Commitments Registers, which are helping communities address their own development priorities. This includes a focus on promoting alternative livelihoods (including for artisanal and small-scale mining communities), access to clean water, healthcare and education, amongst other areas.

In Brazil, BAMIN will establish shared railway and port infrastructure in the state of Bahia. This will not only be used to transport our iron ore, but will also carry third-party cargo. As a result, the project is expected to facilitate broader, long-term economic growth in the region. Alongside our CSI contributions this will benefit our local communities, as well as the broader population of Bahia.

### Looking ahead

We are now well positioned for sustained future growth as we continue to build an agile and resilient business that delivers societal value to a broad range of stakeholders. At the same time, we will continue to configure our business to support the global energy transition and ensure we benefit from what is due to be the largest purchase order for responsibly produced metals in history.



**Benedikt Sobotka**  
Chief Executive Officer

## OUR BUSINESS MODEL

# Generating shared value

### INPUTS

Financial capital

Human capital

Social and relationship capital

Natural capital

Manufactured capital

Intellectual capital

### AN INTEGRATED BUSINESS



### OUR PRODUCTS AND HOW THEY ARE USED

#### Future / transition metals



**Cobalt**  
Lithium-ion batteries



**Copper**  
Infrastructure, transport and electronics



**Alumina and Aluminium**  
Infrastructure, construction and transportation

#### Other metals / products



**Ferroalloys**  
Steel industry



**Iron ore**  
Steel industry



**Coal**  
Power generation

### OUR GROUP PERFORMANCE INDICATORS

**\$3,392M**  
Underlying EBITDA

**\$7,924M**  
Revenue

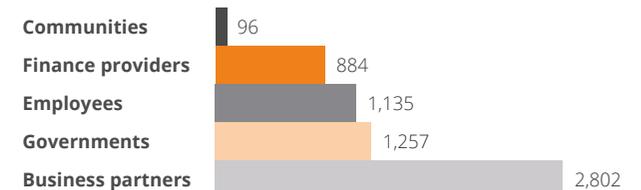
**0.91**  
LTIFR

**68,776<sup>1</sup>**  
Employees

**29.9Mt CO<sub>2</sub>e**  
GHG emissions

**1,989Mm<sup>3</sup>**  
Water withdrawal

### ECONOMIC VALUE DISTRIBUTION (US\$M)



**Total** **\$7,254M<sup>2</sup>**

⊗ For more information on our generation and distribution of value, see p. 56.

⊗ For more information on our broader societal impact, see p. 10.

<sup>1</sup> Excluding contractors.

<sup>2</sup> For the full breakdown of this figure, see table on p. 58.

Values

⊗ See p. 75.

Strategy

⊗ See p. 11.

Governance

⊗ See p. 71.

Stakeholders

⊗ See p. 81.

Risks

⊗ See p. 73.

Material issues

⊗ See p. 15.

We are

# resilient

\$3,392M

underlying EBITDA  
(2021: \$4,210M)

\$481M

free cash flow  
(2021: \$1,830M)

## RESILIENCE: NOW AND IN THE LONG TERM

Despite a range of challenges in 2022, including profound geopolitical change (p. 16), we again demonstrated the financial resilience of our business. This was reflected, amongst other factors, in the maintenance and improvement of our credit ratings (p. 13).

Nonetheless, this challenging backdrop highlighted the need to continue bolstering our financial resilience. In this context, we:

- Reduced our overall debt by around US\$240 million
- Continued to diversify our debt portfolio
- Continued to meet all our financial covenants, whilst maintaining compliance with all applicable sanctions (in accordance with our compliance policies) (p. 78)

More broadly, we continued to invest in the sustainability of our business and, by extension, our long-term resilience. This included:

- Significant investment in our existing operations in Kazakhstan, with a focus on maintaining production volumes, building a long-term resource base and reducing costs in future (p. 19)
- Developing our renewable energy capabilities in Kazakhstan, as part of our longer-term decarbonisation efforts (p. 51)
- Expanding our exploration activities in Kazakhstan and Africa, and exploring opportunities in Saudi Arabia (p. 19)
- Ramping up Phase 2 production at Metalkol in the DRC (p. 20)
- Preparing for the potential expansion of our world-class BAMIN integrated iron ore and logistics operation in Brazil (p. 22)

We also commenced the organisational restructuring of our business to further support our long-term resilience. This is focused on the delegation of management responsibility to our regional functions to drive effective decision-making.



We are

# agile

Reconfiguration of  
finance relationships

Redirection of products  
to new markets

## EFFECTIVELY NAVIGATING GEOPOLITICAL RISK

It was a challenging, dynamic year in terms of geopolitics. This required fast and effective decision-making and active management. Most notably, the military conflict between Russia and Ukraine significantly affected global commodity and finance markets. Several countries and international organisations imposed sanctions on the Russian Government, various companies, major Russian banks and certain individuals.<sup>1</sup> Established commodity flows through Russia and Ukraine were also severely affected by the conflict.

These events have had an impact on ERG, including the sanctioning of some of our lenders, as well as the sanctioning of one of our largest iron ore customers. At the same time, prices for thermal coal increased as multiple European countries sought alternatives to Russian natural gas and coal, while some of our other commodities experienced a more challenging price environment (p. 14).

We have successfully adapted to these challenging circumstances, while maintaining our full compliance with all applicable sanctions. Our strategic Group-wide response was overseen by our dedicated Global Crisis Team (p. 62), with active support from our Compliance team. Key actions included:

- The renegotiation, amendment and / or termination of certain transactions with sanctioned finance providers (p. 13)
- The suspension of commodity shipments to sanctioned customers and the redistribution of sales volumes to alternative markets (p. 13)
- The termination of relationships with sanctioned suppliers, the identification of alternative suppliers and the building up of our inventory of critical production-related components
- The scaling down of activities at our Moscow office in advance of its planned closure

As a result of these and other actions, we have minimised the potential negative impact of these dynamics on our business.

<sup>1</sup> These sanctions were applied by the United States, the European Union, Switzerland and the United Kingdom, amongst others.

We deliver

# societal value

\$7,254M

economic value distributed<sup>1</sup>  
(2021: \$6,240M)

\$96M

Group-wide CSI  
(2021: \$65.2M)

<sup>1</sup> Including CSI.

## Contributing to broader societal value

Powering the energy transition	p. 50
Supporting local content	p. 56
Supporting responsible value chains	p. 65
Driving development in Kazakhstan	p. 18
Building an innovative workforce in Kazakhstan	p. 30
Promoting modern industry in Kazakhstan	p. 18
Improving living conditions in the DRC	p. 43
Catalysing economic growth in Brazil	p. 57

## CREATING SHARED VALUE FOR OUR STAKEHOLDERS AND BEYOND

The global, diversified nature of our business means we deliver societal value at the local, regional and national levels – and across multiple countries.

Our most measurable economic impact comes from our direct distribution of economic value to our stakeholders, including our payment of taxes and wages, local procurement spending and CSI. In turn, this generates indirect and induced economic impacts, including the creation of thousands of jobs and the positive impact of spending by our employees, contractors and suppliers.

Beyond this, the provision of high-quality, responsibly produced minerals and metals to key export markets helps to support third-party economic activity, ranging from infrastructure development to the production of electric vehicles. Indeed, our cobalt, copper and aluminium, as well as ferroalloys are supporting the global energy transition, and carry with them high levels of responsible mineral value chain assurance.

Similarly, in Kazakhstan, the power we generate, the rail services we provide and the machinery we manufacture also benefit a range of domestic and industrial customers.

In addition, our longstanding, deep relationships with our local communities in Kazakhstan – and the fact that ERG is 40% owned by the Government of the Republic of Kazakhstan – means we play a unique role in supporting socio-economic development in our mining towns and operating regions, and make a significant contribution to national-level social investment (p. 45).

Our operations in Africa and Brazil make significant, ongoing contributions to their host countries and communities. This includes our investment in long-term socio-economic development in the DRC, including through our Commitments Registers (p. 43), as well as the role BAMIN is playing in supporting broader regional socio-economic development in the state of Bahia in Brazil (p. 57).

## OUR STRATEGY

# Building a sustainable business

### OUR APPROACH

We believe that Sustainable Development is about more than the responsible management of our environmental, social and governance impacts. It is also about:

- Ensuring our business is resilient, fit for the future and able to generate long-term value
- Achieving the ongoing delivery of benefits to our stakeholders – including employees, shareholders, customers, business partners, local communities and host governments
- Playing our role in the global energy transition by meeting growing demand for key metals such as cobalt, copper and aluminium, as well as ferroalloys (i.e. in the context of new gas, wind and nuclear power generation infrastructure development)

This approach is demonstrated in our 2025 Strategy, which is ultimately aimed at achieving business sustainability.

Furthermore, we are a participant in the UN Global Compact and support the UN Sustainable Development Goals (SDGs).

We have identified relevant SDGs for ERG<sup>1</sup>, selected on the basis of:

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

🔗 See p. 84 in the Appendix for more information on the mapping of our material issues against relevant UN SDGs.

### Embedding sustainability

In 2022, we continued to develop a long-term ESG Strategy. This included the implementation of a formal process to establish 2030 ESG Goals and develop supporting action plans in priority areas.

In addition, we launched a new Sustainability Policy to support the establishment of the principles, approaches and management systems needed to foster a coherent Group-wide approach to sustainability (see: [eurasianresources.lu](https://eurasianresources.lu)).

In early 2023, we also finalised a new Climate Change Impact and Adaptation Management Policy for Kazakhstan. Amongst other things, this sets out our commitment to set medium and long-term GHG emission reduction targets, with the aim of achieving net zero emissions (p. 51).

Our Decarbonisation Think Tank in Kazakhstan, which we established in 2021, acts as a decarbonisation centre of excellence, guides efforts to reduce our carbon intensity and carries out external stakeholder engagement on this crucial issue. We are participating, via the Think Tank, in a range of government-led initiatives to support broader decarbonisation efforts in Kazakhstan.

During 2022, the ESG Committee met four times and reviewed the following issues:

- Health and safety performance
- Sustainability reporting disclosure requirements, including the EU Corporate Sustainability Reporting Directive
- ESG ratings requirements
- Environmental protection
- Energy efficiency programmes
- Reuse and disposal of production waste
- Green financing opportunities

### Sustainable Development principles



Zero harm



Leadership



Accountability



Balance



Integrity



Innovation



<sup>1</sup> 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.

## OUR STRATEGY continued

STRATEGIC PRIORITIES	STRATEGIC GOALS		KEY STAKEHOLDERS	
<p><b>Balanced portfolio growth</b> Steady growth and development of the asset portfolio in Kazakhstan and beyond</p>	<ul style="list-style-type: none"> <li>• Further develop existing assets in Kazakhstan</li> <li>• Increase returns on the existing portfolio of international assets</li> <li>• Optimise our portfolio through new natural resource opportunities and / or divestment</li> </ul>	<ul style="list-style-type: none"> <li>• Further develop the Group's power generation portfolio, including through renewable energy generation and the addition of flexible balancing capacity</li> </ul>	<ul style="list-style-type: none"> <li>• Shareholders</li> <li>• Host governments</li> <li>• Local communities</li> <li>• Customers</li> </ul>	<ul style="list-style-type: none"> <li>• Suppliers / contractors</li> <li>• Finance providers</li> </ul>
<p><b>A happy and professional team</b> Creation of opportunities for the professional and personal growth of our employees and the maintenance of their safety and well-being</p>	<ul style="list-style-type: none"> <li>• Deliver safe working conditions and improve employee health and well-being</li> <li>• Deliver comfortable workplaces</li> <li>• Improve ERG's employee proposition, including enhanced employee benefits</li> </ul>	<ul style="list-style-type: none"> <li>• Further enhance our corporate culture</li> <li>• Develop our strategic skills and competencies, including our talent pool and leadership pipeline</li> </ul>	<ul style="list-style-type: none"> <li>• Employees</li> <li>• Host governments</li> </ul>	<ul style="list-style-type: none"> <li>• Regulators</li> <li>• Local communities</li> </ul>
<p><b>Sustainable development of our host regions</b> Contribution to the socio-economic development and well-being of communities in our regions of operation</p>	<ul style="list-style-type: none"> <li>• Improve the well-being and prosperity of communities in our regions of operation</li> <li>• Maintain international environmental standards – including those relating to water, air and soil</li> </ul>	<ul style="list-style-type: none"> <li>• Support entrepreneurship and the development of the business environment in our host countries</li> </ul>	<ul style="list-style-type: none"> <li>• Local communities</li> <li>• Regulators</li> </ul>	<ul style="list-style-type: none"> <li>• Regional governments</li> <li>• Civil society</li> </ul>
<p><b>Efficiency in all that we do</b> A strong focus on pursuing efficiency across the Group</p>	<ul style="list-style-type: none"> <li>• Reduce unit costs by eliminating bottlenecks and improving productivity</li> <li>• Improve organisational effectiveness</li> <li>• Improve sales effectiveness</li> </ul>	<ul style="list-style-type: none"> <li>• Develop a culture of continuous improvement supported by relevant tools and mechanisms</li> </ul>	<ul style="list-style-type: none"> <li>• Shareholders</li> <li>• Customers</li> <li>• Employees</li> </ul>	
<p><b>Financial stability</b> The maintenance of financial resilience, whilst delivering sustainable shareholder returns</p>	<ul style="list-style-type: none"> <li>• Maintain a sustainable level of dividend yield for shareholders</li> <li>• Maintain high returns on invested capital</li> <li>• Achieve and maintain an acceptable level of debt</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain high levels of liquidity to support resilience in the face of changing market conditions</li> </ul>	<ul style="list-style-type: none"> <li>• Shareholders</li> <li>• Finance providers</li> <li>• Employees</li> <li>• Suppliers / contractors</li> </ul>	<ul style="list-style-type: none"> <li>• Host governments</li> <li>• Local communities</li> </ul>

## BUSINESS PERFORMANCE

# Demonstrating resilience in challenging times

### OPERATIONAL PERFORMANCE AND MARKET CONDITIONS

- **Saleable cobalt hydroxide production**  
+8.7%
- **Saleable copper metal production**  
+5.4%

In 2022, we again demonstrated the resilience and agility of our business against a challenging macroeconomic and geopolitical backdrop.

Global industrial commodity demand started to weaken following its post-pandemic surge, and prices for most commodities fell during the year. This reflected the impact of COVID-19 lockdowns in China, rising interest rates in the US and the energy crisis driven by the Russia-Ukraine conflict.

We not only expect these factors to ease in 2023, but believe we are seeing a positive shift in demand for many of our commodities driven by the transition to a lower carbon economy. Most notably, this includes cobalt – with total demand expected to rise by 108% between 2022 and 2030 to almost 388kt.<sup>1</sup> Similarly, global copper demand is projected to nearly double from 25 Mt a year to about 50 Mt a year by 2035 – with a similar level of demand to be sustained thereafter.<sup>2</sup>

Key dynamics relating to our operational performance, as well as broader market trends, are set out in the table on p. 14.

### FINANCIAL PERFORMANCE

- **Maintenance and improvement of our credit ratings in 2022**
- **CAPEX**  
+54.4%

In 2022, our underlying EBITDA decreased by 19.4% to US\$3,392 million, following a 108.1% increase in the previous year (2021: US\$4,210 million). The decrease in 2022 reflected a 7.1% decrease in revenues to US\$7,924 million (2021: US\$8,530 million) that was driven by lower sales volumes of iron ore pellets and concentrate following the suspension of shipments to Russia, as well as lower sales of cobalt due to a market surplus (amongst other factors). Lower production of copper sulphide concentrate, as well as lower prices for iron ore and copper, also affected revenue performance. These factors were partially offset, however, by higher prices for ferroalloys and aluminium – as well as the redistribution of sales volumes to other markets and clients, particularly in China and Kazakhstan.

During the year, we increased capital expenditure by 54.4% to US\$1,135 million (2021: US\$735 million). The increase in capital expenditure was largely directed at realising the full potential of our existing assets and implementing new projects focused on environmental protection, health and safety, transportation and operational equipment.

### Debt position and financing arrangements

In accordance with our compliance policies, ERG renegotiated and amended the terms of certain financing arrangements and also terminated certain transactions and activities with major finance providers that are under sanctions. The Group continues to comply with all sanctions applicable to our business activities.

Adapting to these circumstances has required a range of measures, some of which have involved considerable costs on the part of ERG. These include:

- The termination of a US\$550 million undrawn committed loan facility
- The payment of US\$372 million in connection with the early termination of certain loan and lease facilities
- The payment of US\$218 million in connection with the early termination of commodity derivative contracts
- The deferral of principal and interest payments for a minimum one year and up to three years

In December 2022, we also reached an agreement with the subsidiaries of one of our lenders to establish a sanctions-compliant payment mechanism in order to avoid payment defaults in future.

We are continuing to negotiate with our creditors to ensure we remain compliant with all applicable sanctions.

At the same time, we continue to take steps to diversify our debt portfolio. This includes seeking new sources of finance from Kazakhstan, Eurasia and beyond. In 2022, for example, we signed and utilised a US\$55 million credit facility with the Eurasian Development Bank and agreed a credit line for up to US\$78 million with the Development Bank of Kazakhstan (US\$43 million of which was utilised).

In this context, we continued to pay down our debt position and reduced our overall debt by around US\$240 million compared to the prior year. Despite the challenging context, this has significantly improved our leverage and enhanced our financial stability and resilience.

### Maintenance and improvement of our credit ratings

In June 2022, Standard & Poor's upgraded our credit rating to 'B' from 'B-' with a 'Stable' outlook. This reflected the expectation that ERG will maintain its funds from operations (FFO) to debt ratio at above 20%.<sup>3</sup> Subsequently, in December 2022, Moody's affirmed our B1 rating as well as our 'Stable' outlook, based on the expectation that the Group will not increase its net debt in the coming years.

1 Cobalt Institute, Cobalt Market Report 2021 (published May 2022), [cobaltinstitute.org](https://cobaltinstitute.org).

2 S&P Global, The Future of Copper, July 2022, <https://www.spglobal.com>.

3 Note that in March 2023, Standard & Poor's withdrew ERG's credit rating at our request. The outlook was stable at the point of withdrawal.

## BUSINESS PERFORMANCE continued

### KEY 2022 PRODUCTION AND MARKET DYNAMICS

Division	Product and production trends	Dynamics in 2022
<b>Ferroalloys</b>	<b>Ferroalloys</b> 2022: 1,553kt (net) <span style="color: green;">▲ 0.8%</span> 2021: 1,540kt (net)	<ul style="list-style-type: none"> <li>Marginally higher production of ferroalloys reflected increased output of ferro-silico-manganese at Kazchrome</li> <li>European and US ferrochrome prices hit all-time highs, rising by around 80% and 105% year-on-year, respectively. This reflected supply constraints and the energy crisis linked to the Russia-Ukraine conflict</li> </ul>
<b>Iron ore</b>	<b>Saleable iron ore concentrate and pellets</b> 2022: 11,142kt <span style="color: red;">▼ (29.1%)</span> 2021: 15,722kt <sup>1</sup>	<ul style="list-style-type: none"> <li>Production decreased, reflecting the suspension of shipments to Russia. Sales volumes were partially redistributed to alternative markets, including China and Kazakhstan</li> <li>In addition, production at BAMIN decreased to 643kt as focus was placed on the sale of accumulated stockpiles (2021: 1,008kt)</li> </ul>
<b>Alumina and aluminium</b>	<b>Alumina</b> 2022: 1,338kt <span style="color: green;">▲ 1.7%</span> 2021: 1,315kt <b>Aluminium</b> 2022: 249kt <span style="color: red;">▼ (5.1%)</span> 2021: 262kt	<ul style="list-style-type: none"> <li>Aluminium production decreased due to since-resolved challenges around anode quality and the electrolysis process</li> <li>Alumina production increased marginally, reflecting increased sales to international customers</li> <li>Following a significant deficit in 2021, the aluminium market moved to a more balanced state on the back of supply growth from China</li> </ul>
<b>Cobalt, copper and other non-ferrous</b>	<b>Saleable copper metal</b> 2022: 100kt <span style="color: green;">▲ 5.4%</span> 2021: 95kt <b>Saleable copper concentrate</b> 2022: 91kt <span style="color: red;">▼ (11.6%)</span> 2021: 102kt <b>Saleable cobalt hydroxide</b> 2022: 23kt <span style="color: green;">▲ 8.7%</span> 2021: 21kt	<ul style="list-style-type: none"> <li>Increased copper metal and cobalt hydroxide production reflected the ongoing Phase 2 ramp-up at Metalkol, combined with higher metal recovery rates and grades</li> <li>Saleable copper concentrate production at Frontier decreased in line with the mine plan for Cut 3. In 2022, we started the development of Cut 4 to extend the life-of-mine (p. 20).</li> <li>The LME cash copper price averaged US\$8,797 per tonne, down by 5.6% year-on-year. This was driven by tightening monetary policy in the US, domestic COVID-19 lockdowns in China and the global economic slowdown</li> </ul>
<b>Energy</b>	<b>Coal</b> 2022: 29,967kt <span style="color: green;">▲ 0.3%</span> 2021: 29,891kt <b>Electricity</b> 2022: 15,426 GWh <span style="color: red;">▼ (3.6%)</span> 2021: 16,000 GWh	<ul style="list-style-type: none"> <li>Thermal coal production was similar to the prior year</li> <li>The minor increase reflected higher production at Shubarkol Komir to meet increased domestic and international demand</li> </ul>
<b>Logistics</b>	<b>Logistics (transported)</b> 2022: 45,345kt <span style="color: red;">▼ (13.0%)</span> 2021: 52,139kt	<ul style="list-style-type: none"> <li>Transported freight was lower, reflecting decreased volumes of iron ore products transported to Russia</li> </ul>

<sup>1</sup> Restated.

## OUR MATERIAL ISSUES

# Identifying what matters

**During 2022 and early 2023, we updated and enhanced our materiality assessment to guide both our sustainability reporting and our broader management approach (see box below).**

Our assessment has been informed by evolving best practice, including the requirements of the EU Corporate Sustainability Reporting Directive (CSRD) and the associated draft European Sustainability Reporting Standards (ESRS) prepared by the European Financial Reporting Advisory Group (EFRAG). This includes with respect to the integration of stakeholder input.

Our material issues are prioritised using a quantitative scoring system.

This is based on an ‘inward / outward’ or ‘double materiality’ concept that focuses on:

- **Impact materiality** (or ‘outward’ impact) i.e. ERG’s actual or potential, positive or negative, direct or indirect impacts on people or the environment over the short, medium and long term
- **Financial materiality** (or ‘inward’ impact) i.e. sustainability matters that trigger or could trigger material financial effects on ERG

If an issue does not appear as material, it does not mean it is not relevant or is not being managed, but only that it is not of sufficient significance to be addressed in detail in this report.

## Risk management

Our risk management framework helps us identify and understand potential threats to our business sustainability, as well as related opportunities. Its outputs have helped inform – in the context of our broader materiality assessment process – the identification of our most material sustainable development issues (including insight into potential financial impacts). ERG’s principal risks are set out on p. 73 of the Appendix.

## OVERVIEW OF OUR MATERIALITY ASSESSMENT PROCESS

### 1 Desk-based analysis

The prioritisation of potentially material Sustainable Development issues affecting ERG and / or its stakeholders using internal and external documentation and third-party analysis.

The application of a score-based prioritisation framework that uses the ‘double materiality’ criteria set out above and integrates (amongst other things) relevant outputs from our Group Risk Register, as well as a range of external information sources.

### 2 Internal engagement

Engagement with executives and managers across the Group to verify the results of the desk-based analysis – and to adjust the scores in line with their feedback.

### 3 External engagement

Engagement with external stakeholders to verify the interim results – and adjustment of the scores in line with their feedback. This included:

- Bilateral interviews with 14 stakeholder organisations, including those representing customers, civil society, the mining and metals sector, the battery sector and the development sector
- Electronic surveys completed by a further 44 stakeholder organisations, including those representing customers, suppliers, traders, government and academia

### 4 Validation and finalisation

Internal review and validation of the results, which inform our reporting and broader management approach.

### 5 Reporting

Cross-checking of the results against the GRI Standards to determine how issues should be reported on.

## OUR MATERIAL ISSUES continued

### ASSESSMENT OUTCOMES

The assessment resulted in the higher prioritisation of a number of ERG's most material issues, including:

- **Technology, efficiency and digitalisation.** This reflects our efforts to enhance organisational efficiency and effective decision-making across our Group, including through the delegation of management responsibilities to our regions. It is also driven by stakeholders' recognition of the significant operational opportunities offered by the application of advanced technology and digitalisation not only to our business, but the mining and metals sector more broadly
- **Government relations and policy.** This reflects increased focus in Kazakhstan on promoting broad-based economic development, higher living standards and social harmony – and on how large companies can support the same
- **Responsible value chains.** This reflects growing market focus on the issue, not only with respect to cobalt produced in the DRC, but metals more broadly. There is expected to be a very significant increase in global demand for 'transition metals' and stakeholders (including customers) are demanding higher levels of transparency and assurance to ensure such metals are not indirectly linked to negative social or environmental impacts. It also reflects the growing proportion of ERG's revenues derived from cobalt production and the company's increasingly important role in driving assurance standards across the battery value chain

In addition, **Geopolitics** was included as a new material issue. This reflects the impacts of the conflict between Russia and Ukraine in terms of (for example) international sanctions, logistical disruption and regional shifts in commodity supply / demand. It also reflects the strategic risks and opportunities posed by broader global geopolitical dynamics.

In addition, external stakeholders identified the following 'emerging' issues that the mining and metals sector should consider in future:

- Strategic global geopolitical shifts that have the potential to impact long term trade patterns, as well as the stability of international value chains
- How the industry is going to align with, support and / or benefit from efforts to develop a circular economy in the long-term, including opportunities around recycling, reprocessing and recovery
- Growing focus on more 'holistic' approaches towards the management of 'natural capital', biodiversity and ecosystem services, including a focus on active regeneration
- How the industry can support a 'just transition' in the context of global decarbonisation, including the management of the socio-economic impacts associated with the future closure of coal mining operations
- Evolving approaches towards artisanal and small-scale mining, including a move away from 'exclusionary' approaches and towards support for formalisation, responsible operational / traceability standards and integration into the global value chain



## OUR MATERIAL ISSUES continued

The table below sets out our material issues. Please note, as 'Human rights' cuts across multiple themes (e.g. employees, value chains and local communities), we have integrated it into these areas of analysis where relevant – rather than treating it as a separate issue. An overview of our broader approach to human rights can be found on p. 64.

➤ For further information on our material issues, see p. 79 of the Appendix.

### LIST OF MATERIAL ISSUES<sup>1</sup>

Full list of issues assessed	Material issues identified		
<b>Preparing our business for the future</b> <ul style="list-style-type: none"> <li>Growth and asset maintenance</li> <li>Technology, efficiency and digitalisation</li> <li>Financial performance and value distribution</li> </ul>	<b>Growth and asset maintenance</b> Replenishment and growth of our Mineral Resources and Ore Reserves – as well as the acquisition, development and / or maintenance of production and processing assets that collectively support ERG's business sustainability	<b>Technology, efficiency and digitalisation</b> Enhanced performance through improved and / or innovative technological, operational practices and processes	<b>Financial performance and value distribution</b> The generation of economic value by ERG and the distribution of such value to its stakeholders – plus the impact of market conditions on the financial performance of the business
<b>Helping our people thrive</b> <ul style="list-style-type: none"> <li>Health and safety</li> <li>Talent attraction, development and retention</li> <li>Employee relations</li> <li>Diversity and inclusion</li> </ul>	<b>Health and safety</b> Delivery of a safe and healthy workplace – and the promotion of safe working practices	<b>Talent attraction, development and retention</b> The maintenance of a skilled and capable workforce, as well as the development of our employees	<b>Employee relations</b> Relations with our workforce and their legitimate representatives on salient workplace and non-workplace (e.g. quality of life, family welfare, etc.) issues – and actions to address the same
<b>Community development and well-being</b> <ul style="list-style-type: none"> <li>Community impacts</li> <li>Community social investment</li> <li>Indigenous people</li> </ul>	<b>Community impacts</b> The positive and negative impacts of ERG, its activities and its business partners on local communities (excluding dedicated social investment, which is dealt with separately)	<b>Community social investment</b> Voluntary and / or mandatory spending aimed at enhancing socio-economic conditions in our local communities and countries of operation <sup>2</sup>	
<b>Environmental stewardship</b> <ul style="list-style-type: none"> <li>Managing impacts on air and water</li> <li>Energy and climate change</li> <li>Tailings and broader waste management</li> <li>Responsible closure and transfer</li> <li>Water availability</li> <li>Biodiversity</li> </ul>	<b>Managing impacts on air and water</b> Responsible management of emissions to the environment – including particulates, NOx, SOx, process water and runoff	<b>Energy and climate change</b> The use and / or production of energy in all its forms, as well as the production of associated GHG emissions – plus the impact of climate change on ERG and other stakeholders	<b>Tailings and broader waste management</b> Responsible tailings management – as well as responsible approaches to broader waste generation, management and disposal (e.g. overburden, slag, general industrial waste, etc.)
<b>Our broader role in society</b> <ul style="list-style-type: none"> <li>Ethics and compliance</li> <li>Responsible value chains</li> <li>Government relations and policy</li> <li>Geopolitics</li> </ul>	<b>Ethics and compliance</b> Compliance with regulatory requirements, ERG's compliance commitments and broader business ethics (including human rights)  <b>Responsible value chains</b> The responsible management of indirect supply chain impacts – and the delivery of responsible mineral supply chain assurance	<b>Government relations and policy</b> Relations between ERG, host governments and other third-party governments, including mutual impacts	<b>Geopolitics</b> The impact of international relations, geopolitics and / or conflict, including with respect to sanctions, operational disruption, political risk and market disruption

<sup>1</sup> As 'Governance' and 'Risk management' are integral to all our business processes, and thus to all the issues in the assessment, they are not treated as standalone issues.

<sup>2</sup> Note that community-focused spending linked to our employees is addressed under 'Employee relations'.

# Preparing our business for the future

Financial stability is a priority under our 2025 Strategy. This includes the maintenance of acceptable leverage and sufficient liquidity (p. 13).

Two additional strategic priorities are of particular relevance:

- Efficiency in all that we do, through unit cost reductions, organisational effectiveness and a culture of continuous improvement
- Balanced portfolio growth, through the development of our existing assets, improved asset returns and the development of new opportunities

In addition, we are implementing a range of strategic changes to our Group structure, with the aim of ensuring it supports effective decision-making and promotes organisational efficiency.

## 2022 HIGHLIGHTS

- > Advanced Phase 2 development at our 10<sup>th</sup> Anniversary mine in Kazakhstan
- > Ramped up Phase 2 cobalt and copper production at Metalkol in the DRC
- > Increased exploration activity in Kazakhstan, Africa and Brazil

### Material issues

#### GROWTH AND ASSET MAINTENANCE

➤ See p. 19

#### TECHNOLOGY, EFFICIENCY AND DIGITALISATION

➤ See p. 23



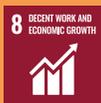
## GROWTH AND ASSET MAINTENANCE

### STRATEGIC CONTEXT

Balanced portfolio growth: Under our 2025 Strategy, we have prioritised steady portfolio growth and development. This includes the development of our assets in Kazakhstan, as well as increased returns on our international assets. Furthermore, we are focused on optimising our portfolio through new natural resource opportunities and / or divestment, while further developing our energy business.

### Relevant UN SDGs

➔ See p. 84 for associated UN Targets



We are pursuing multiple growth projects that will support the long-term sustainability of our business. This includes brownfields and greenfields exploration, the ongoing development of our active operations, the restart of operations in care and maintenance, and the establishment of new operations. We are focused on our established operating countries and a diversified set of jurisdictions that offer new opportunities.

These projects will help not only replenish our existing mineral resources, but also ensure we have a future-orientated production portfolio that puts us in a strong position to benefit from (and contribute to) the global energy transition, and profit from the commodities super cycle. In addition, it will help ensure that we continue to deliver value to our local communities and host societies.

### Securing our long-term resource base through exploration

#### Kazakhstan

Our ERG Exploration team manages a range of exploration projects to replenish our Mineral Resource base in Kazakhstan. This includes a range of opportunities in the Aktobe and Kostanay regions, with a focus on core minerals such as bauxite, chromite and iron ore – as well as copper, gold and rare earth metals. The team initiated its first drilling campaign in 2021 and expanded its drilling activity in 2022. ERG Exploration applies the KAZRC standards, which are aligned with best practice standards, including CRIRSCO / JORC.

In 2022, ERG Exploration:

- Launched a new drilling campaign in the Aktobe region using four drill rigs, with a focus on gold, copper, zinc and chromium
- Successfully applied for four new exploration licences
- Launched a topo-geodetic survey team, using unmanned aerial vehicles, topographic surveying and magnetic surveying
- Joined a three-year project with the National Geological Survey to digitise geological information throughout Kazakhstan

## Advancing 3D geomodelling across the Group

We continue working with external experts to update our geological models and enhance our mining plans under our Efficient Mine project. In 2022, we completed this process at Metalkol and initiated work at EEC's Vostochny pit. The programme, which has already been implemented at Kazchrome's Donskoy GOK mine and at our Kacharsky mine, continues to directly support our long-term mine and production chain planning.

### Africa

We are ramping up our growth efforts in the DRC, with plans to increase near-mine and regional exploration in 2023. In particular, we plan to maintain a balanced portfolio of brownfield and greenfield projects and to replenish production through the development of large, long-life assets. This will include a focus on ensuring our resource portfolio is well aligned with the needs of the global energy transition.

We are also investigating growth opportunities outside of the DRC, including our:

- Bokai platinum deposit in Zimbabwe, which is one of the last shallow, high-grade deposits remaining on the country's Great Dyke, with potential for a substantial mining and processing operation
- Fluorspar project in South Africa, which is located on the world's largest fluorspar deposit and indicates good potential to yield a high purity acidspar product

### Brazil

In Brazil, our Pedra Cinza subsidiary (ERG's regional exploration arm) is focused on developing projects that can (amongst other things):

- Benefit from the logistical synergies offered by BAMIN's FIOL 1 railway concession
- Help satisfy growing demand for the metals needed to support the global energy transition

This is reflected in its existing development of early-stage projects focused on iron ore, copper-nickel, graphite, lithium and rare earth metals.

In 2022, exploration spending in Brazil increased to US\$15.9 million. This included a focus on iron ore, zinc, quartz, lithium, manganese, copper and phosphates.

### Saudi Arabia

In 2022, we opened a new office in Saudi Arabia to investigate exploration and development opportunities in the country as it pursues economic diversification under its Saudi Vision 2030 initiative.

Our current focus is on identifying base and transition metal opportunities – while applying a 'smart', technologically sophisticated approach to exploration, mining and sustainability. We are also supporting the 'Saudization' of this evolving sector (i.e. the meeting of relevant thresholds for the employment of Saudi citizens).

### Our approach to capital management

In 2022, we increased our capex to US\$1,135 million (2021: US\$735 million). This increase reflected our efforts to realise the full potential of our existing assets and implement new projects focused on environmental protection, health and safety, transportation and operational equipment.

Our Independent Project Review (IPR) teams assess internally proposed projects in Kazakhstan, Africa and Brazil based on a number of technical and economic parameters, including:

- Overall project status
- The adequacy of project plans, procedures and schedules
- The ability of the project team to achieve relevant indicators (i.e. safety, project scope, quality, cost and target schedule)

In 2022, the teams audited 36 projects and made approximately 1,400 efficiency recommendations to the project teams.

Our capital projects teams are responsible for methodological and organisational development across all project categories, as well as the development and execution of our largest and most critical strategic projects.

In 2022, we strengthened our capabilities in this regard, including through the further enhancement of our performance management system architecture to make us more agile, accountable, transparent and effective.

This included:

- The implementation of clearer lines of responsibility and the delegation of decision-making
- The establishment of our Capital Projects Academy to enhance the capabilities of our Kazakhstan capital projects team
- The implementation of additional measures to enhance the delivery of the broader BAMIN project, including the implementation of KPIs and enhanced internal reporting

## FERROALLOYS

- **Revenue in 2022:**  
\$2,813 million
- **Countries of operation:** Kazakhstan
- **Certifications / assurance:**  
ICDA Responsible Chromium label,  
EcoVadis Platinum Award (p. 65)

### Preparing for Phase 2 development at our 10<sup>th</sup> Anniversary mine<sup>1</sup>

In 2022, we moved to detailed design for the Phase 2 development of Donskoy GOK's world-class chrome ore body. This is focused on advanced sub-level caving and drift and fill mining. The project aims to increase production by up to 7.5 million tonnes of ore per year. This will help us not only replace diminishing chromite output from the Phase 1 development and from our Molodezhnaya mine, but also expand overall output.

### Developing our ERG Green<sup>2</sup> reprocessing project at Donskoy GOK

Our ERG Green project is focused on the reprocessing of historical tailings at Donskoy GOK. During the year, we completed the reconstruction of the main building of the tailings reprocessing facility. We also initiated its Phase 1 commissioning process (gravitational enrichment section), which is due to be completed in 2023. While this had been planned for 2022, the process was delayed due to supply chain challenges linked to geopolitical developments. In addition, we initiated the construction of a new tailings storage facility to store the waste sludge from the ERG Green project.

Under the next phase of the ERG Green project, we plan to construct a flotation enrichment section to produce concentrate from tailings. Once operating at full capacity, the facility is expected to produce more than 500kt of chromium oxide concentrate a year.



The green energy transition is the biggest purchase order in history, with demand for materials like cobalt, copper and aluminium rising exponentially

**Benedikt Sobotka**  
CEO

### Ongoing optimisation at Aktobe Ferroalloys Plant Workshop No. 4

In 2022, the direct current furnaces at Aktobe Ferroalloys Plant Workshop No. 4 continued to operate at design capacity. This builds on previous productivity improvements at the workshop focused on the conveyor system, furnace, gas cleaning system and thickeners, amongst other production elements. Following these improvements, the focus is now on optimising the workshop's operational parameters.

## COPPER, COBALT AND OTHER NON-FERROUS

- **Revenue in 2022:**  
\$2,392 million
- **Countries of operation:** DRC and Zambia<sup>3</sup>
- **Certifications / assurance:** (Metalkol only)
  - RMAP Cobalt Due Diligence Standard (2018) and Joint Due Diligence Standard for Copper, Lead, Nickel and Zinc (2021) (p. 65)
  - ERG Clean Cobalt and Copper Framework (plus third-party assurance) (p. 66)

### Ramping up Phase 2 and exploring optimisation at Metalkol

In 2022, we continued to ramp up Phase 2 production at Metalkol to 99.8kt of copper and 22.5kt of cobalt hydroxide (2021: 94.8kt and 20.7kt, respectively).

The project is on track to achieve its designed capacity of 105kt of copper and has already met its designed capacity of 20kt of cobalt hydroxide.

In addition, we are pursuing steps to further enhance the operation, including plans to:

- Improve the solvent extraction process
- Construct a sulphuric acid plant, which will help us address volatile acid prices, as well as regional logistics challenges
- Investigate the utilisation of renewable power and a battery-based back-up power system (p. 52)

### Cut 3 expansion project and approval of Cut 4 at Frontier

Our Cut 3 expansion project at Frontier continued to support production at the mine (90.5kt of copper contained in concentrate compared to 102.4kt in 2021, in line with the mine plan) and ensure it continues to contribute positively to Group EBITDA (p. 13). Over the 2022-2024 period, Cut 3 will support total mine production of 174kt of copper contained in concentrate. A further pit expansion (Cut 4) has been approved, which has the potential to further extend the life of mine by 10 years. We commenced pre-stripping work on Cut 4 in late 2022.

In early 2022 the mine moved from contractor-mining to owner-mining, reducing operational costs and securing sustainable production at the operation. Plans are in place to further optimise the mining process and investigate how to extract maximum value from the operation's oxide ore.

<sup>1</sup> 10<sup>th</sup> Anniversary of Independence of Kazakhstan Mine.

<sup>2</sup> Formerly known as the Slimes 2 project.

<sup>3</sup> Our Chambishi Metals operation in Zambia is currently in care and maintenance.

## Restart at Boss Mining

In November 2022, we restarted production at Boss Mining, with plans to produce approximately 25kt of copper and above 3kt of cobalt per year. Boss Mining was previously a combined heap leach / tank leach operation, but future focus will be on higher-recovery tank leaching.

We are also examining the potential construction of a new mill at the site, so that larger material (that in the past would have been processed via heap leaching) can be put through the tank leaching process. The restart of operations resulted in the creation of 571 new employment positions, most of which were filled by recruits from surrounding communities.

However, in June 2023 operations at Boss Mining were temporarily suspended following localised flooding. We are using this period to carry out improvements at the operation. This includes the implementation of related recommendations made by the Ministry of Mines' Directorate for the Protection of the Mining Environment (DPEM), as well as the enhancement of Boss Mining's processes. See p. 38 for further details.

## Exploration of options for a new processing plant at Comide

We are investigating the potential development of a new copper cobalt processing plant at Comide. The operation, which is currently in care and maintenance, previously sent its ore to the local market or to Boss Mining for processing. If development goes ahead, Phase 1 would see production of approximately 31kt of copper and 5.6kt of cobalt – with the potential for subsequent phases to see higher levels of production. The plant would only process our own material (including stockpiled ore and tailings initially, followed by mined ore) and would be subject to our Clean Cobalt and Copper Framework (p. 66). Under current planning, earthwork construction will be initiated by the end of 2023.



## Consideration of options at Chambishi Metals

We are continuing to evaluate options that could support the commercial sustainability of our Chambishi Metals operation in Zambia, which remains in care and maintenance.

### ALUMINA AND ALUMINIUM

- **Revenue in 2022:**  
**\$1,178 million**
- **Countries of operation:** Kazakhstan
- **Certifications / assurance:** (KAS only)
  - ERG's Responsible Aluminium Framework (p. 68)
  - Compliance with London Metal Exchange (LME) sourcing requirements (p. 68)

## Ensuring stable alumina and aluminium production

We continue to implement technological enhancements at KAS, including increased amperage during the electrowinning process and the use of new pot lining material.

Nonetheless, aluminium production decreased to 249kt (2021: 262kt) due to issues around anode quality and the electrolysis process, which have since been resolved. At the same time, alumina production at Aluminium of Kazakhstan increased to 1,338kt (2021: 1,315kt).

Mining continued at our Vostochno-Ayatsky and Krasnogorsky bauxite sites (producing 1.1 million tonnes and 3.1 million tonnes of ore, respectively). These sites, which have seven active pits (including two under construction) also carried out 45.2 million m<sup>3</sup> of stripping.

## Reducing our emissions to air at Aluminium of Kazakhstan

In 2022, we continued to advance a US\$44 million project to replace four advanced electric precipitator / hybrid filters at sintering furnaces No. 4 and No. 5 at Pavlodar Aluminium Plant. This is in the context of our 10-year, US\$480 million programme<sup>1</sup> to reduce our emissions to air in Pavlodar and other regions (p. 47).

In addition, we started two environmental projects at Aluminium of Kazakhstan's Power Plant (p. 47), including:

- Installation of an advanced Coromax filter, to further reduce particulate emissions
- Initiation of the replacement of the ash collection facility

<sup>1</sup> The value of the programme was updated in 2022 to reflect variables such as inflation, the integration of new projects, updated prices and engagement with new vendors.

## IRON ORE

- **Revenue in 2022:**  
\$1,122 million
- **Countries of operation:** Kazakhstan, Brazil

### Upgrading of SSGPO's iron ore processing facilities

Our iron ore processing facilities at Rudny in Kazakhstan have an annual production capacity of 17 million tonnes of concentrate and 8 million tonnes of pellets.

In 2022, we continued to make several upgrades to the plant, with a focus on enrichment, as well as the production of higher-quality concentrates and blast furnace-grade pellets, to help us diversify our client portfolio.

We are also examining the development of a facility to produce hot briquetted iron. We have launched the feasibility study preparation for what would be a substantial project. If the project goes ahead, it has the potential to reach full production of 2 million tonnes and would generate a significant number of new employment roles.

### Other developments

In 2022, we scaled back the modernisation programme at our Kacharsky mine in Kazakhstan, including a programme to apply enhanced production methods and expand production. This was due to the suspension of iron ore shipments to Russia.

### Preparing for the expansion of our world-class BAMIN operation

In 2022, we completed the bankable feasibility study (and Mineral Reserves Statement) for our integrated BAMIN iron ore and logistics operation in Brazil, which is made up of the following:

#### Pedra de Ferro mine

The Pedra de Ferro mine is in Stage 1 of its development<sup>1</sup>, with an installed capacity of up to 2 million tonnes a year. In 2022, the mine produced 643kt of iron ore, with plans to produce up to 26 million tonnes a year by 2027. The nature of the low impurity ore, which has 65% iron content on average, helps our customers substantially reduce the carbon emissions associated with their transportation and smelting processes. The mine will use dry-stacked tailings, significantly reducing its physical and environmental risks, as well as water use (p. 54).

#### FIOL 1 railway

The West-East Integration Railway (FIOL) is one of the largest infrastructure projects in Brazil. Once complete, it will carry (along with other goods) the iron ore from the Pedra de Ferro mine to the coast for export via Porto Sul (see below).

BAMIN has the 35-year concession for the first section (FIOL 1) from Caetité to Ilhéus. We plan to use almost 50% of capacity to transport third-party bulk goods. This will, along with the utilisation of the Porto Sul terminal, help support the economic development of the 19 municipalities that the railway crosses.

#### Porto Sul port terminal

The Porto Sul port terminal is under construction in the Aritaguá district of Ilhéus. In 2022, we completed early works at the port, focused on road infrastructure. Under current plans, the port will be operational by 2027, when the first iron ore cargoes will be delivered via FIOL 1. As with FIOL 1, approximately 60% of the port capacity can potentially be used to handle other third-party cargoes.

## ENERGY

- **Revenue in 2022:**  
\$657 million
- **Countries of operation:** Kazakhstan

### Managing our carbon intensity

We are working to reduce our long-term carbon intensity, whilst our short-term priority is to ensure a reliable and efficient energy supply to our core business (p. 50). It is in this context that we are planning to generate or source renewable energy to meet a certain percentage of our electricity demand, in line with national renewable energy targets.<sup>2</sup> This includes our planned 155 MW Khromtau-1 wind power project near Donskoy GOK (p. 51). We launched the engineering, procurement, construction and finance contracting process in 2022. We plan to start design and construction activities in 2023, with commissioning to take place in 2024.

We are also assessing additional sites in Kazakhstan for large-scale renewable energy projects over the next 5-10 years, including both wind and solar.

In addition, we are advancing plans to generate energy using off-gas from our production processes, with a focus on Aktobe Ferroalloys Plant and our Special Coke Plant at Shubarkol Komir.

While we plan to reduce new capex on coal mining and coal-based power generation in the long-term, our short-term approach in Kazakhstan is driven by:

- Heightened EU demand for thermal coal as member states seek to mitigate sanctions restrictions on the import of Russian coal and gas
- Government plans for the modernisation and construction of coal-fired power plants to address supply shortfalls in the national energy system (p. 50)

## OTHER PROJECTS

### Construction of new Special Coke Plant at Shubarkol Komir

In 2022, we continued to construct Shubarkol Komir's 400ktpa Special Coke Plant in Kazakhstan. Once commissioned in 2023, it will produce cost-effective reductants for use in Kazchrome's smelting workshops and for external sale. The plant will also produce more than 70ktpa of coal tar and oil using Shubarkol Komir's coal.

As noted above, we are continuing to evaluate the potential construction of an off-gas fuelled power unit at the Special Coke Plant, having already completed a feasibility study.

### NEXT STEPS

In 2023, we plan to:

- Make an investment decision with respect to the development and execution of our hot briquetted iron project in Kazakhstan
- Initiate construction of our Khromtau-1 wind power project near Donskoy GOK
- Focus on the potential construction of a processing plant at Comide, the possible development of operations in South Africa and Zimbabwe, and increased brownfield and greenfield exploration in the DRC and Mozambique
- Further develop FIOL 1 railway infrastructure at BAMIN

<sup>1</sup> Focused on pre-stripping and logistical development.

<sup>2</sup> Kazakhstan has committed to reducing national GHG emissions by 1.5% per year between 2022 and 2025, achieving a 15% reduction by 2030, and is seeking carbon neutrality by 2060.

# TECHNOLOGY, EFFICIENCY AND DIGITALISATION

## 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 SDGs

See p. 84 for associated UN Targets



We are supporting the sustainability of our business by investing in innovative technology, pursuing efficiencies and carefully managing our resources. We are doing so in a way that not only enhances our short-term performance, but that will underpin our ability to generate long-term value.

## WHAT WE ARE DOING

### Operational efficiency

Our Operational Efficiency team in Kazakhstan takes a systems-based approach to achieving ongoing, incremental improvements in efficiency and productivity. This includes:

- The application of 'lean management principles'
- The promotion of cross-cutting employee collaboration
- The pursuit of improvement opportunities identified by our employees

More broadly, the team is also contributing to our ongoing development of a culture of innovation, constructive engagement and continuous improvement through the ERG Way Production System (see below). This will help support our business sustainability well into the future.

In 2022, the team oversaw the approval of a new equipment efficiency and production losses analysis methodology for Kazakhstan, as well as a new internal production assessment standard.

We also continued to use a range of channels to identify and pursue improvement opportunities identified by employees and external parties, including:

- **Ideas Factory:** In 2022, our Ideas Factory collected 64,624 ideas, of which 38,030 were accepted for implementation (2021: 31,900 and 17,174). It is anticipated that these will save the company US\$34 million (2021: US\$25 million)

1 Sort, Straighten, Shine, Standardise, and Sustain.  
2 Maintenance, Repair and Overhaul.

- **Innovators' Forum:** 174 employees participated in our 2022 Innovator's Forum and proposed 87 projects (2021: 180 employees and 74 projects). The Forum was focused on the generation and practical implementation of innovation initiatives, as well as the application of lean manufacturing approaches
- **Innovation Portal** (erg-innovation.kz): We publish some of our key operational challenges on our publicly available Innovation Portal and invite stakeholders to submit potential solutions. Following initial assessment, successful candidates are invited to have their idea assessed for potential development and, ultimately, commercial adoption. In 2022, we received over 160 proposals (2021: over 160)

### Rolling out the ERG Way Production System in Kazakhstan

In 2022, we completed the piloting of the ERG Way Production System at Kazchrome, SSGPO, Aluminium of Kazakhstan, EEC, ERG Service and Shubarkol Komir, and are now applying it on a systematic basis.

We also launched the ERG Way School to systematically train production employees on the approach. Over the year, the school trained more than 13,000 employees across our operations in Kazakhstan, with a focus on topics ranging from 5S<sup>1</sup> problem solving methodologies through to maintenance and repair basics.

The ERG Way Production System aims to promote a more effective working culture. The system supports efficiency across the product lifecycle, including through the application of lean management principles. In particular, it is designed to:

- Improve equipment productivity and achieve sustainable cost reductions
- Promote the application of common principles and effective employee / team interaction
- Support systemic change management in the production process, including through employee empowerment and cross-functional collaboration

## KEY EXAMPLES OF MRO<sup>2</sup> PROCESS OPTIMISATION IN KAZAKHSTAN

Project	Description	Impact in 2022
<b>Stationary vibration diagnostic systems</b>	Stationary vibration diagnostic systems at 2,500 control points across seven plants deliver round-the-clock diagnostic data, helping us anticipate and prevent accidents involving rotor units and highly critical production equipment. Since commissioning, this is estimated to have stopped more than 400 potential accidents.	<b>\$12M+</b> in avoided costs
<b>Reliability and diagnostic investigations</b>	Our reliability and diagnostics teams work to identify defects at an early stage, determine the root causes of unscheduled outages and develop corrective measures to reduce the chance of reoccurrence.	<b>\$30M+</b> in avoided costs
<b>3D employee training</b>	We have implemented six innovative 3D learning projects, with three taking place in 2022 relating to internal combustion engines, pumps and ferroalloy furnaces.	<b>Enhancement of MRO employee capabilities</b>

## External auditing of the application of the lean principles at Aktobe Ferroalloys Plant

We commissioned an external audit of the application of the lean production system at Aktobe Ferroalloys Plant. This was carried out in 2022 by Toyota Engineering Corporation, which gave the operation an audit score of 2.11, which is considered a high rating for a company being audited for the first time. The auditors also suggested improvements based on the principles of the Total Toyota Production System production framework.

Following this exercise, our ERG Way Production System implementation team developed an internal assessment standard for the implementation of the lean principles based on the same criteria used by the Toyota auditors.

🔗 For further information, see: [eurasianresources.lu](https://eurasianresources.lu)

### Technological innovation

#### Kazakhstan

Our R&D Centre in Kazakhstan works on an open system based on interaction with a range of internal and external stakeholders. The development of innovative solutions is carried out both in our own R&D laboratories and in partnership with external scientific organisations. This builds on our existing use of the Innovation Portal (p. 23), which sets out our R&D priorities to engage external solution-providers, and includes the use of specialised companies to help identify and evaluate start-ups.

In 2022, we established a formal procedure for identifying, evaluating and managing innovative ideas via the Innovation Portal. This includes the application of a structured stage-gate approach for the approval and implementation of new technologies for industrial use.

We also defined key areas of focus for R&D activity, with a strong emphasis on production enhancements.

These include:

- Production of low-carbon chromium using new pyrometallurgy technology
- New alumina production technology to help reduce the product carbon footprint
- New hydrometallurgy approaches, with a focus on chromium production and tailings processing
- Safe disposal of hazardous waste
- Coal gasification (and other forms of coal adaptation / processing)

#### Africa

In Africa, we are investigating innovative solutions to address energy security challenges at Metalkol, such as operational disruption and increased energy costs resulting from grid power outages. This includes the potential application of a direct, online generation system that can be applied instantly when an outage occurs, as well as the installation of back-up batteries (p. 52).

At Frontier, we are implementing an enhanced fleet management system to drive improvements in Overall Equipment Effectiveness (OEE).

In Africa, we are also implementing cutting edge lithospheric targeting and remote sensing technologies to help enhance our exploration capabilities. In addition, we are rolling out multi-sensor rock and core scanning platforms to improve and standardise our data collection processes.

#### Brazil

At our BAMIN operation, the recently established Innovation Department is focused on ensuring that we build innovation and technology into this world-class operation.

Its key areas of focus are:

- Decarbonisation and the use of clean energy (p. 52)
- Digital engineering and the application of advanced technology / analytics to mineral exploration

- Computational logistical modelling
- The development of new products, including a focus on micro-pelletisation, briquetting and cold pelletisation

In 2022, key activities included:

- The establishment of a partnership with a high-profile research and development institute, SENAI CIMATEC
- Enhanced scanning of our drill cores
- Cold pelletising

Beyond this, in Africa, Brazil and Saudi Arabia we plan to establish a global geo-data platform to support enhanced cross-team collaboration and streamlined exploration workflows.

### KEY EXAMPLES OF EXISTING R&D PROJECTS

Project	Enterprise	Description	Status
<b>Cellular mule casting</b>	Kazchrome	The introduction of cellular mule casting at Aksu Ferroalloys Plant (rather than flat trough casting) to enable us to reduce the formation of ferroalloy fines.	🔗
<b>ERG Green tailings reprocessing project (p. 20)</b>	Kazchrome	ERG Green will use combined gravitation flotation technology to significantly improve the enrichment of chrome oxide-bearing tailings. In 2022, our R&D Centre conducted large-scale pilot tests of flotation technology. These achieved target technical parameters, producing a conditioned chromium concentrate with an extraction rate of more than 60%.	🔗
<b>Sintering workshop productivity</b>	Kazchrome	The implementation of multiple, innovative productivity improvement measures at Aksu Ferroalloys Plant's sintering workshop. These increased productivity by more than 20%.	✅
<b>Use of off-balance bauxite in sintering workshop</b>	Aluminium of Kazakhstan	The use of off-balance bauxites (which were previously excluded due to their low quality) in our industrial process. This follows testing, which demonstrated that by using no more than 40% of off-balance bauxite in our sintering charge, we can maintain production performance whilst reducing the cost of the alumina we produce.	🔗
<b>Carbon products</b>	Shubarkol Komir	The development of activated carbon products (i.e. as sorbents to treat industrial emissions) using fine waste material.	✅

🔗 Being implemented    ✅ Implemented

## Digital innovation and automation

Our automation efforts are ongoing, and we are also continuing to pursue the application of the Industry 4.0 concept through our digital strategies. This is focused on:

- Developing digital production advisors, using Artificial Intelligence and production innovation
- Ensuring we make cost-effective digital investment decisions
- Building adaptive / modular digital architectures to support our operations and broader business, including the internal development of resilient, 'high-criticality' digital solutions

The ultimate aim of these efforts is to develop an integrated 'universe' of interconnected data, the intelligent application of which can be used to materially enhance multiple aspects of our business. In this context, we are capturing all of the available operational data being generated across the company in a unified 'data lake'. This will support the future application of Artificial Intelligence tools to improve our decision-making and practices.

Examples of the Industry 4.0 concept 'in action' in 2022 include:

- Implementation of our 'digital advisor' concept (which uses automatic image processing and machine learning to support higher levels of productivity within our smelting functions) at Aksu Ferroalloys Plant. This includes analysis of the fractional composition of charge materials in real time, and the delivery of recommendations for enhanced productivity
- The piloting of technology to reduce metal losses in slag at Aksu Ferroalloys Plant, including through enhanced analytics

We also completed a number of existing automation projects in Kazakhstan, including:

- The implementation of our Smart Mine<sup>1</sup> programme at SSGPO's Kurzhunkul, Sarbay and Sokolov pits and EEC's Vostochny pit.

This mobile equipment control system uses specialist dispatching systems, software and 4G-based networks to optimise operations

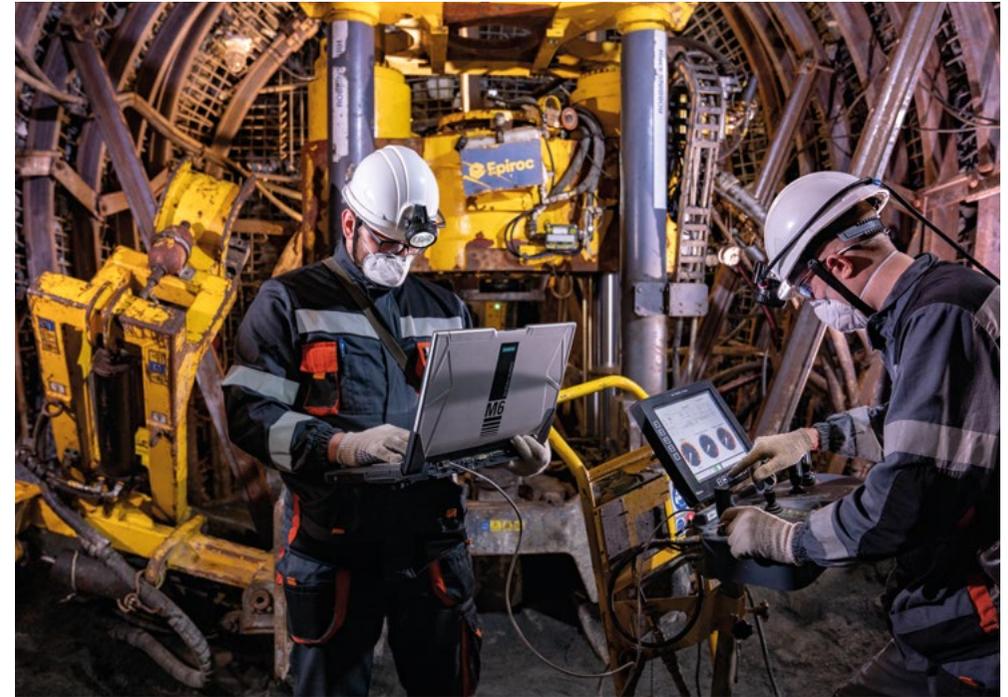
- The application of a Manufacturing Execution System (MES) to production processes at Aktobe Ferroalloy Plant, as well as the design phase at KAS
- The development of a single Automated Process Control Systems (APCS) Data Warehouse for the collection, storage and primary processing of APCS data for all of our operations (except for Kachary Ruda)
- The implementation of integrated mine planning systems at SSGPO, Kachary Ruda and Donskoy GOK

In addition, we initiated several new automation projects in Kazakhstan, including:

- The implementation of a private 4G Long-Term Evolution (LTE) network at Kachary Ruda and Marganec Zhairrema. This will give our production facilities wireless broadband connectivity to the corporate network
- Development of our Group procurement processes and the updated use of Artificial Intelligence to analyse market prices

## Using blockchain technology to support value chain assurance

We are continuing to work with a range of stakeholders to explore how blockchain technology can help enhance the traceability of (and assurance around) the cobalt we produce in the DRC. This includes our participation in the Global Battery Alliance, as well as our efforts – with our co-founders Glencore and IXM (a subsidiary of CMOC) – to develop the ReSource blockchain platform, which has already been successfully applied to the cobalt we produce at Metalkol.



## NEXT STEPS

In 2023 (and beyond), we plan to:

- Further develop our ERG Way Production System in Kazakhstan, with a focus on operational efficiency. This will build on our equipment efficiency and production losses analysis methodology and will include the appointment of a Six Sigma-trained Process Engineer at each enterprise – with operations to be assessed against our new internal production assessment standard
- Continue to advance our automation and Industry 4.0 programmes across our operations in Kazakhstan

- Investigate Artificial Intelligence-based decision-making platforms to optimise operations, material tracking and reconciliation at Metalkol's processing plant
- Continue to implement an enhanced fleet management system at Frontier to drive improvements in OEE
- Continue to advance our exploration targeting strategies through the adoption of cutting edge remote sensing technologies and integrated machine learning to accelerate discoveries

In Saudi Arabia, we are planning to build an innovative autonomous soil sampling rover to help expedite the collection of high resolution surface geochemistry data in the region.

<sup>1</sup> Also known as the Automated System for Management of the Mountain Transportation Complex (Hexagon).

# Helping our people thrive

Our People Strategy helps ensure that our people are at the heart of all that we do. It also supports the ongoing development of an innovative workforce to help underpin the long-term sustainability of our business.

This includes a focus on:

- Developing our employees' skills and competencies
- Maintaining employee safety and well-being
- Supporting the personal and professional growth of our employees
- Providing comfortable workplaces and living conditions

In this context, we have made the development and maintenance of a happy and professional team a key priority under our 2025 Strategy.

- For additional information on our management approach, see p. 75 of Appendix.

## 2022 HIGHLIGHTS

- > US\$12.5M invested in the enhancement of onsite facilities in Kazakhstan (with a total of US\$73M invested since 2016)
- > Expanded our employee development programmes to support operational expansion in our Africa region
- > Great Place to Work® certification at BAMIN



### Material issues

#### HEALTH AND SAFETY

➤ See p. 27

#### TALENT ATTRACTION, DEVELOPMENT AND RETENTION

➤ See p. 30

#### EMPLOYEE RELATIONS

➤ See p. 33

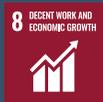
# HEALTH AND SAFETY

## STRATEGIC CONTEXT

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

## Relevant UN SDGs

See p. 84 for associated UN Targets



In line with our Values, we put safety first. We continue to strive towards achieving Zero Harm.

All of our operations in Kazakhstan<sup>1</sup> are certified to ISO 45001, with Metalkol in the DRC continuing to work towards certification and our other operations in Africa applying a management system informed by the same standard. At our BAMIN integrated iron ore and logistics operation in Brazil, we apply a safety management system based on the requirements of ISO 45001.

## OUR PERFORMANCE

It is with the deepest regret that we report the loss of five employees and two contractors in work-related safety incidents during the year. These incidents took place at our operations in Kazakhstan.

We extend our sincere condolences to the families of those who were lost. A loss of life reflects an unacceptable failure, and we remain fully committed to eliminating fatalities at our operations.

Our investigations into these incidents resulted in the implementation of the following measures, amongst others:

- The implementation of enhanced vehicle maintenance procedures and inspections, strengthened standard operating procedures for drivers and revised driver shift patterns, amongst other measures to enhance transport safety (p. 27)
- Enhanced oversight of contractor activities and the application of strengthened pre-contractual safety controls
- The delivery of targeted safety training, with a focus on higher risk work and embedding learnings from past incidents

<sup>1</sup> With the exception of 3-Energoortalyk.

<sup>2</sup> Employees only and including employee fatalities.

<sup>3</sup> Employees only and including employee fatalities.

## GROUP KEY SAFETY INDICATORS BY YEAR

Indicators		2022	2021	2020	2019	2018
<b>Fatalities</b>	Employees only	<b>5</b>	7	3	10	1
	Contractors only	<b>2</b>	3	1	1	4
<b>LTIs</b>	Employees only	<b>105</b>	101	67	85	70
	Contractors only	<b>30</b>	17	13	17	13
<b>LTIFR</b>	Employees only	<b>0.91</b>	0.93	0.61	0.83	0.58

## KEY SAFETY INDICATORS BY REGION

Indicators		Kazakhstan	Africa	Brazil
<b>Fatalities</b>	Employees only	5	0	0
	Contractors only	2	0	0
<b>LTIs</b>	Employees only	102	3	0
	Contractors only	29	1	0
<b>LTIFR</b>	Employees only	0.99	0.26	0

In addition, we are implementing a range of broader safety measures that also support our efforts to eliminate fatalities. This includes our planned implementation of automated driver fatigue monitoring systems, as well as advanced 'lock out / tag out' (LOTO) safety systems in Kazakhstan (p. 28). Beyond this, we are continuing to strengthen our contractor safety standards (p. 28).

Tragically, we also lost one colleague due to health complications related to COVID-19 in 2022 (2021: 30).

In 2022, lost time injuries (LTIs) rose to 110<sup>2</sup> (2021: 108). This resulted in a lost time injury frequency rate (LTIFR) of 0.91<sup>3</sup> (2021: 0.93).

At BAMIN in Brazil, we have recorded more than 6.7 million consecutive LTI-free hours (employees and contractors) since October 2019.

## WHAT WE ARE DOING

### Employee safety in Kazakhstan

During the year, we continued to develop detailed action plans to support the ongoing implementation of our Safety Strategy. We also continued to apply our integrated, risk-based occupational and process safety management system.

In this context, we implemented a range of targeted health and safety initiatives. Indeed, our renewed focus on safety is reflected in our increased capital expenditure in Kazakhstan (p. 13). Key safety-related capex projects included the installation of automatic traffic signalling and enhanced gas detectors at Donskoy GOK (US\$726,000), the purchase of a safety training simulator that will be installed at our training centre in Rudny (US\$655,000) and the installation of an enhanced vehicle monitoring and control system at Shubarkol Komir (US\$257,000).

Other key initiatives included:

- **Training:** We placed particular emphasis on expanding our training programmes to help develop and embed our safety culture. This included the delivery of:
  - First-aid training to more than 1,200 employees at multiple operations
  - Externally certified safety training for managers at EEC and ERG Service,<sup>1</sup> with a focus on safety leadership and enhanced risk assessment
  - Additional role-specific safety training focused on higher risk work (see below)

In addition, we delivered onsite and remote safety training to more than 50,000 employees at multiple operations, under our centralised mandatory training programme.

- **Fatal risk controls:** The ongoing rollout of a multi-year programme to strengthen our fatal risk controls, including the delivery of:
  - **Working at heights:** Onsite and remote training on working at heights to around 15,000 employees across our operations, and the installation of enhanced anchoring systems at four operations
  - **Transport safety:** Driver safety training to around 800 employees at multiple operations, and the ongoing rollout of our advanced satellite control, analytics and transport management systems at three operations
- **Risk assessment:** The undertaking of our annual safety risk assessments using the Hazard Identification (HAZID) methodology, as well as the updating of related annual action plans
- **Enhanced machine safety:** The undertaking of a region-wide safety audit to inform the future implementation of LOTO safety systems. These will help ensure that higher risk machinery is safely isolated prior to the undertaking of maintenance or repair work. A pilot implementation project is planned for 2023, with region-wide rollout scheduled for 2024

- **Safety culture:** The ongoing hosting of 'safety dialogues' as part of our League of Professionals programme (p. 30), as well as regular safety-focused site inspections by senior regional managers under the ERG Way Production System (p. 23)

In addition, we revised our approach to the digitalisation of our safety data management and reporting processes and are reviewing a range of options in this regard.

### Employee safety in Africa

In Africa, our integrated Safety, Health and Sustainability (SHS) management system is supported by the application of the IsoMetrix software programme.

In 2022, key safety initiatives included:

- **Safety training:** The ongoing rollout of targeted safety training programmes across all our operations, including at Frontier to support the safe transition to owner-operator mining (p. 20) as well as the Cut 4 expansion (p. 20)
- **Safety culture:** The ongoing implementation of our Visible Felt Leadership safety programme at Metalkol and Frontier, as well as the launch of a new region-wide safety culture awareness programme for employees and contractors
- **Safety monitoring:** The ongoing implementation of regular safety audits and site inspections, as well as periodic reviews of our SHS Policy and related procedures
- **Key Performance Indicators (KPIs):** The ongoing implementation of a remuneration-linked KPI for LTI-free hours for all employees at Metalkol. This is in addition to existing safety KPIs in place at our operations in Africa

### Employee safety in Brazil

At our BAMIN integrated iron ore and logistics operation in Brazil, we recorded zero LTIs amongst our employees and contractors (2021: zero). We apply a comprehensive Occupational Health and Safety (OHS) management system at the operation.



During the year, we established a new Work Safety Committee, including representatives from senior operation-level management, to support the ongoing implementation of our OHS management system. In future, we plan to undertake internal safety audits of our OHS management system and related procedures.

We also continued to embed our safety culture and expand the scope of our training programmes, in line with the ongoing expansion of the operation. In this context, we significantly increased the number of safety training hours provided to employees at BAMIN.

### Contractor management

We experienced two contractor fatalities, one at EEC and one at Donskoy GOK (Kazchrome) in Kazakhstan. We have implemented a range of measures to help prevent the risk of such incidents reoccurring. At EEC, this included the enhancement of our pre-project contractor approval processes, with plans to further

strengthen safety-related contractual terms for contractors. Similarly, at Donskoy GOK, we revised selected contractor work plans and engaged with an equipment manufacturer to help enhance the safety-related specifications of relevant equipment. Beyond these targeted measures, we continue to closely monitor contractor activities and deliver regular briefings to help ensure appropriate safety controls are maintained on an ongoing basis.

In Africa, we strengthened contractor safety management through the embedding of enhanced SHS performance standards into our region-wide procurement processes. In addition, we continued to undertake frequent contractor risk assessments, onsite inspections and safety briefings across our operations. At BAMIN in Brazil, we continued to deliver comprehensive contractor safety inductions and training on our OHS policies and procedures. We also developed an enhanced design and safety assessment process for planned contractor work, amongst other measures.

<sup>1</sup> ERG Service provides repair and maintenance services for our operations in Kazakhstan.

## Occupational health

### Kazakhstan

Some of our workplace activities can, if not proactively managed, pose risks to the health of our employees. This includes potential exposure to dust, noise, vibration and heat. To address this, we implement comprehensive occupational health programmes for all our employees.

In Kazakhstan, this includes:

- Mandatory annual medical examinations
- Role-specific, pre-shift medical examinations
- Workplace health risk assessments delivered by expert third parties
- Rehabilitation services for occupational health conditions, provided through our dedicated employee medical centre (see opposite)

### Africa

In Africa, we continued to implement an Industrial Hygiene Programme and a related risk-based monitoring strategy at Metalkol and Frontier. This includes monitoring and analysis, as well as employee awareness training – with a focus on dust, noise, vibration, gasses and illumination, amongst other areas.

At Metalkol, we successfully controlled levels of silica dust at the Kingamyambo tailings storage facility. These had previously been found to exceed internally set limits during the 2021 dry season. We also continued to carry out onsite dust monitoring and water spraying, and provide enhanced PPE and biannual employee medical examinations.

### Brazil

At BAMIN, we contract a specialist external company to provide onsite health professionals. This includes a physician, a nurse, nursing technicians and ambulance drivers. In 2022, we also hired a dedicated doctor covering the FIOL 1 project. In addition, we continued to provide annual occupational health assessments for all employees.

## Personal health and well-being

We implement a range of initiatives to help address non-occupational health challenges in our workforce and to support the personal health of employees across the Group.

### Kazakhstan

During the year, we launched a programme of psychological support services through our dedicated employee medical centre in Kazakhstan. This includes the provision of face-to-face consultation with clinical psychologists, as well as workplace-based training and online seminars.

We also conducted two large-scale surveys involving more than 14,000 employees. This helped us to assess levels of psychological health within our workforce and identify ways to further enhance our services.

Beyond this, we continued to provide free medical services to employees through our medical centre. We also provide enhanced employee healthcare cover (in excess of what is required by law). This includes dental care, additional medication allowance and certain preventative health treatments. In 2022, we invested US\$4.6 million in these programmes (2021: US\$5 million).

In addition, we implement an extensive preventative examination programme. This includes diagnostic examinations for detecting coronary heart disease in men over 40 and screening for breast cancer in women over 40. In 2022, we also launched a pilot oncological screening programme at EEC and Aksu Ferroalloys Plant, with plans to expand this to our other operations in 2023.

For information on our physical activity programmes and employee sports events in Kazakhstan, see p. 42.

### Africa

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

- Implement malaria awareness and prevention measures for employees at Metalkol, Frontier and Comide – including spraying and fumigation
- Carry out a range of HIV / AIDS awareness raising, voluntary counselling and testing activities at Metalkol, Frontier and Boss Mining (in partnership with relevant government health departments)
- Participate in government vaccination campaigns
- Run a region-wide breast cancer awareness and screening campaign

At Metalkol, we work with two clinics in Kolwezi and Lubumbashi to provide enhanced healthcare to our employees and their families. In 2022, this included cervical cancer screening for female employees.

At Boss Mining, we deliver free medical services to our employees and their families via our fully supported offsite clinic. As it is the only clinic in the Kakanda area, it also provides emergency medical services to local community members (p. 43).

At Frontier, we offer medical support to employees and their families through an onsite clinic and affiliated local hospitals.

At our corporate office in Johannesburg, we operate an employee wellness programme, which includes access to free psychological counselling and life management support services.

### Brazil

In Brazil, we provide a partially funded employee health insurance plan (which includes cover for COVID-19 treatment) and fully funded dental care, for all employees and their families. We also have a separate benefit plan that includes free gym memberships, nutritional guidance, online counselling and financial management advice.

## NEXT STEPS

From 2023, we plan to launch a major five-year programme focused on enhancing our safety performance in Kazakhstan. The programme will address key gaps identified by our investigations, support the ongoing development of our safety culture and enhance our process safety. This will include the implementation of a range of organisational, training, technical and communications initiatives across our operations in Kazakhstan.

Other planned initiatives in Kazakhstan, include:

- The further enhancement of our safety policy and management system
- The revision of our safety risk management, incident investigation and contractor safety management standards
- The implementation of new 'leading' key performance indicators

In Africa, we plan to implement a range of measures to further enhance our occupational safety and industrial hygiene processes. This will include the implementation of Visible Felt Leadership, industrial hygiene monitoring and driver safety training programmes. In addition, we plan to launch a new behaviour-based safety programme at Metalkol.

In Brazil, we plan to embed our enhanced design and safety assessment process for contractors, as well as deliver targeted training to embed a safety-first culture across our workforce.

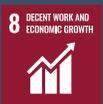
# TALENT ATTRACTION, DEVELOPMENT AND RETENTION

## 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. We also focus on enhancing employee motivation, improving our employee benefits and developing our overall employee proposition.

### Relevant UN SDGs

See p. 84 for associated UN Targets



The long-term sustainability of our business depends on our ability to attract, develop and retain the top talent.

In line with our Values and our People Strategy, we place particular emphasis on the ongoing development of an innovative and agile workforce. This includes helping our employees to develop new strategic competencies, embedding our corporate culture, and supporting the rapid development of our high-potential individuals and future leaders.

At the same time, we continue to enhance our employee proposition through the ongoing delivery of competitive, performance-linked remuneration – as well as our efforts to improve employee benefits.

## Building our current – and future – skills pipeline in Kazakhstan

In addition to the skills development programmes outlined above, we implement a range of further initiatives to support our current and future skills pipeline (as set out below).



<sup>1</sup> Science, technology, engineering and mathematics.

## WHAT WE ARE DOING

### People management in Kazakhstan

#### Enhanced skills development

In Kazakhstan, we continued to expand the scope of our skills development programmes to support the development of professional and leadership competencies, enhance the efficiency of our workforce and embed innovative ways of working.

Key areas of focus included:

- Advanced training:** The delivery of role-specific training to more than 20,000 employees – including courses on digital mine planning, energy management and a range of key professional and leadership competencies, amongst other areas
- Project management competencies:** The development of our new Capital Projects Academy, a 75-module training programme to support the delivery of our strategic capital projects in Kazakhstan

- Operational efficiency skills:** The provision of training on the ERG Way Production System to around 12,000 production specialists (2021: 2,500)

These initiatives were supported by the following platforms:

- ERG Digital University:** This is our interactive online learning platform. During the year, multiple courses were delivered via the platform (ranging from project management to emotional intelligence)
- ERG Talent:** This is our digitalised talent management platform. Once fully operational from 2023, this will support the development and rollout of standardised mandatory training programmes aligned to relevant external standards. It will also host individual employee development plans and support employee access to a range of online training resources

In addition, we continued to implement a range of safety training programmes to help develop and embed our safety culture (p. 28).

### Cultural transformation

We continue to work on building a corporate culture that is based on our Values of Efficiency, Safety, Responsibility, Development and Unity (p. 75). In 2022, this included:

- The launch of a pilot cultural change programme at EEC, BTS<sup>1</sup> and our Human Resources function in Kazakhstan. This was based on a Group-wide diagnostic of our corporate culture, which included a survey involving around 7,500 employees
- The launch of a programme to reward employees who are representing ERG's Values, and the hosting of a group event focused on our Values as part of our League of Professionals programme in Kazakhstan (p. 30)

### Talent pools

We have created strategic 'talent pools' to support the rapid development of our high-potential individuals, as well as our succession planning. During the year, we expanded our talent pools framework across more than 300 key roles in Kazakhstan. Key activities included commencing the rollout of:

- A leadership development programme for 52 of our senior leaders
- A skills development programme for workshop-level managers, with 29 employees due to complete modules in managerial and leadership skills in 2023
- The second phase of our 'LIFT' project, which saw 75 young leaders selected to complete modules in leadership skills at Narkhoz University in Kazakhstan

### Employee evaluation

In 2022, we revised and enhanced our competency evaluation programme as part of a large-scale review of our organisational structures and culture in Kazakhstan. This included the completion of a pilot project to assess 769 employees in our Capital Projects function against a set of new competency models. In future, we plan to develop region-wide leadership competencies that will be assessed via our performance evaluation process.

### Motivation and remuneration

We implement a systematic and transparent approach to employee motivation and remuneration. This is based on the structured evaluation of employee performance against relevant KPIs, and aims to closely align remuneration with performance. Our approach is supported by the ongoing implementation of our employee motivation system, which also helps to support the cascading of our strategic objectives.

In 2022, this included the rollout of performance assessments and performance-linked bonuses to around 15,000 employees at our operations in Kazakhstan, Africa and at our corporate offices (see 'Performance' on p. 32).

## Supporting external skills development in Kazakhstan

**ERG supports a range of future-focused skills development initiatives in Kazakhstan, many of which are led by our subsidiary, BTS Education. This contributes to the proactive development of our future talent pipeline – whilst helping young Kazakhstani job seekers to thrive in an ever-changing labour market. At the same time, we are supporting the Government of the Republic of Kazakhstan's 2025 programme, which is aimed at improving the income of the population, including through the ongoing adaptation of the country's education system. Here we set key initiatives in this regard.**

### *Mamandygym-Bolashagym ('My Profession, My Future')*

In 2022, we provided ongoing technical input and methodological guidance to support the integration of the Atlas of New Professions<sup>2</sup> into a government-led national programme, Mamandygym-Bolashagym ('My Profession, My Future'). This new programme focuses on the transformation of the national education system and strategic forecasting of the future labour market to support the Government's 2025 development programme.

ERG also supported the ongoing rollout of 'Regional Atlases' to help transform regional education systems across Kazakhstan, including through the development of future-focused curriculums at colleges and universities.

Finally, we hosted career guidance events for around 27,000 school pupils in the Pavlodar region. In addition, we provided career guidance training to more than 300 school teachers in the region. These initiatives were delivered with the support of trained career guidance specialists using *EduNavigator.kz*, a digital platform developed by BTS Education to help pupils identify future-focused career paths.

### *ERG for Colleges*

In 2022, we launched ERG for Colleges, a strategic partnership with 14 colleges in our Aktobe, Pavlodar and Kostanay operating regions. The programme aims to align educational provision at these institutions with our need for 'versatile specialists', as well as with the future-orientated roles identified in the Atlas of New Professions. This is informing the delivery of advanced teacher training in specialist disciplines, as well as the provision of post-graduate internships at ERG and other institutions.

As part of these efforts, we also launched the College Alliance programme. This aims to enhance cooperation between the Government, educational institutions and business to support the development of a future-orientated education system. In addition, we continued to support the transformation of secondary educational institutions in our operating regions through our ERG for Schools programme (p. 42).

<sup>1</sup> Business & Technology Services (BTS) is an ERG subsidiary that supports business process reengineering and the development of modern information technology infrastructure for the Group.

<sup>2</sup> The Atlas is a critical strategic planning tool that includes advanced forecasting of the most critical and in-demand professions over the next 10-15 years. It is based on the Skills Technology Foresight (STF) methodology, which is recognised by the International Labour Organization.



Finally, we continued to focus on the ongoing standardisation and enhancement of our human resources systems and processes. For example, we commenced the rollout of our digitalised people management system, which we plan to complete in 2023.

### People management in Brazil

At BAMIN, we focused on the recruitment of talented multi-disciplinary personnel as we expand our full-time workforce to support the ongoing ramp-up of the operation. In this context, we continued to meet the local employment requirements of our licensing agreement, which mandates that a minimum of 60% of our workforce (including employees and contractors) must be hired from local populations.

In addition, we implemented a new performance management model to support integrated performance evaluation and skills development across all levels of our workforce at BAMIN. We also launched a new leadership skills programme to support the ongoing development of our current and future leaders. This was completed by 82 leaders and focused on corporate strategy, performance management and the implementation of our Group Values, amongst other areas.

### OUR PERFORMANCE

As noted above, we continued to implement our employee motivation system. This included its rollout to more than 13,000 production and administrative personnel in Kazakhstan, as well as to 250 employees at our corporate offices. We also rolled out the system to more than 1,150 production personnel and 550 non-production personnel at Metalkol in the DRC.

In Kazakhstan, we invested around US\$7 million<sup>1</sup> in training and skills development for our employees (2021: around US\$6 million). This increase primarily reflects the ongoing expansion of our training efforts, which saw higher numbers of employees undertaking training and the introduction of several new training programmes.

In Africa, we spent US\$1 million on such efforts (2021: US\$162,000). This increase reflects the significant ramp-up of our employee development efforts to help support operational expansion in the region. In addition, we spent US\$219,000 on training and development at our BAMIN operation in Brazil.

### NEXT STEPS

In 2023, we plan to:

- Further develop our corporate culture in Kazakhstan through the rollout of our cultural change programme and a range of targeted training initiatives
- Implement a talent attraction and retention strategy in Kazakhstan, with a focus on our most critical skills
- Enhance our employee motivation system in Kazakhstan, including the rollout of a standardised framework for the development of individual KPIs
- Launch our new ERG Corporate University in Kazakhstan to support the development of critical competencies and drive change management across our operations
- Further enhance our SAP® payroll system in Kazakhstan and commence the rollout of SAP® human resources platforms in Africa and Brazil
- Launch our 'ERG Mining Academy' in partnership with the University of Kolwezi
- Launch a professional development and mentoring programme for female employees in Brazil, as well as a new leadership development programme

### People management in Africa

In Africa, our people management efforts were framed by significant operational expansion and related changes in the scale and profile of our workforce. This included:

- **Metalkol:** Ongoing Phase 2 ramp-up, which required the hiring of 490 new employees, the majority of whom were recruited from surrounding communities – as well as the hiring of around 405 contractors
- **Frontier:** The phased transition to owner-operator mining, which resulted in the recruitment of 511 new employees who had previously worked as contractors at the operation
- **Boss Mining:** The phased restart of the operation after it was placed in care and maintenance in 2019. In 2022, the first phase created 571 positions, most of which were filled by recruits from surrounding communities

In this context, we place particular emphasis on the delivery of tailored skills development programmes and on building our future skills pipeline. At Metalkol, this included the development of the 'ERG Mining Academy', a partnership with the University of Kolwezi to provide post-graduate scholarships in mining-related disciplines for 200 Congolese graduates (with the first student intake scheduled for 2023). In addition to funding the scholarships, ERG is supporting the development of the mining-related curriculum, providing a range of learning resources and building an online learning platform for the students. The programme will enhance local graduates' mining competencies (and by extension their employability) and will also support our future skills pipeline.

In addition, we delivered a range of technical training programmes at Frontier to support the transition to owner-operator mining.

<sup>1</sup> This includes mandatory training delivered under ERG's subsoil licensing obligations, as well as large-scale employee development events.

# EMPLOYEE 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.

### Relevant UN SDGs

See p. 84 for associated UN Targets



Our Group-wide approach to employee relations is underpinned by the maintenance of constructive engagement with our employees' unions. We respect the right of all employees to join unions and to freely engage in collective bargaining.

We are committed to respecting universally recognised human rights and labour standards. This includes the principle of equal opportunity and the delivery of an inclusive, fair and non-discriminatory workplace. We apply these commitments to our employees, our contractors and our suppliers. In Kazakhstan, our approach to employee relations is shaped by the significant inter-connectivity between our workforce and local communities. Because of this, we focus on supporting the social needs of our employees and their families in our operating regions. We also carry out engagement surveys and benchmarking of local socio-economic conditions to help identify and respond to these needs on an ongoing basis.

See p. 64 for more information on our Group-wide approach to human rights.

## WHAT WE ARE DOING

### Employee relations in Kazakhstan

Our holistic approach to employee relations focuses on the delivery of comfortable working conditions and competitive employee benefits, as well as on supporting the broader social needs of our employees and their families.

### Delivering comfortable workplaces

We continue to implement a range of measures to help enhance and standardise physical working conditions at our operations. For more details see p. 34.

## WORKFORCE PROFILE

68,776

Directly employed people<sup>1</sup>, as at the end of 2022

25%	32%	87%	93%
of the Group's employees are female	of the Group's employees are under the age of 35	of the Group's employees are trade union members <sup>2</sup>	of the Group's employees are located in Kazakhstan

## NUMBER OF EMPLOYEES BY REGION

Region	2022	2021
Kazakhstan	64,246	63,899
Africa	4,062	3,539
Brazil	277	192
Corporate offices <sup>3</sup>	191	271
<b>Total</b>	<b>68,776</b>	<b>67,901</b>

### Improving living standards

Beyond our own operations, we continue to focus on raising living standards for our employees and their families. In 2022, this included:

- Housing:** Commencing the design and planning phase for a further two new apartment blocks (including a total of 120 employee apartments) in Aksu and Khromtau under our Affordable Housing Programme (which aims to deliver a total of 832<sup>4</sup> new apartments by 2025). The apartments are provided to employees on preferential financial terms – with a focus on young employees and employees in critical roles, as well as those with large and / or socially disadvantaged families

- Social infrastructure:** Investment in social infrastructure across our operating regions, including sports facilities and events, and recreational areas (p. 40)
- Education and entrepreneurship:** Investment in a range of educational and entrepreneurship programmes to support long-term regional economic diversification and future job prospects for the children of employees (p. 42)

During the year, we conducted two large-scale surveys of local residents (including our employees) across six of our mining towns to help benchmark local socio-economic conditions (p. 37).

1 I.e. employees holding a written contract of employment with ERG as at 31 December 2022. This figure does not include contractors.

2 Collective bargaining agreements are in place at the majority of our operations.

3 Includes employees at offices in Europe, Russia, the UAE and China. The headcount of corporate offices in Kazakhstan, Africa and Brazil are included within each relevant region. In 2022, we scaled down activities at our Moscow corporate office significantly, in advance of its planned closure.

4 This has been revised from the previous plan, which was focused on constructing 860 apartments.

## Enhancing and standardising working conditions in Kazakhstan

Since 2016, ERG has been implementing a large-scale programme to help enhance and standardise physical working conditions at our operations in Kazakhstan. This aims to support the health and well-being of our employees and – in turn – the productivity of our workforce. In 2022, the programme focused on:

- **Onsite facilities:** Investment of around US\$12.5 million to enhance onsite facilities and accommodation, including a large-scale renovation programme at SSGPO
- **Catering:** The ongoing rollout of a single service provider for our canteens at a further two operations (Donskoy GOK and Aktobe Ferroalloys Plant), as well as the automation of our catering management systems. This is with the aim of delivering consistently high standards across our operations
- **Transportation:** The ongoing implementation of our transport standardisation programme, which focuses on the staged modernisation of ERG-owned and contracted transport. This included investment of US\$1.9 million for the purchase of 16 new buses (2021: 25)

In 2022, we conducted an engagement survey involving more than 10,000 employees to gauge levels of satisfaction regarding these ongoing efforts. We have integrated the findings from this survey into our related action plans.



### OUR IMPACT IN NUMBERS

**\$73M**  
invested in  
enhanced onsite  
facilities and canteens  
(2016-2022)

**8,455**  
onsite facilities and  
canteens renovated and /  
or newly constructed,  
across 10 operations  
(2016-2022)

**74%**  
of onsite facilities and  
canteens assessed as being  
in “good” technical  
condition (based on annual  
internal audits in 2022)

**\$11M**  
invested in enhanced  
transportation including  
the purchase of  
116 modern buses  
(2018-2022)

### Supporting employee well-being

We continued to relaunch, expand and enhance our employee sports and well-being programmes, many of which had been suspended due to COVID-19. This included the reopening of our corporate fitness centres across our operating regions. We also hosted a range of mass employee sports events, including the large-scale Eurasian Games in September 2022, as well as multiple team sports events. In addition, we significantly expanded the scope of our regular running clubs and mass races (for employees and non-employees).

We also relaunched our sports infrastructure modernisation and standardisation programme. This included the repair of fitness centres, pools and sports facilities at our operations.

### Differentiated pay rises

We continue to undertake extensive benchmarking of employee salaries in Kazakhstan. The outputs from this process have informed two rounds of differentiated pay rises for more than 60,000 employees, effective from January 2022 and January 2023 respectively. During 2022, we also applied further differentiated salary increases for more than 5,000 employees working in ‘scarce’ professions.

### Employee relations in Africa

The maintenance of strong employee relations is an important area of focus across our operations in Africa. As noted above, our people management efforts at our operations in the DRC were framed by significant operational expansion and changes in the scale and profile of our workforce (p. 32).

Our operations in the DRC apply a range of policies and procedures to support the maintenance of a fair and non-discriminatory working environment for our employees and contractors. This includes the application of the ERG Code of Conduct, the ERG Supplier Code of Conduct and our Human Rights Policy (p. 65).

We also maintain a well-publicised hotline and site-based grievance mechanisms for employees to raise any potential concerns. In 2022, we delivered training on the ERG Code of Conduct to ERG Africa employees and on the ERG Supplier Code of Conduct to contractors (p 63).



In January 2022, there was significant, albeit short-lived, social unrest in Kazakhstan. Although this took place outside of our operating regions, a small number of employees at Donskoy GOK (Kazchrome) took part in broader social protests. This event was of a limited nature and did not have a material impact on our production. The incident was resolved peacefully and rapidly via constructive negotiations between management and the employees. In light of these events, we have strengthened some of our operational resilience measures and are working with the authorities to promote social development (p. 40).

## NEXT STEPS

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

- **Housing:** The ongoing construction of 832 employee apartments by 2025 under our Affordable Housing Programme; and the rollout, in partnership with the Karaganda Akimat and the Otbasay Bank, of a US\$2.4 million programme (of which ERG will fund US\$865,000) to provide preferential mortgages to employees at Shubarkol Komir
- **Onsite facilities and catering:** The completion of our large-scale investment programmes to transition to a single catering service provider and enhance onsite facilities in 2023
- **Sports and well-being:** The ongoing expansion of our large-scale employee sports events, and the digitalisation of related platforms to support increased employee participation

In Africa, we plan to further expand our directly employed, full-time operational workforce to support the ongoing Phase 2 ramp-up at Metalkol, the phased restart at Boss Mining, the transition to owner-operator mining at Frontier and the delivery of our capital projects.

In Brazil, we plan to launch our enhanced diversity, equity and inclusion programme in 2023.

BAMIN also launched a project to review and enhance its diversity, equity and inclusion programme. This included external benchmarking, analysis of workforce diversity metrics and targeted cross-functional engagement. In addition, BAMIN continued to participate in the 'Women in Mining Brazil' initiative<sup>1</sup> as part of our ongoing efforts to support gender inclusion in the mining sector.

## OUR PERFORMANCE

During 2022:

- 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
- We did not experience any strike action in Kazakhstan, Africa or Brazil

We provide competitive remuneration aligned with relevant collective bargaining agreements and legislative requirements. Permanent Congolese employees also receive school fees, housing, transport and family allowances, amongst other benefits.

### Contractor working conditions at Metalkol

In November 2021, NGO Rights and Accountability in Development (RAID) published a report alleging cases of exploitation and labour abuses affecting Congolese workers at a number of industrial copper and cobalt mines in the DRC. The report included historic allegations relating to Metalkol and refer to practices alleged to have been undertaken by subcontractors.

ERG and Metalkol have reviewed and followed up on the allegations in the RAID report. Metalkol's detailed response is publicly available here: [ergafrica.com](https://ergafrica.com)

➤ For further information, see p. 62.

### Employee relations in Brazil

At BAMIN, we continued to build constructive and transparent relations with our employees' unions, in line with the ongoing expansion of the operation.

In addition, we undertook an operation-wide employee engagement survey, building on similar annual surveys undertaken since 2019. This resulted in an improved overall engagement score of 89% (2021: 82%) and the retention of our externally recognised Great Place to Work® certification.

We also implemented a range of measures to address areas identified via our previous engagement survey. This included the benchmarking and enhancement of salaries and benefits, as well as the rollout of a recognition programme for long-serving employees.

<sup>1</sup> Women in Mining Brazil is an initiative of International Women in Mining: [wimbrasil.org](https://wimbrasil.org).

# Community

development and well-being

Community social investment (CSI) is integral to our 2025 Strategy, which commits us to the sustainable development of our host regions. Our Group-wide approach is underpinned by the active management of both our positive and negative impacts on local communities and is informed by structured and transparent community engagement.

In Kazakhstan, we support socio-economic development and diversification across our mining towns and wider operating regions. At the same time, we make an important contribution to national-level social investment to help support the broader development agenda of the Government of the Republic of Kazakhstan.

We are equally focused on helping to address sustainable development priorities within local communities around our operations in Africa and Brazil, many of which face material socio-economic challenges.

➤ For additional information on our management approach, see p. 76 of Appendix.

## 2022 HIGHLIGHTS

- > US\$96M Group-wide CSI (2021: US\$65.2M)
- > Implemented our Home Town and School of Active Citizens programmes to support collaborative governance in Kazakhstan
- > Implemented our Commitments Registers in the DRC, helping communities shape their own development priorities

### Material issues

#### COMMUNITY IMPACTS

➤ See p. 37

#### COMMUNITY SOCIAL INVESTMENT

➤ See p. 40

# 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 ongoing community engagement and the maintenance of relevant international standards, amongst other measures.

### Relevant UN SDGs

See p. 84 for associated UN Targets



In line with both our Values and our Human Rights Policy, we aim to minimise the negative impacts of our activities, and respect cultural and regional traditions wherever we operate. At the same time, we seek to maximise our positive impacts, including through CSI (p. 40) and our ongoing support for local content in our host countries (p. 56).

## WHAT WE ARE DOING

### Managing our impacts in Kazakhstan

We conduct comprehensive impact assessments and public consultations whenever undertaking major developments or operational changes – in line with national legal requirements and relevant international standards. In 2022, for example, we conducted public consultations in relation to operational activity at Kazchrome, EEC, KAS, Shubarkol Komir and Aluminium of Kazakhstan, amongst other locations. During the year, ERG Recycling carried out an impact assessment and public consultation relating to the reclamation of a disused third-party quarry in Aktobe that had previously been used for informal waste landfill. Whilst the quarry is not owned or operated by ERG, the initiative was planned as part of our efforts to support the well-being of local communities. Based on the outcomes of the consultation process, the decision was taken not to proceed with the project.

In addition, we carry out large-scale surveys of community members and undertake benchmarking of socio-economic conditions in our mining towns (see opposite).

Local communities can also raise grievances through our publicly available Group Hotline (see: [erg.integrityline.org](http://erg.integrityline.org) and p. 62).

### Managing our impacts in Africa

#### Impact and grievance management

In Africa, we manage our community impacts through our integrated Safety, Health and Sustainability (SHS) management system.

1 Lisakovsk, Rudny, Aksu, Khromtau, Kachary and Oktyabrsky.

2 ASM activity is not present in the vicinity of our Frontier operation (our other active operation in the DRC) due to the geological nature of the deposit.

## Understanding and responding to the views of local communities in Kazakhstan

In April and October 2022 we undertook two large-scale surveys involving more than 8,300 residents (including ERG employees) across six of our mining towns.<sup>1</sup> These were carried out with support from local akimats (regional governments).

The October survey found that local perceptions of socio-economic conditions had marginally improved since April. Nonetheless, it identified ongoing challenges for local residents, including rising living costs

and perceptions that health care, municipal services and road infrastructure required further improvement.

These findings will guide the focus of our CSI programmes (p. 40) and will help inform similar projects being implemented by local akimats. We have also implemented differentiated pay rises for more than 60,000 employees at our operations in Kazakhstan (p. 34).

We apply the IsoMetrix software programme to help record, centralise and analyse SHS data and to facilitate more effective mitigating actions.

Our operations in Africa also apply site-based community grievance mechanisms and related procedures, which are aligned with the International Finance Corporation (IFC) Performance Standards and the UN Guiding Principles on Business and Human Rights. These are publicised widely at our operations and communicated to communities via our engagement processes. We provide multiple channels to raise grievances, including through our community liaison officers and via community-based 'drop off points'.

Our approach is supported by close, ongoing community engagement, including through the mandatory 'Commitments Register' process in the DRC (p. 43).

For information on our Group-wide approach to human rights, see p. 64.

### Responding to ASM activity at our operations ASM management approach

While artisanal and small-scale mining (ASM) activity is present in the vicinity of our Metalkol and Boss Mining operations<sup>2</sup>, none of our production comes from ASM. At the same time, we acknowledge the important role that ASM plays in supporting much-needed livelihoods in the DRC. In this context, our CSI includes initiatives to improve socio-economic conditions for ASM communities, including the development of alternative livelihoods (p. 43). In addition, we continue to explore opportunities to support the potential formalisation of the ASM sector (p. 44).

At Metalkol, we also maintain a cross-departmental Joint ASM Working Group. This group meets regularly and is responsible for reviewing and assessing ASM-related information, risks and incidents – and for developing recommendations for remediation and / or mitigation measures.

### ASM activity

A significant number of artisanal miners operate on the boundary of our concession at Metalkol, outside of our fenced Kingamyambo tailings deposit. We continue to work with an independent NGO to deliver capacity building within the community. This is with the aim of building constructive relationships and mitigating some of the negative impacts associated with these informal activities. Our efforts focus on occupational health and safety, hygiene, waste management and basic financial management.

At Boss Mining, illegal ASM activity continues to take place at our Mukondo site and beyond. We are focused on restricting access to critical mining areas and continue to engage with the Ministry of Mines and civil society partners to help find a sustainable solution.

### Environmental and Social Impact Assessments (ESIAs)

In 2022, we continued to implement a range of programmes to address issues identified through our ESIAs in the DRC. For more details please see p. 43 and p. 44.

At Metalkol, we received government approval for our updated ESIA that was submitted in early 2021. We also submitted a further ESIA for approval, which covers additional planned processing activities at the site. In addition, we submitted an updated ESIA for Frontier. At Comide, we received government approval for our updated ESIA in 2021.<sup>1</sup>

In addition to our ESIAs, our CSI programmes are based on structured consultations undertaken as part of the formal community investment framework in the DRC (or 'Commitments Registers').

➤ For more information on projects implemented under our Commitments Registers, see p. 43.

### Flooding and related suspension of Boss Mining in the DRC

In March 2023, Boss Mining and the broader Kakanda area received unprecedented levels of rainfall, as well as related flooding from upstream, third-party tailings storage facilities. This also resulted in water flooding into the nearby Kakanda River. These downpours and the subsequent flooding affected Boss Mining and its nearby communities. Testing did not identify any resulting hazardous water pollution.

Prior to these events, Boss Mining broadcasted public rainfall warnings and alerted the local authorities. It also requested the evacuation of the neighbouring villages, which was carried out (other than a small number of individuals who chose to stay in place). Following the flooding, Boss Mining immediately liaised with local people, relevant authorities and civil society and took action to provide financial and medical support to those impacted, as well as food and emergency supplies. It subsequently worked with the relevant authorities to assess the routes of the flooding, its impacts, the remediation and prevention measures that need to be implemented, and to establish the facts around the incident.

In April 2023, the Ministry of Mines' Directorate for the Protection of the Mining Environment (DPEM) issued a series of recommendations and corrective measures for implementation by Boss Mining. This required the submission of a 90-day action plan in this regard by 15 June 2023, which has been submitted.

Nonetheless, on 29 May 2023 (i.e. before Boss Mining submitted its action plan) the Ministry of Mines ordered a three-month suspension of operations. Boss Mining has appealed this decision and, at the time of writing, is awaiting a response from the Ministry.

## Our mandatory environmental plans at BAMIN

Under our licencing obligations, our Pedra de Ferro mine and Porto Sul port development have established mandatory environmental plans (Projeto Básico Ambiental, PBAs).<sup>4</sup> These legally mandated documents are approved by, and monitored by, relevant government

environmental agencies. The PBAs establish the social and environmental programmes that are required to mitigate the potential and / or actual impacts of our operations on local communities (p. 44), as identified through our environmental impact studies.

In the meantime, we are focusing on the implementation of the DPEM's recommendations within the stipulated timeline, as well as the enhancement of Boss Mining's processes.

### Resettlement at Metalkol

We continue to provide support to 16 resettled families from the Samukonga community near to Metalkol. The families were successfully resettled in a new village (Kamimbi II) in 2018 – as part of a voluntary resettlement process and in line with local law and the IFC Performance Standards.<sup>2</sup>

During the year, we carried out a joint agricultural survey with the University of Lubumbashi to support the development of an alternative livelihood programme for the community, which we plan to roll out in 2023.<sup>3</sup> We also continued to provide monthly supply of food and helped maintain water supply systems, solar power systems and housing at the village.

The Kamimbi II and Samukonga communities also benefit from our broader sustainable livelihood programmes (p. 44).

### Managing our impacts in Brazil

At BAMIN, we play an important role in supporting the socio-economic development of low-income communities living near to our Pedra de Ferro mine and Porto Sul port development (p. 44).

This is underpinned by our risk-based approach towards the management of our direct and indirect impacts (as per local legal requirements) – and our maintenance of constructive engagement with local stakeholders. These efforts directly support our social licence to operate, contributing to the long-term success of the operation.

### Engagement and impact management

At our Pedra de Ferro mine, our engagement programme covers 108 communities in 2022 – while our programme at Porto Sul covers 31 communities during the year (see p. 76 in Appendix for further information). Our engagement programme will support the development of the FIO1 1 railway once we start construction work.

In addition, we:

- Continued to implement a programme to improve agricultural production for 15 families<sup>1</sup> from the nearby Fazenda Lapa community, who were resettled in 2011 in line with legal requirements
- Expanded our support for external initiatives aimed at preventing violence and sexual exploitation associated with prostitution in nearby communities

<sup>1</sup> The ESIAs for Frontier and Comide were updated in line with our five-yearly licensing obligations.

<sup>2</sup> The need for resettlement was identified through our ESIA, due to the proximity of the families to Metalkol's new tailings storage facility. ERG funded the construction of the village, which offers a better standard of accommodation than the families previously enjoyed.

<sup>3</sup> The programme has previously faced delays due to COVID-19 and related procurement challenges.

<sup>4</sup> In 2022, the PBA for the FIO1 1 railway was under review by relevant government agencies.

### Specific impacts at Porto Sul

Under the terms of our concession agreement, the development of our Porto Sul port development requires the expropriation of 212 plots of land. The majority of these purchases were completed in 2022. This affects around 320 families, most of whom do not live on the land in question.

The expropriation process began in 2019 and is being conducted by the government of the State of Bahia. Owners are compensated, while the small proportion of people who are not owners (but who nonetheless live and work on the land in question) are resettled and also receive compensation as required by local law.

BAMIN is closely monitoring the process, with support from a third-party consultancy, to help ensure transparency and the maintenance of good community relations.

In addition, we implement a comprehensive joint fishing monitoring programme, as well as a compensation programme. These programmes aim to help minimise potential negative impacts that the port development could have on artisanal fishing, the most significant source of income for nearby communities.

### Indigenous communities

Our ESIA have established that our Porto Sul port development will have no significant impacts on indigenous communities. In this context, we have received formal approval from Fundação Nacional dos Povos Indígenas (FUNAI, the government body tasked with overseeing Indigenous Peoples' rights) as part of our licencing process.

Nonetheless, Tupinambá indigenous communities live in the city of Ilhéus, within the direct area of influence of Porto Sul (around 45km from the project). Despite the absence of significant project impacts, in 2022 we began implementing voluntary measures to help improve living conditions for these communities. This included the donation of 5,000 native seedlings to support

reforestation around a river that runs through some of the communities' lands. In 2023, we plan to provide vocational training for 20 indigenous community members under our Canteiro Escola (or 'Site School') programme (p. 44).

In addition, five traditional Quilombo (i.e. Afro-Brazilian) communities live around 60km from the project, outside of Porto Sul's areas of influence. These communities nonetheless benefit from the social programmes that we implement under our PBA for the port development (p. 44).<sup>2</sup>

### Mitigating dust impacts

During the year, we continued to implement enhanced dust suppression controls and monitoring at the Pedra de Ferro mine. Actions included the installation of wind barriers, the water spraying of the road and the application of polymer dust suppressants on our stockpiles. This follows community complaints relating to iron ore dust from the mine, as well as road dust from our local haulage routes. Local community representatives have expressed their satisfaction with respect to some of these measures at two meetings held by the related joint community monitoring committee in 2022. In addition, our monitoring processes indicated that all PM10 and PM2.5 particulate levels fell within legislative limits in 2022, with the exception of one sample conducted in December.

## OUR PERFORMANCE

In Kazakhstan, we conducted 42 public consultations related to project changes (2021: 35). No significant grievances were raised during these hearings or through any of the available community relations channels.

In Africa, five complaints were raised via our grievance mechanisms in 2022 (2021: 16), and all of these were subsequently resolved. Three of these complaints related to our direct activities and focused on supervisor behaviour, delays in



the implementation of CSI projects and employee salary demands. The other two complaints involved third parties and related to:

- The conduct of public security personnel, which we have responded to by undertaking follow-up advocacy and training based on the Voluntary Principles on Security and Human Rights
- The delayed payment of salaries by a contractor to its employees. We have since facilitated engagement between the parties to ensure payments are made in line with our Supplier Code of Conduct

Finally, we received 83 complaints via our community grievance management and engagement system in Brazil (2021: 151) – 71 of which were resolved during the year, and 12 were resolved in 2023. Key complaints related to dust emissions, contractor employment practices, restrictions on access to property and vehicle-related safety risks.

## NEXT STEPS

In Kazakhstan, we plan to conduct our next large-scale engagement survey across our six mining towns in 2023. This will help inform our own CSI activities, as well as the broader regional development agenda.

In Africa, we plan to continue the development and implementation of our Commitments Registers, including the undertaking of related public consultation processes (p. 43).

In Brazil, we plan to undertake additional stakeholder mapping, social impact assessments and socio-economic benchmarking focused on local communities around the Pedra de Ferro mine, Porto Sul port development and the FIOL 1 railway concession.

1 This excludes three families who abdicated their rights to a plot of land. Nonetheless, we continue to support and monitor all 18 families.

2 The total number of formally recognised local indigenous communities could increase in future, subject to further recognition processes undertaken by FUNAI.

# COMMUNITY SOCIAL INVESTMENT

## 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 improving community well-being and prosperity, while also supporting entrepreneurship and the development of the local business environment.

## Relevant UN SDGs

See p. 84 for associated UN Targets



In Kazakhstan, we support socio-economic development and diversification across our (often remote) mining towns and broader operating regions. We contribute to national-level social investment to help address some of the country's principal socio-economic challenges, in line with the Government of the Republic of Kazakhstan's broader development agenda.

In Africa, we focus on addressing the most material development challenges facing local communities in our operating regions, including extreme poverty. In the DRC, this includes our ongoing efforts to help improve socio-economic conditions and support alternative livelihoods for local ASM communities. In Brazil, we support local socio-economic development and help improve living conditions for nearby communities.

Our Group-wide approach is underpinned by our Group Corporate Social Responsibility (CSR) Projects and Sponsorship Policy (p. 76).

For additional information on our management approach, see p. 75 of Appendix.

## WHAT WE ARE DOING IN KAZAKHSTAN<sup>1</sup>

### Collaborative regional development

In 2022, we continued to implement our regional development programme. This aims to support long-term socio-economic development across our mining towns and operating regions. It is being implemented through partnerships with government at the national and regional levels, including our regional memoranda of understanding (Regional MoUs<sup>2</sup>). The programme is focused on the specific needs of each operating region. These needs are identified through targeted annual engagement surveys, as well as our Tugan Qala ('Home Town') and School of Active Citizens programmes (p. 41).

1 Projects that benefit our local communities (including, where relevant, employees and their families) are set out in this section. Projects that only benefit employees are covered in 'Employee Relations' on p. 33.  
 2 Regional MoUs are negotiated strategic partnerships between ERG and regional authorities targeted at the broader socio-economic development of local communities (some of which are undertaken as part of our licensing obligations).  
 3 Specifically, the programme continued to be implemented in the cities of Khromtau (Aktobe region), Aksu (Pavlodar region) and Rudny (Kostanay region) – and was expanded to the town of Kachar and the village of Oktyabrsky (both in the Kostanay region).  
 4 The difference between this figure and the figure quoted in our 2021 Sustainable Development Report reflects changes in the Tenge / US dollar exchange rate.

These workstreams have identified the following priorities:

- Improved living standards including housing and utilities infrastructure, public transport and roads, and urban spaces
- Education and youth skills development including support for local educational and entrepreneurship programmes – as well as targeted investment in schools, colleges and universities
- Healthcare including the modernisation of medical institutions and the provision of advanced training for doctors
- Promotion of sports and well-being including the development of community infrastructure and youth sports leagues

For the purposes of our reporting, we have structured this section around our ongoing efforts to address these priorities. This includes initiatives under our Regional MoUs (i.e. the government partnerships through which we implement the regional development programme), as well as our direct social investments (i.e. which fall outside the scope of the programme).

## Improving living standards

Our long-term aim is to support the development of urban environments in our mining towns and operating regions where multiple generations (including the children of our employees) will choose to live and work.

We are committed to enabling local communities to define their own priorities in this regard, and to supporting enhanced collaboration between regional governments and Kazakhstani citizens (including our employees). Most notably, this includes:

- **Tugan Qala ('Home Town')**: The ongoing expansion of the programme in the Aktobe, Pavlodar and Kostanay regions.<sup>3</sup> Under Tugan Qala, we involve local populations in deciding how funds should be distributed under our Regional MoUs signed with akimats. Local residents initiate on projects aimed at improving the urban environment. Winning projects are then selected by local residents via an online vote, and are fully funded through our Regional MoUs

## Supporting the national Kazakhstan Khalkyna public social fund

In January 2022, ERG donated US\$65 million<sup>4</sup> to support the creation of the Kazakhstan Khalkyna public social fund. This forms part of our efforts to support the broader development priorities of the Government of the Republic of Kazakhstan. The fund was created to help address national development

priorities, including the enhancement of healthcare, education and social services, amongst other areas.

The priority areas of the fund are identified via structured engagement with established charities and corporate donors (including ERG).

- **School of Active Citizens:** The ongoing implementation of a programme that educates local residents on how to participate in state budgeting mechanisms. It also helps local residents improve their own cities by actively participating in decision-making by local authorities through the government-run 'Public Participation Budget'.<sup>1</sup> In 2022, more than 60 employees completed practical training

at our operations in the Pavlodar, Aktobe and Kostanay regions. In addition, local authorities implemented several winning projects that were submitted by our employees in 2021, including the construction of a public playground, a basketball court and new bus stops (with the outstanding projects to be implemented in 2023). From 2023, the programme will also be open to local residents in our mining towns.

Other projects implemented through our Regional MoUs included the provision of funding for:

- The modernisation of apartment buildings inhabited by ERG employees as well as pensioners in the Aktobe region (US\$648,000)
- The improvement of 16 public courtyards in the Pavlodar region (US\$631,000)

- Preparatory work for the repair and maintenance of heating systems (US\$614,000) and the renovation of residential apartment buildings (US\$72,000) in the Kostanay region

## Our approach to CSI in Kazakhstan

Our multi-layered approach to CSI seeks to address both regional and national development priorities – while also supporting the social needs of our employees and their families. We implement a range of stakeholder feedback mechanisms to help local communities in our mining towns (including our employees and their families) to define their own development priorities. In doing so, we ensure that our CSI approach remains responsive to the views of local stakeholders.

Much of our CSI is delivered through structured, transparent partnerships with the Government of the Republic of Kazakhstan – at the regional and national levels – to help ensure our efforts support broader development priorities.

### STRATEGY

### IMPLEMENTATION MECHANISMS

### FOCUS AREAS

**Group CSR Projects and Sponsorship Policy** and supporting process framework

**Direct social investment**  
Targeted at maximising our positive impacts and minimising our negative impacts on local communities

**\$67.8M**  
**Direct social investment in 2022**

#### National development

We contribute to national-level social investment to help address some of the principal socio-economic challenges facing the country and to help preserve our cultural heritage

**Regional development programme**

This supports long-term socio-economic development in our operating regions

**Regional memoranda of understanding (Regional MoUs)**  
Negotiated strategic partnerships with regional authorities

**\$18.2M**  
**Investment via Regional MoUs in 2022**

#### Regional development

A significant proportion of our CSI spending is focused on supporting broader socio-economic development (primarily through our Regional MoUs)

#### Development of mining towns

Many communities have effectively developed as a result of our operations. As such, our CSI efforts aim to reduce community dependency on ERG over the long term

#### Employees living in our local communities

We use part of our CSI spending to improve the living standards of our employees and their families outside of work



#### Feedback mechanisms

##### Tugan Qala ('Home Town')

A programme to give communities in our mining towns, including our employees, the opportunity to shape local development priorities (p. 40)

##### School of Active Citizens

A programme providing practical training to employees to support their active involvement in the government-run 'Public Participation Budget' (see above)

##### Large-scale annual surveys

We undertake surveys of community members (including ERG employees) to help ensure our approach remains aligned to local priorities



#### Partners

Government of the Republic of Kazakhstan

Local government

Civil society

Local communities

Employees and their representatives

<sup>1</sup> The Public Participation Budget enables citizens to contribute their ideas via a public online portal. Following initial consideration by a government-led committee, winning submissions are decided via an online public vote and are funded by regional governments.

## Education and youth skills development

We support the development of regional educational institutions and the enhancement of teaching capabilities to help equip local students with the multi-layered skills necessary to thrive in future labour markets. At the same time, these efforts aim to support long-term regional economic diversification in our operating regions.

During the year, we invested US\$93,600 as part of our ongoing support for the Student Entrepreneurship Ecosystem programme (*ecosystemerg.kz*).<sup>1</sup> This helps transform regional universities and colleges into hubs of entrepreneurial excellence, with the long-term goal of supporting new start-up businesses in our operating regions. In 2022, the programme hosted entrepreneurial skills development events involving more than 1,800 students and 200 teachers.

More broadly, we continue to invest in a range of educational institutions through our Regional MoUs. In 2022, this included funding for:

- Vocational student training programmes at colleges and universities in the Pavlodar region (US\$508,000)
- The purchase of new school buses in the city of Shymkent (US\$133,000)
- Teacher training programmes in the Kostanay region (US\$108,000), as well as the purchase of educational resources for the Rudny Industrial Institute (US\$43,000)
- The purchase of learning materials and computers for the Khromtau Mining and Technical College in the Aktobe region (US\$106,000)

In addition, we continue to support a range of strategic initiatives under the 'Atlas of New Professions' programme, to help transform the higher education system and support our future skills pipeline (p. 31).

## Healthcare

We finance modern medical infrastructure through our Regional MoUs to help enhance healthcare provision for our employees and their families, as well as for the wider communities in our operating regions. In 2022, this included funding for:

- The purchase of modern medical equipment at an emergency care unit in the Aktobe region (US\$936,000)
- The renovation of a care unit for premature babies in the Pavlodar region (US\$910,000)

## Sports and well-being

Community well-being is about more than narrow economic development. We invest in mass participation sports, community sports infrastructure and youth sports initiatives across our operating regions.

In 2022, this included funding for the following initiatives under our Regional MoUs:

- Provision of a football field, including the installation of artificial grass, fencing, goals and lighting at Specialised School No. 6, Ekibastuz (US\$64,000)

- The construction of five public football pitches (US\$205,000), as well as a football pitch at a school for children with special educational needs (US\$65,000) in the Pavlodar region

In addition, we expanded our efforts to increase employee participation in sports and help improve lifestyle choices (p. 34).

## ERG Mektepke ('ERG for Schools')

**In 2022, we continued to implement our ERG Mektepke ('ERG for Schools') programme. During the year, this programme helped to enhance STEM<sup>2</sup> education at more than 200 secondary schools in our Aktobe, Kostanay and Pavlodar regions. It is being implemented in partnership with leading third-party education providers, as well as the Ministry of Education of the Republic of Kazakhstan.**

In 2022, we invested US\$702,000 in the programme through our Regional MoUs (2021: US\$347,000). Key activities included:

- The rollout of an online learning platform to provide interactive STEM learning resources to more than 60,000 pupils
- The delivery of advanced professional development training to more than 4,700 teachers

In 2023, we plan to introduce additional professional development tools for teachers and school leaders.



<sup>1</sup> The programme is being implemented in partnership with the Tel Aviv University Friends Association in Kazakhstan and the Almaty Management University (AlmaU).

<sup>2</sup> Science, technology, engineering and mathematics.

## WHAT WE ARE DOING IN AFRICA

### Our Commitments Registers in the DRC

The DRC's 2018 Mining Code incorporates mandatory CSI obligations for the mining sector. It requires the establishment of a legally binding CSI framework (or a 'Commitments Register'), to be renewed on a five-yearly basis in parallel with the updating of a mining operation's environmental and social impact assessment (ESIA).

This is based on formal public consultation with key stakeholders to identify local development priorities and is reviewed and approved by local authorities. Progress made against these commitments is subject to independent monitoring on an annual basis.

The Code also requires all mining companies to contribute 0.3% of annual turnover to a community sustainability fund, which is managed by a multi-stakeholder body.

Our Commitments Registers place particular focus on agricultural development, access to water, healthcare and education, amongst other areas.<sup>1</sup>

At Frontier, we received government approval for our Commitments Register in August 2022, meaning we will start full project implementation focused on six local communities from 2023. In addition, we continued to implement a sustainable agricultural programme at Frontier, which now falls under our Commitments Register. This included the application of a newly renovated milling facility that helped process maize flour for local communities in 2022.

Key future projects include the planned construction of two primary schools and two secondary schools.

In addition, at Metalkol and Frontier we continued to engage with the Government and develop the relevant stakeholder committee structures to support the allocation of 0.3% of annual turnover to a dedicated community sustainability fund (see p. 44).<sup>2</sup>

Finally, we carried out formal stakeholder consultations and commenced government approval processes in advance of the establishment of our Commitments Registers at Boss Mining and Comide.

### Broader CSI activities in the DRC

We also continued to support the development priorities of local communities outside of our Commitments Registers obligations (see below), the majority of which fall under our mandatory licensing obligations.

In addition, we also continue to support the Good Shepherd International Foundation (GSIF) to help improve socio-economic conditions and support alternative livelihoods for ASM communities near Metalkol (see next page).

## Key examples of our broader CSI activities in the DRC

At Metalkol and Frontier, we continued to support government vaccination campaigns, amongst other health-related programmes. In addition, we invested US\$45,000 to support the running of a community health clinic under our voluntary CSI activities at Comide. At Boss Mining, we provide initial assistance to local community members with medical emergencies via our fully supported clinic, which is the only one in the Kakanda area (p. 29). In addition, our clinic assists with the implementation of public and NGO-driven vaccination campaigns.

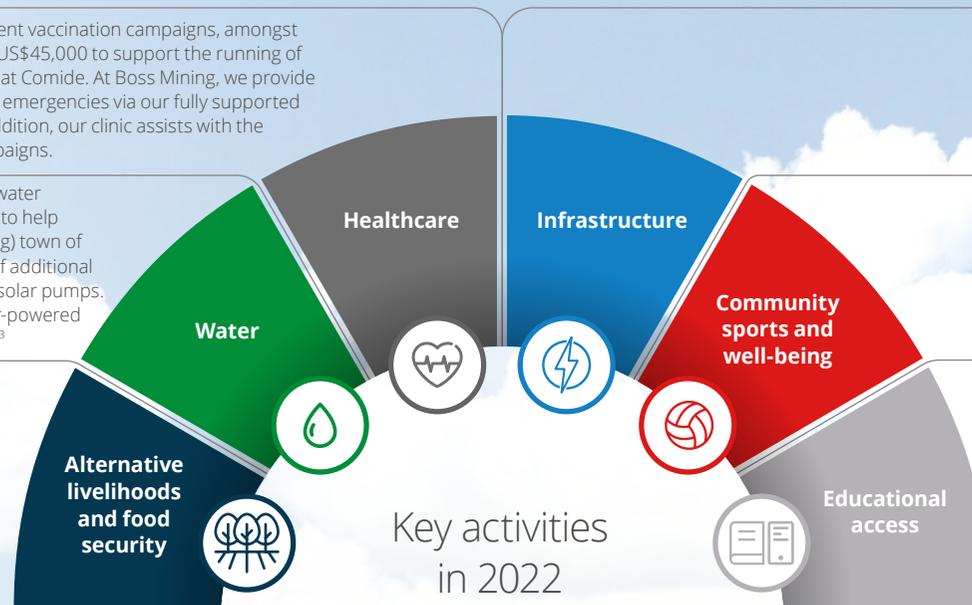
At Frontier, we completed the construction of a large-scale water reticulation system in partnership with the local authorities to help deliver clean water to households in the nearby (and growing) town of Sakania. This included the water pump repairs, the drilling of additional wells, the rehabilitation of boreholes and the installation of solar pumps. At Metalkol, we plan to commence drilling on wells and solar-powered water distribution facilities for nearby communities in 2023.<sup>3</sup>

This included a voluntary investment of US\$303,000 to support the ongoing implementation of a sustainable agricultural programme near Boss Mining, which directly benefited 187 households in 2022. We also made a voluntary investment of US\$110,000 in an agricultural programme at Comide, which supports 100 households.

At Boss Mining, we invested US\$635,000 to provide electricity to the town of Kakanda.

At Metalkol, we made a voluntary investment of around US\$127,000 to fund the construction of two community football fields. These are scheduled to open in 2023.

At Boss Mining, we continued to fund educational initiatives in the nearby town of Kakanda. This included US\$2 million of funding to support more than 4,000 students (2021: 4,400) and 130 teachers (2021: 150). At Metalkol, we continued to implement a pilot 18-month apprenticeship programme which we launched in 2021 to provide vocational skills training for eight local students (four of whom are female).



<sup>1</sup> The Commitments Registers also integrate priorities identified through Participatory Rural Appraisals (PRAs), as well as priorities established through our ESIA's. In 2017, we completed PRAs – and supported the development of related Community Action Plans (CAPs) – with 19 local communities in the DRC.

<sup>2</sup> This process is currently only applicable to Metalkol and Frontier as they are generating turnover.

<sup>3</sup> Drilling had been planned in 2022, but was delayed due to procurement challenges. We launched the programme in response to community priorities identified through our Participatory Rural Appraisals (PRAs) – and in light of some of our own project impacts, including the fencing of the Kingamyambo tailings dam, which restricted water access for some community members.

## Artisanal and small-scale mining

In line with our Clean Cobalt and Copper Framework (p. 65), none of our production comes from ASM. At the same time, we acknowledge the important role that ASM plays in supporting much needed livelihoods in the DRC.

Since 2017, we have partnered with the Good Shepherd International Foundation (GSIF) through a multi-year commitment at Metalkol. This includes a focus on child protection, women's empowerment, alternative livelihoods and capacity building. During the year, for example, we continued to support the implementation of the GSIF's Bon Pasteur intervention programme in Tshala, which has helped to establish 13 farming cooperatives.

In 2022, the programme was fully funded by ERG and contributed to:

- The provision of educational support to 202 children (100 boys and 102 girls)
- The provision of agricultural inputs, including seed and fertiliser, to 268 cooperative members
- The delivery of financial literacy training to 389 community members (325 women and 64 men)

- The delivery of awareness training on children's rights and the risks associated with child labour to 1,354 community members

In addition, ASM communities living near to Metalkol and Boss Mining will benefit from our alternative livelihood programmes and related CSI activities being delivered under our Commitments Register obligations (p. 43).

We also continue to explore opportunities to support the potential formalisation of responsible ASM in the DRC.

For information on how we work with others to achieve responsible global value chains for cobalt and copper, see 'Responsible value chains' on p. 65.

## WHAT WE ARE DOING IN BRAZIL

At BAMIN, many local communities live in conditions of poverty, with limited access to formal employment. In this context, we focus on supporting local business incubation, vocational skills training and employment opportunities, educational provision, infrastructure development and ecological restoration, amongst other areas.



## Implementing our Commitments Register at Metalkol

At Metalkol, we invested US\$2.1 million in the implementation of several projects under our Commitments Register (which was approved in 2020). These projects form part of a multi-year programme to help address the development priorities of nine local communities. In 2022, key projects included:

- The ongoing implementation of a sustainable agricultural programme to provide maize seeds, tools and capacity building for 476 households. During the year, 739 tonnes of maize were harvested

- The construction of 16 fish farming ponds (2021: 10<sup>1</sup>) to support alternative livelihoods for 145 households, with plans to launch the project from 2023
- The construction of a community health clinic, which we plan to complete in 2023
- The construction of a combined primary and secondary school for the Kamimbi II community, which we plan to complete and hand over to the government in 2023
- The drilling and installation of four community boreholes and related solar-powered water distribution facilities

In 2022, key activities implemented under our PBAs included:

- The ongoing rollout of our Transformar (or 'Transform') project. This provides equipment, supplies and capacity building for 120 community-based entrepreneurs in the municipalities of Caetité, Licínio de Almeida and Pindaí
- The ongoing implementation of our Circuito do Lixo (or 'Refuse Cycle') programme. This provides opportunities for local businesses to collect and recycle revenue-generating waste from the Pedra de Ferro mine. Since 2010, the programme has benefited around 40 community members and resulted in the recycling of around 3 million tonnes of solid waste, with an estimated value of around US\$397,000
- The delivery of vocational training to around 200 local young people from the lowest-income local communities over the 2021-2022 academic year, through our Canteiro Escola (or 'Site School') initiative. This aims to help these individuals to access employment opportunities with BAMIN or at other commercial operations

- The launch of a four-year programme with the Universidade Estadual de Santa Cruz. Under the programme, 40 students and lecturers participated in social and environmental fieldwork at Porto Sul in 2022

Outside of our PBAs, we continued to support a range of community initiatives on a voluntary basis. This included:

- The donation of around US\$105,000 for the purchase of food, water and basic supplies, as well as the rental of street cleaning equipment, to support community members affected by heavy rains in Bahia
- The donation of around US\$156,000 to support the construction of one environmental and one mining laboratory, as well as the provision of equipment, at a technical college in the municipality of Caetité
- The donation of around US\$125,000 as part of our ongoing support for the São José – Santa Casa de Misericórdia Hospital in the city of Ilhéus (2021: around US\$129,000). This donation helped provide meals for patients, their families and employees at the hospital

<sup>1</sup> Restatement: The 2021 figure was incorrectly stated as 16 in the 2021 Sustainable Development Report.

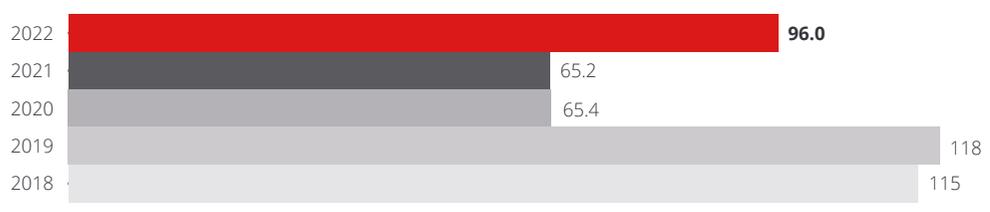
## GROUP CSI CONTRIBUTIONS BY REGION (US\$M)

Region	2022	2021
Kazakhstan	86.0	58.1
Africa	7.8	6.3
Brazil	2.2	0.8

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

Spending type	2022	2021
Direct investment	67.8	36.7
Regional memoranda of understanding	18.2	21.4

## GROUP CSI CONTRIBUTIONS BY YEAR (US\$M)



## OUR PERFORMANCE

In 2022, ERG's worldwide CSI contributions amounted to US\$96 million (2021: US\$65.2 million).

In Kazakhstan, our CSI contributions totalled US\$86 million (2021: US\$58.1 million). This includes our support for national-level social investment projects; most notably, our donation of US\$65 million to support the creation of the Kazakhstan Khalkyna public social fund (p. 40). It also includes US\$18.2 million to fund Regional MoUs with local governments (2021: US\$21.4 million) under our regional development programme (p. 41).

In Africa, our CSI contributions totalled US\$7.8 million (2021: US\$6.3 million), including the ongoing implementation of a range of projects under our Commitments Registers and our broader voluntary initiatives. In Brazil, our CSI contributions totalled US\$2.2 million (2021: US\$0.8 million), including the implementation of several initiatives under our mandatory PBAs and our broader voluntary efforts.

## NEXT STEPS

In Kazakhstan, we plan to:

- Continue to implement a range of CSI initiatives under our regional development programme
- Invest US\$10.8 million through our Regional MoUs in the construction of a digitally-enabled modern secondary school for 1,200 local pupils in the city of Rudny (Kostanay region)
- Invest US\$1.1 million to support the creation of a partnership between ERG, the DAMU Entrepreneurship Development Fund, the National Chamber of Entrepreneurs and the Akimat of Aktobe to help develop and support small- and medium-sized businesses in the city of Khromtau (Aktobe region)

In Africa, we plan to continue implementing a range of CSI programmes under our Commitments Registers. At Metalkol, this will include the full launch of our farming programme, as well as the completion of a combined primary and secondary school and a community health clinic. At Frontier, we plan to construct two primary schools and two secondary schools. At Metalkol and Frontier, we will also continue to work with the Government and other stakeholders to support the allocation of 0.3% of annual turnover to a dedicated community sustainability fund. In addition, we plan to finalise the government review and approval process for our Commitments Registers at Boss Mining and Comide.

In Brazil, we plan to continue the rollout of our Site School programme, including the provision of vocational training for up to 500 local young people in 2023.



# Environmental

## stewardship

**Responsible environmental management is integral to our 2025 Strategy, which prioritises the sustainable development of our host regions.**

Our operations in Kazakhstan are certified to ISO 14001, whilst in Africa, our Safety, Health and Sustainability (SHS) management system is informed by ISO 14001.

In addition, our active operations in the DRC are subject to legally mandated, third-party Environmental and Social Impact Assessments (ESIAs) and associated management plans. In Brazil, BAMIN implements an environmental management system to ensure its compliance with all environmental licence requirements, as well as the proper implementation of related mandatory environmental plans (p. 38).

➤ For additional information on our management approach, see p. 77 of Appendix.

### 2022 HIGHLIGHTS

- > Continued to implement our 10-year, \$480M programme to reduce our emissions to air in Kazakhstan
- > Applied an internal carbon price for GHG emissions in Kazakhstan to help prioritise investment projects
- > 8.2M tonnes of historical tailings reprocessed at Metakol

#### Material issues

#### MANAGING IMPACTS ON AIR AND WATER

➤ See p. 47

#### ENERGY AND CLIMATE CHANGE

➤ See p. 50

#### TAILINGS AND BROADER WASTE MANAGEMENT

➤ See p. 53



# MANAGING IMPACTS ON AIR AND WATER

## 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, including through the application of relevant international standards.

## Relevant UN SDGs

See p. 84 for associated UN Targets



Our Environmental Strategy in Kazakhstan places particular focus on reducing our emissions to air. This reflects the nature and location of our operations in the country, with our most significant impacts taking place in and around the city of Pavlodar.<sup>1</sup>

In addition, we systematically manage our air impacts in Africa and Brazil, as well as water quality in all of our operating regions.

## WHAT WE ARE DOING

### Environmental Strategy in Kazakhstan

Our approach to environmental management in Kazakhstan is defined by our 10-year Environmental Strategy, which we updated in 2022. This focuses on the following areas:

- Emissions reduction
- Water conservation
- Restoration of disturbed lands
- Waste management
- Biodiversity conservation
- Enhanced environmental monitoring

The strategy aims to bring our practices in line with international best practice and to support our compliance with Kazakhstan's 2021 Environmental Code. In 2022, we completed the development of a new internal framework to support our compliance with the Code. This includes:

- Integrated audits and guidance around best available technologies
- Additional financial provisions for closure
- Relevant processes and guidance regarding site closure and remediation

## KEY PARTICULATE REDUCTION ACTIONS IN KAZAKHSTAN

### Implemented activities

Region	Enterprise / operation	Activity	Year	Reduction in annual emissions <sup>2</sup>
Pavlodar	EEC	Installation of an advanced filter at Power Unit No. 5	2020	-82%
	Aluminium of Kazakhstan	Commissioning of two advanced filters at a furnace in Pavlodar Aluminium Plant's sintering shop	2021	-100%
	Aksu Ferroalloys Plant	Upgrading of the filter at Smelting Workshop No. 4	2021	-58%
Aktobe	Aktobe Ferroalloys Plant	Reconstruction of the aspiration units at Workshop No. 4	2021	-70%

### Ongoing activities

Region	Enterprise / operation	Activity	Expected reduction in annual emissions
Pavlodar	Aluminium of Kazakhstan	Initiation of the replacement of the ash collection facility at the power plant with a highly efficient bag filter	-93%
		Installation of a Coromax filter system at the power plant to increase the effectiveness of the existing electric filter	-53%
		Initiation of the replacement of four new hybrid filters at Pavlodar Aluminium Plant's sintering shop, following the commissioning of two advanced filters in 2021	-99%
Aktobe	Aktobe Ferroalloys Plant	Work to install more effective aspiration units at Workshops No. 1 and No. 2, and to replace filters at Workshop No. 2	-33%
Kostanay	SSGPO	Reconstruction of Boiler Unit No. 1 at the Rudnenskaya Power Plant – including the replacement of its ash collection plants	-99%

<sup>1</sup> The location of Aluminium of Kazakhstan's Pavlodar Aluminium Plant and Power Station, Kazakhstan Aluminium Smelter and ERG Service. Furthermore, the broader region hosts EEC's Aksu Power Station and Vostochny coal pit, as well as Kazchrome's Aksu Ferroalloys Plant.

<sup>2</sup> Reduction in annual emissions at particular relevant operation facility (i.e. power unit, sintering shop, furnace etc.).

## Managing our emissions to air

### Kazakhstan

We are continuing to implement a 10-year, US\$480 million programme<sup>1</sup> that will bring our metallurgical and power generation operations closer in line with European Union (EU) air quality standards relating to particulate matter.

Our programme includes the application of advanced filter technology (p. 47). It also includes the ongoing conversion of the boiler house at our Kacharsky Mine in the Kostanay region to gas. This will not only reduce its particulate, NO<sub>x</sub>, SO<sub>x</sub><sup>2</sup> and greenhouse gas (GHG) emissions, but will also improve its efficiency and reduce ash and slag outputs.

These actions are taking place alongside our ongoing efforts to reduce emissions to air from our ash and slag dumps, including the use of water-spray-based dust suppression systems and the annual application of reagents. In 2022, this included the pilot testing of environmentally friendly, chemical-based dust suppression technology at Aksu Ferroalloys Plant and a small area at the ash dumps of Aluminium of Kazakhstan's Power Plant.

### Air quality monitoring

We are continuing to enhance our gas and particulate monitoring and analysis systems at the main sources of emissions and at the border of the sanitary protection zones of our enterprises.

This includes the ongoing development of 'at source' automated monitoring systems at:

- Aluminium of Kazakhstan
- KAS
- EEC
- 3-Energoortalyk
- Kazchrome
- SSGPO

In 2022, we also started to commission remote, automated monitoring systems that have been installed on the edge of defined 'sanitary protection zones' at:

- Kazchrome (Aktobe Ferroalloys Plant, Aksu Ferroalloys Plant, Donskoy GOK)
- EEC (Power Plant, Vostochny coal pit)

This is in addition to our existing, automated monitoring of the sanitary protection zones at Aluminium of Kazakhstan's operations in Pavlodar. We stream live air quality performance data from the Pavlodar Aluminium Plant and Power Plant via public, digital dashboards.

In addition, we are planning to pilot an automated data management system at EEC and Aluminium of Kazakhstan, with the potential for further rollout to the rest of our operations in Kazakhstan.

## Supporting quality of life and biodiversity through large-scale tree-planting in Kazakhstan

As part of our efforts to improve local quality of life – and to promote healthy natural ecosystems – we are implementing a large-scale tree planting programme. The programme, which is taking place under our Environmental Strategy, saw more than 100,000 trees planted in our host regions, with plans to plant a further 100,000 trees in 2023. By 2025, we plan to have planted a total of approximately 420,000 trees under the programme, which started in 2021.



### Africa

Key emissions in Africa include dust from our mining and transportation activities (which we control through water spraying and chemical suppressants), as well as fine particulates from our vehicle engines and diesel generators.

We apply air and water monitoring plans prepared by third-party specialists. The results of these plans cover our own sites, as well as local villages. They are supported by external laboratory analysis and reviewed by third parties, and are submitted to the DRC Government on an annual basis.

In 2022, we supplemented our existing air quality measures at Metakol through the application of 'directional' dust monitoring<sup>3</sup> to inform more effective and timely control measures. In addition we applied molasses-based road treatments during the dry season, as well as real-time monitoring of diesel generator running hours and fuel consumption.

### Brazil

At BAMIN, we monitor particulate emissions at our Pedra de Ferro iron ore mine, including through six PM10 and two PM2.5 monitoring stations around the operation. Dust controls include wind barriers, the spraying of the roads with water and the application of polymer dust suppressants on our ore stockpiles. In addition, in 2022 we automated air quality monitoring at the mine.

<sup>1</sup> The value of the programme was updated in 2022 to reflect variables such as inflation, the integration of new projects, updated prices and engagement with new vendors.

<sup>2</sup> NO<sub>x</sub> – nitrogen oxides, SO<sub>x</sub> – sulphur oxides.

<sup>3</sup> This has confirmed that temporary dust / PM10 exceedances recorded in previous years did not in fact relate to the operation's activities.

## Managing our water emissions

### Kazakhstan

Our operations recycle the majority of their process water. We carry out both discharge and groundwater monitoring. In the latter case, this includes the use of observation wells around potential pollution sources – including our reservoirs, waste landfill sites, tailings storage facilities, slag dumps, ash dumps and similar structures.

In 2022, we continued to enhance our water management performance as set out in the tables below.

### Africa

We use a range of water management measures at our operations in Africa, including:

- **Frontier:** The use of settling ponds to reduce suspended solids in groundwater pumped from our pit, prior to its discharge to the environment

- **Metalkol:**

- The implementation of comprehensive upstream / downstream water quality monitoring (including of local wells, which are also checked for water levels)
- The application of acid-spill controls to protect personnel, local wetlands and local communities, including automated acid truck unloading systems, specialised storage and bunding

In addition, at Metalkol we recycle wastewater from the plant, including through its use to suppress dust on the operation's roads.

### Brazil

We apply extensive water quality monitoring at our Pedra de Ferro iron ore mine, with multiple sampling points focused on surface water, groundwater and discharge monitoring. These assess up to 23 water quality parameters. This is in addition to the monitoring of surface water and ground water levels, as well as rainfall. Effluents from our Porto Sul port development are managed by a specialised licenced company.

## OUR PERFORMANCE

In Kazakhstan, our total annual particulate and gas emissions to air<sup>1</sup> continued to be within permitted annual total limits. Similarly, the volume and quality of our water emissions<sup>2</sup> continued to be within permitted annual total limits.

In Africa, our air emissions at Frontier and Metalkol were within permitted annual limits, although Metalkol did experience temporary dust exceedances due to very dry weather conditions between July and September 2022. There were no regulatory exceedances at these sites with respect to surface water monitoring and / or the quality of our water discharges.

In Brazil, the Pedra de Ferro mine's PM2.5 and PM10 emissions were within average annual regulatory limits, although there was a temporary exceedance measured in December 2022. Based on internal analysis this related to the nearby movement of third-party community vehicles.

In 2022, the mine also experienced a single environmental non-conformance, which was linked to its effluent treatment system. As a result, we took a range of actions and brought the system back into conformance with relevant regulations.

## NEXT STEPS

In 2023, we plan to:

- Continue upgrading the filters at our operations in Kazakhstan, as part of our multi-year effort to reduce our particulate emissions
- Advance work on the assessment of existing practices and technologies to help identify opportunities to reduce NOx and SOx emissions from our EEC, Aluminium of Kazakhstan and SSGPO Power Plants
- Pursue a range of water treatment and management improvements at Donskoy GOK, Aluminium of Kazakhstan and Shubarkol Komir – including the development of new treatment facilities and the reconstruction of water management infrastructure

## KEY WATER MANAGEMENT ACTIVITIES IN KAZAKHSTAN

### Implemented activities

Region	Enterprise / operation	Activity	Year	Annual impact
<b>Aktobe</b>	Aktobe Ferroalloys Plant	Completion of a project to separate and return stormwater into the process cycle	2022	700,000m <sup>3</sup> reduction in water intake
<b>Kostanay</b>	SSGPO	Use of pit water in the dust suppression system at the ash dump	2021	4,000 tonnes reduction in emissions
	SSGPO	Reuse of surface water in industrial processes at the Rudnenskaya Power Plant	2022	2 million m <sup>3</sup> expected reduction in water intake
	Aluminium of Kazakhstan	Construction of a system to collect and treat pit water at our Vostochno-Ayatsky bauxite mine (part of our Krasnooktyabrsky Mining Unit)	2022	4 tonnes reduction in hydrocarbon discharges

### Ongoing activities

Region	Enterprise / operation	Activity	Expected annual effect
<b>Pavlodar</b>	Aksu Ferroalloys Plant	Initiation of construction of a new stormwater treatment facility (as part of a broader project to separate and return stormwater into the process cycle)	1,310 million m <sup>3</sup> reduction in water intake
<b>Aktobe</b>	Donskoy GOK	Implementation of measures to recycle process water – eliminating all discharges to the environment	1,200 tonnes reduction in emissions in water
<b>Karaganda</b>	Shubarkol Komir	Development of a project to reconstruct domestic and floodwater treatment facilities	over 500m <sup>3</sup> reduction in water intake

<sup>1</sup> Measured on a quarterly basis.

<sup>2</sup> Measured on a quarterly basis.

# 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 SDGs

See p. 84 for associated UN Targets



ERG is one of the largest power producers in Kazakhstan, with installed electricity generation capacity of 3,387 MW. This power is used by our own operations and is also sold to third parties. The fact that 81% of our power in Kazakhstan is generated using coal (2021: 81%) means our GHG emissions are substantial. We plan to reduce our long-term carbon intensity by increasing, over time and subject to immediate internal and external energy demands (see below), the proportion of energy we get from non-coal sources. Although this will be a gradual process, it is a journey we are committed to making.

Nonetheless, the energy context in Kazakhstan means we need to increase short-term generation at our established coal power plants to help address national supply shortages. This reflects increased industrial activity in Kazakhstan, as well as the need for repairs to be carried out on third-party power plants in the country.

At the same time, the global energy transition offers considerable opportunities for our business, given the anticipated long-term increase in demand for cobalt, copper, aluminium and other 'transition metals'. Similarly, we believe the energy transition will support demand for ferroalloys, which are needed for the development of new gas, wind and nuclear generation capacity.

The majority of the power we use in the DRC is generated from hydropower, whilst most of the power used by our BAMIN operation in Brazil is renewable.



## WHAT WE ARE DOING

We are focused on improving our energy efficiency, reducing (over time) our reliance on coal-generated power and increasing our renewable energy generation capacity. This approach will help us navigate an anticipated future tightening in Kazakhstan's carbon regulation. It will also help mitigate the potential impact of the EU's planned Carbon Border Adjustment Mechanism (CBAM, which will become fully operational from 2026), which will apply levies on imports into the EU based on their carbon footprint.

In 2022, we applied an internal carbon price in Kazakhstan to help us prioritise our investment projects.

## Understanding and managing our climate risks

Analysis carried out in 2021<sup>1</sup> suggests that our climate-related transition risks in Kazakhstan (where most of our carbon emissions occur) relate to reduced carbon quotas and / or the application of carbon taxes, the impact of the EU's CBAM (particularly in relation to our aluminium and ferrochrome sales) and increased interest rates as finance providers apply ESG criteria.

This analysis is informing our Decarbonisation Strategy, alongside related analysis focused on:

- Technological opportunities for the decarbonisation of our operations
- The competitiveness of our products, taking into account the contribution of carbon prices to their cost
- Government plans for the achievement of national decarbonisation targets

<sup>1</sup> This included analysis of Kazakhstan's Nationally Determined Contributions under the Paris Agreement, EU carbon price trends and projections, goal-setting compared to peers and price sensitivity.

In 2022, we also commissioned analysis to better understand the physical risks posed to our business by climate change – including in Kazakhstan, Africa and Brazil. The results will also inform our strategy in this area.

In early 2023, we adopted a new Climate Change Impact and Adaptation Management Policy for Kazakhstan. Amongst other things, this sets out our commitment to:

- Incorporate the cost of carbon emissions into business decisions across our entire value chain
- Identify and prioritise opportunities to reduce our carbon footprint, including through energy efficiency, resource efficiency and waste efficiency
- Calculate our Scope 3 emissions and encourage our partners, contractors and suppliers to assess and reduce their carbon footprints
- Participate in public policy development around climate change by offering insight and proposals to help ensure predictable long-term conditions that support GHG reductions and promote the circular economy
- Promote innovative low emission technology through partnerships with other metals and mining actors, technology companies and specialist accelerators

In 2022, we also continued a project to calculate the carbon footprint of the aluminium, ferroalloys and iron ore that we produce. This will help us understand the future impact of the EU's forthcoming CBAM initiative, identify potential opportunities to reduce our product footprints and deliver higher levels of insight to our customers. To assist with this process, we are gathering information from our suppliers regarding the carbon footprint of their most carbon-intensive supplied products.

## Energy efficiency in Kazakhstan

ERG enterprises that operate power generation facilities<sup>1</sup> are certified to the ISO 50001 energy management system standard.

In 2022, our energy efficiency targets were approved by the Government of the Republic of Kazakhstan, following a joint study. Examples of strategic projects that are likely to have a material impact on our energy efficiency in Kazakhstan include:

- The implementation of a programme to improve thermal efficiency at Aluminium of Kazakhstan's Pavlodar Aluminium Plant
- Potential heat recovery projects at Aluminium of Kazakhstan's Power Plant, Kazakhstan Aluminium Smelter, Aksu Ferroalloys Plant and Aktobe Ferroalloys Plant
- The potential replacement of air compressor systems with more efficient alternatives at Aluminium of Kazakhstan, Aksu Ferroalloys Plant and Aktobe Ferroalloys Plant
- The renovation of the No. 1 and No. 3 boilers at SSGPO's Power Plant
- The development of digital 'ideal' central heating and power plant (CHPP) efficiency concepts and models to help inform future operational practices<sup>2</sup>

In addition, we are advancing plans to generate energy using off-gas from our production processes, with a focus on Aktobe Ferroalloys Plant and our Special Coke Plant at Shubarkol Komir.

## New ERG Green Financing Framework in Kazakhstan

In 2022, we developed our Green Finance Framework with the aim of providing a standard for the attraction of investments in Kazakhstan through green financing instruments. This includes the requirements and conditions for attracting green finance, as well as lender / investor reporting requirements.

The Framework is aligned with the Green Bonds Principles (GBPs) of the International Capital Market Association and the Green Loan Principles (GLPs) of the Loan Market Association, Asia Pacific Loan Market Association and Loan Syndications & Trading Association.

➤ For further information, see: [erg.kz](http://erg.kz)

Finally, we continued to apply our updated 2021-2025 Energy Efficiency Plan. In 2022, this included the application of 99 energy saving measures that collectively reduced our energy consumption by 1,339 terajoules (2021: 390 terajoules). Examples of these incremental measures include:

- **EEC:** Adjustment of the centrifugal pumps' impeller blades to optimise the flow of cooling water
- **Kazchrome:** Reuse of storm and rain water at Workshop No. 4
- **SSGPO:** Adjustment and improvement of the heat networks and internal heat consumption systems
- **3-Energoortalyk:** Installation of steam traps to reduce steam consumption

## Renewable energy

As part of our efforts to help meet national renewable energy targets in Kazakhstan<sup>3</sup>, we are:

- Purchasing (as legally required) defined amounts of renewable energy
- Continuing to advance our renewable energy projects

In the latter case, we continue to advance plans for the construction of our 155 MW Khromtau-1 wind power project near Donskoy GOK, including the selection of relevant equipment suppliers and contractors. We plan to start construction in 2023 and commission the project in 2024. There is potential to further expand our wind capacity at the site by an additional 150 MW.

We are also continuing to investigate the potential development of additional large-scale wind and solar projects at other sites in Kazakhstan over the next 5-10 years – with wind monitoring underway at six prospective sites.

<sup>1</sup> With the exception of 3-Energoortalyk, where work is underway.

<sup>2</sup> We have already developed our own basic digital model for the SSGPO CHPP and have started the selection process for contractors to implement an industrial digital model at Pavlodar Aluminium Plant's thermal power plant. If successful, we plan to roll out the model to the rest of our power generation assets in Kazakhstan.

<sup>3</sup> National targets are in place to generate: (1) 15% of electricity from renewables (i.e. wind, solar and small-scale hydropower) by 2030; and (2) 50% of electricity from renewables and alternative energy sources (e.g. nuclear power) by 2050.

Our operations in Africa are already highly reliant on hydropower and as such, their carbon footprints are relatively small. Despite this, in 2022 we advanced plans for the potential future supply of Metalkol with alternative renewable energy, which should help address unreliable and increasingly expensive external electricity supplies (see below).

At BAMIN in Brazil, we source power from the regulated market for our mine, railway and port. The power we purchase is predominantly based on hydro with planned increase of wind and solar use, limiting the operation's carbon footprint. As noted on p. 22, the very high iron content of ore from the Pedra de Ferro mine offers its own climate-related advantages in terms of reducing transportation and smelting-related emissions.

### Energy security in Africa

Our Metalkol, Frontier and Boss Mining operations are largely supplied with power from the DRC's national utility company SNEL, which is highly reliant on hydropower. Power supply outages have been a longstanding challenge in the country (mainly due to a structural energy deficit, insufficient maintenance works, the poor condition of infrastructure and inadequate water levels).<sup>1</sup> In 2022, the region's energy challenges became more severe. This partly reflects new demand from recently established, third-party mining operations, recent weather patterns and vandalism of the SNEL power network. These issues have contributed to a considerable rise in power costs and increased use of our backup diesel generators, which are relatively expensive to run and increase our carbon emissions.

To help address these challenges, we are actively investigating (via parallel pre-feasibility studies) if we can:

- Secure alternative, cost effective energy supplies in the medium term through the potential development and / or support of renewable energy projects (including hydropower and solar)
- Apply a fast-acting, battery-based backup system at Metalkol to mitigate the effects of increasingly frequent and unpredictable outages (i.e. to bridge the start-up time as our diesel generators come on line)

We are also engaging with peers in the region to explore if and how we could collectively support improvements to the public power grid, including public-private partnership options.

### OUR PERFORMANCE

In 2022, our total energy consumption decreased to 276,250 terajoules (2021: 279,841 terajoules). This primarily reflected reduced coal consumption at EEC's power station in Kazakhstan due to capital repairs, as well as reduced generation capacity at some of our other power units. The impact of this was partially offset by higher coal consumption at Aluminium of Kazakhstan, driven by alumina production and higher demand for heating in the city of Pavlodar (where domestic energy is significantly supplied by ERG).

At the same time, our GHG emissions, almost all of which occur in Kazakhstan, decreased to 29.9 million tonnes of CO<sub>2</sub>e (2021: 30.3 million tonnes of CO<sub>2</sub>e). Again, this largely reflects reduced coal consumption at EEC.

1 Whilst it had been hoped the commissioning of the first of several power generation units at the Zambian state power company's (ZESCO) 750 MW Kafue Gorge Lower hydropower project would be a first step in improving the regional energy balance, the effects are yet to be felt.

2 Excluding internal purchases of internally-generated power.

3 Please note that GHG data for 2021 and 2020 are restatements. This reflects the fact that in 2022 we added emissions from our industrial processes in Kazakhstan (i.e. in addition to those related to our consumption of direct energy). This approach has been applied to our 2022, 2021 and 2020 figures to support comparability. As a result, data from these years are not comparable with data from periods earlier than 2020.

### ENERGY CONSUMPTION BREAKDOWN (TERAJOULES)

Type	Energy source	2022	2021	2020
Direct	Coal	<b>223,185</b>	226,857	221,950
	Petrol	<b>111</b>	102	113
	Residual fuel	<b>6,815</b>	6,566	6,750
	Diesel	<b>9,787</b>	10,278	9,074
	Natural gas	<b>33,233</b>	32,959	29,014
	Kerosene	<b>14</b>	14	14
	Subtotal	<b>273,145</b>	276,776	266,915
Indirect <sup>2</sup>	Electricity	<b>2,875</b>	2,811	3,005
	Heat	<b>179</b>	188	168
	Steam	<b>51</b>	66	110
	Subtotal	<b>3,104</b>	3,065	3,282
Total	<b>276,250</b>	279,841	270,197	

### GHG EMISSIONS (TONNES CO<sub>2</sub>e)<sup>3</sup>

	2022	2021	2020
Scope 1 emissions <sup>4</sup>	<b>29,877,178</b>	30,142,643	29,594,438
Scope 2 emissions <sup>5</sup>	<b>53,508</b>	125,590	115,602
Total	<b>29,930,686</b>	30,268,233	29,710,040

### NEXT STEPS

In 2023, we plan to finalise our Decarbonisation Strategy in Kazakhstan, with a focus on ensuring we can successfully navigate the regulatory and market changes likely to result from national and international decarbonisation efforts. This includes the systemisation of our GHG reduction efforts and the establishment of carbon performance targets that will, over time, help us reduce our carbon intensity and support the long-term competitiveness of our products.

We also plan to:

- Advance the establishment of our renewable energy generation capacity and focus our investments on assets that are supportive of the low carbon economy
- Continue investigating alternative renewable energy supplies in Africa, as well as enhanced power backup arrangements at Metalkol

4 I.e. GHG emissions that result from the consumption of direct energy for the generation of electricity and / or heat / steam, used in mining, production and for ERG-controlled transportation activities (CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O only), as well as other emissions sources in industrial processes in Kazakhstan. Conversion factors are from the 2006 IPCC Guidelines for National Greenhouse Gas Inventories – Stationary and Mobile Combustion. Our production sites in Kazakhstan (which are covered by an emissions trading framework) are subject to government mandated GHG inventories in line with national guidelines. The outcomes are subject to reasonable assurance by an independent accredited body.

5 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 used are as follows: (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.

# TAILINGS AND BROADER 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. This includes a focus on the safe management of our large-scale waste storage facilities, as well as responsible approaches to waste management, recycling and the promotion of a circular economy.

## Relevant UN SDG

➤ See p. 84 for associated UN Targets



Our established large-scale waste storage facilities in Kazakhstan and Africa are subject to regular, legally mandated monitoring inspections. These are carried out by state inspectors, our internal teams and third-party specialists.

In addition, we are focused on waste reprocessing, recycling and commercialisation in Kazakhstan (where efforts are led by ERG Recycling) and Africa (where Metalkol is reprocessing historical tailings).

## WHAT WE ARE DOING

### Managing our large-scale waste storage facilities

Our overburden, tailings, sludge, slag and ash deposits are managed in line with our established environmental management systems and local regulations. Particular focus is placed on preventing groundwater and surface water pollution, dust prevention and reduction, and on ensuring the physical integrity of our large-scale waste storage facilities. We maintain funds to ensure the safe closure and rehabilitation of facilities when they reach their end of life.

In 2022, we continued to strengthen our management capabilities through:

- The appointment of a dedicated tailings manager for Kazakhstan
- The carrying out of pilot satellite analysis of our tailings storage facilities (TSFs) at SSGPO to detect geotechnical changes. The pilot was completed and we are analysing its potential application to our other large-scale waste storage facilities in Kazakhstan
- The improvement of our tailings management procedures in Africa, including daily, weekly and monthly reporting on internal TSF performance indicators, as well as annual independent inspections

➤ For further information, see p. 77.

## Third-party risk review process

Our existing third-party risk review process is carried out by international experts and supplements our existing internal analysis. It is focused on, amongst other things, operating conditions, compliance with design parameters, and potential risks to local populations and the environment. It references both relevant national regulations and standards, as well as Canada's Dam Construction Association (CDA) Dam Safety Guidelines and the Australian National Committee for Large Dams' (ANCOLD) Guidelines on Tailings Dams.

Between 2019 and 2021, we carried out:

- Initial assessments and follow-up assessments at our sites in Africa

- Initial assessments at Aksu Ferroalloys Plant, Aluminium of Kazakhstan's Power Plant, Donskoy GOK (Kazchrome), Pavlodar Aluminium Plant, SSGPO and EEC's Power Plant ash dump

In 2022, we carried out follow-up assessment at Aluminium of Kazakhstan.

We are continuing to address a number of recommendations identified during these assessments, including through additional surveys (i.e. to clarify the state / safety status of our hydraulic structures), the further development of supporting technical and operational documentation and the potential introduction of automated measurement systems.

## ERG Recycling in Kazakhstan

Our ERG Recycling entity drives our waste reprocessing, recycling and commercialisation efforts in Kazakhstan. This is reducing our environmental liabilities, ensuring we get maximum value from our assets and supporting the circular economy concept.

This is a particular area of focus at Kazchrome's Aktobe Ferroalloys Plant, where we continue to process stale slag (as well as finely dispersed slags) to produce chromium metal concentrates that are returned to production, as well as inert materials that can be used for building materials and road construction. We also brought our new Concrete Mortar Complex into operation. This is producing high-grade concrete (and related products) using the inert outputs from the processing of old slag as input materials.

At Donskoy GOK, we continued to mine substandard and 'lost' ores from our overburden stockpiles, supporting the production of additional ferrochromium, as well as additional volumes of chromium ore. We also completed the construction of a new tailings reprocessing facility, ERG Green, which forms part of the broader ERG Green project (p. 20) and uses innovative technology to enhance the enrichment of chrome-oxide bearing tailings at a recovery rate of more than 60%. It will ultimately support the production of more than 500kt of chrome concentrate per year, reducing the mine's tailings footprint.

In addition, we sell a range of waste for use as raw materials in other industries – including construction, metal production, chemical production and road construction.



- More than 6,000m<sup>3</sup> of ready-mixed concrete at Aktobe Ferroalloys Plant's Concrete Mortar Complex. This was used for internal construction and the manufacture of building products
- Saleable concentrate derived from 236.2kt of manganese screenings extracted from overburden at Kazchrome's Vostochny Kamys Mine

In addition:

- At Donskoy GOK, we mined 285kt of ore 'lost' in the overburden dump during past operations, providing additional input material for processing into chrome concentrate. We also reclassified 284kt of ore at Mirny pit's dump that had previously been considered substandard
- We sold around 317kt of waste to third parties (2021: around 1,000kt). This decrease reflects lower production at SSGPO
- ERG Recycling sold more than 840kt of waste products, including 620kt of crushed stone (2021: 520kt), which is used as a building material

### Tailings reprocessing at Metalkol

In the DRC, our Metalkol operation is progressively reducing the impact of approximately 30 million tonnes of historical tailings that have been dry-stacked at the dust-emitting Kingamyambo Tailings Dam and approximately 80 million tonnes that were dumped in the Musonoi River valley. These are extracted and reprocessed at the operation's state-of-the-art plant and are then re-deposited into a modern, centralised and comprehensively managed TSF. This is subject to regular inspections, monitoring and reporting, and is supported by both a dedicated Engineer of Record and an independent testing laboratory.

As a result, Metalkol is not only producing significant volumes of cobalt and copper – two of the key commodities needed to drive the global energy transition – it is doing so whilst gradually reducing the negative impacts of historical tailings on local water, land and air quality. In addition, we have commenced rehabilitation (including revegetation) in some of the post-extraction areas.

### Dry-stack tailings at BAMIN

In Brazil, we plan to adopt a dry-stack TSF system for BAMIN's Pedra de Ferro mine. This will be supported by a waste processing and filtering plant. Our plan has already been approved by Brazil's National Mining Agency, and we are seeking the approval of the Environmental Agency in Bahia, which we plan to get by the end of 2023.

Amongst other things, dry-stacked TSFs offer significantly reduced risks in terms of catastrophic failures and groundwater contamination, compared to upstream and downstream facilities.

They also offer significant advantages in terms of having smaller physical footprints, offering higher water and reagent recovery rates, and allowing for accelerated rehabilitation. For example, it is estimated this approach will increase the reuse of process water by 18% (i.e. to 90% in total).

### OUR PERFORMANCE

In 2022, Metalkol reprocessed around 5.1 million tonnes of dry stacked historical tailings (2021: 5.5 million tonnes), as well as an additional 3.1 million tonnes extracted from the Musonoi River (2021: 2.5 million), prior to their relocation to our centralised, modern TSF<sup>1</sup>. This was used to produce 99.8kt of copper and 22.5kt of cobalt hydroxide (2021: 94.8kt of copper and 20.7kt of cobalt hydroxide).

In Kazakhstan, ERG Recycling produced over 1.7 million tonnes of recycled products. This included the production of the following from reprocessed waste:

- Over 5kt of chrome concentrate briquettes at Aktobe Ferroalloys Plant (2021: 16.7kt). This reduction reflects the suspension of production in mid-2022 due to a shortage of ore
- Around 7kt of high quality chromium concentrate from slag at Aktobe Ferroalloys Plant (2021: 4.8kt)

### NEXT STEPS

In 2023, we plan to bring our tailings management approach further in line with international best practice by standardising management practices and processes across the Group (whilst taking account of local circumstances and regulations). This is part of a broader move towards the application of the Global Industry Standard on Tailings Management (GISTM), as well as the possible use of automated systems to improve the monitoring of our large-scale waste storage facilities in Kazakhstan.

In addition:

- We will continue to advance our recycling efforts in Kazakhstan
- Phase 2 production ramp up at Metalkol will continue to reduce the footprint of historical tailings at the site

<sup>1</sup> These changes in volumes between 2021 and 2022 reflect the ore mix required to support optimal copper production.

# Our broader role in Society



We seek to play a positive role in society by delivering societal value and building stakeholder trust. This includes the sustained distribution of economic value, which is dependent upon our ability to generate revenues – both now and in the long term. In turn, our ability to generate revenues is highly dependent on our ability to win and maintain the trust of our partners, including both host societies and governments, as well as customers and end-users.

At a minimum, this requires the responsible management of our own impacts. It also means we need to actively manage our indirect supply chain impacts and deliver high levels of assurance to downstream value chain actors.

🔗 For additional information on our management approach, see p. 78 of Appendix.

## 2022 HIGHLIGHTS

- > \$7,254M distributed to our stakeholders
- > Kazchrome achieved the ICDA<sup>1</sup> 'Responsible Chromium' label and the EcoVadis 'Platinum Award'
- > Successful RMI RMAP<sup>2</sup> assessment at Metalkol

<sup>1</sup> International Chromium Development Association.  
<sup>2</sup> Responsible Minerals Initiatives' Responsible Minerals Assurance Process.

### Material issues

#### VALUE DISTRIBUTION

🔗 See p. 56

#### ETHICS AND COMPLIANCE, INCLUDING HUMAN RIGHTS

🔗 See p. 61

#### RESPONSIBLE VALUE CHAINS

🔗 See p. 65

#### GOVERNMENT RELATIONS AND POLICY

🔗 See p. 69

# VALUE DISTRIBUTION

## STRATEGIC CONTEXT

Sustainable development of our host regions: All of the strategic priorities under our 2025 Strategy ultimately help us generate value – both now and in the long term. In turn, this supports our ability to pursue our objective of contributing to the socio-economic development of communities in our regions of operation. This includes our distribution of economic value, locally, regionally and nationally.

### Relevant UN SDG

See p. 84 for associated UN Targets



Our long-term ability to generate shareholder value is ultimately contingent on our ongoing generation of revenues (p. 13), as well as the delivery of shared economic benefits to our other stakeholders. This includes our:

- Employees
- Local communities (and beyond)
- Host (and other) governments
- Suppliers and partners
- Providers of capital

Information on how we distribute value to our employees and communities can be found on p. 26 and p. 36, respectively. Further information regarding our payment of taxes to governments and the promotion of local content is set out in this section.

## WHAT WE ARE DOING

### Supporting local content

#### Kazakhstan

We work with the Ministry of Industrial Development, the National Chamber of Entrepreneurs of Kazakhstan 'Atameken' and the National Centre for Industry and Export 'QazIndustry' to promote the development of new local businesses to support our own activities and the broader sector. In addition, we:

- Implement an Import Substitution and Localisation Programme that aims to help domestic suppliers achieve international standards and attract investment (including through the granting of long-term or offtake contracts for products and services)
- Support the establishment of companies to help meet our needs. In 2022, this included the founding of a company to produce spare parts for our equipment and another to supply us with conveyor rollers

- Sign long-term memoranda of intent to purchase products from domestic producers, including from companies with employees drawn from vulnerable populations
- Hold annual ERG Supplier Awards in Astana to recognise the efforts of our suppliers, including domestic suppliers. This also includes an assessment of suppliers in the Sustainability Award, which recognise their compliance with the best sustainability practices, including a focus on human rights, anti-corruption and environmental protection

Key categories of products and services that we source from suppliers<sup>1</sup> in Kazakhstan include exploration, stripping, drilling and blasting services, as well as raw materials, fuel, PPE, and industrial clothing.

## Focus on maximising the social impact of digital projects

In 2019, ERG established the Eurasian Digital Ventures I LP venture fund ('Fund'), which contributes to the implementation of social digital initiatives designed to improve people's quality of life, strengthen social resilience and support entrepreneurship.

The Fund's key investment is in BTS Digital, a company that is actively developing – with relevant departments of the Government of the Republic of Kazakhstan – government technology ('GovTech') services. This includes:

- A unique service for the online identification of citizens using biometric data ('Digital ID'), which is integrated into the official eGov portal. This has helped more than 9 million people gain access to online government services

- A single window platform for making and managing official applications, appeals and legal claims to government bodies ('eOtinish'). In 2022, the platform was visited by more than 200,000 people per month. Since the launch of the project in 2021, the platform has processed more than 2.5 million applications from citizens and businesses
- A consumer rights protection service ('e-Tutyynushy')

In 2022, BTS Digital:

- Trained civil servants on the eOtinish platform, developed a website and a mobile version of the service and added additional functionality around analytics and accessibility

- Developed and launched a pilot of the 'Social Wallet' project to support the Ministry of Trade and Integration's social initiatives. This is designed to aggregate the provision of state support for citizens in one place

The Fund is now considering a possible handover of EduNavigator and the Atlas of New Professions (p. 31) to the state.

Some of the projects have reached a stage of development where it is necessary to attract strategic partners to ensure their further development. At the same time, projects that do not achieve their goals may eventually be suspended.

<sup>1</sup> 'Suppliers' refers to suppliers of goods and / or service providers.

## Africa

In 2022, we continued to focus on ensuring that we comply with the local content requirements in the DRC's 2018 Mining Code. This includes the procurement of more than 90% of our consumables and services from licenced companies based in the DRC.<sup>1</sup> The 2018 Mining Code also includes related requirements for the employment of DRC nationals. These developments have contributed to a further increase in the proportion of Congolese nationals employed on a full-time basis at our operations in the DRC (p. 32). We continue to make good progress of increasing our employment of the DRC nationals.

Given the relatively underdeveloped nature of local industry, we are highly reliant on local companies that import key inputs from abroad.

We focus on working with companies in the DRC to help them achieve the requisite international standards and capabilities needed to service our operations directly (i.e. the most value-adding form of local content). This will include monthly performance reviews of onboarded suppliers, plus a focus on identifying opportunities to improve their maturity level, if needed.

In addition, we are planning to implement a new initiative (Supplier Day) to encourage local and domestic suppliers to join the ERG Suppliers Panel. The first event is planned for 2023.

Key categories of products and services that we source from suppliers in the DRC and the broader Africa region include chemicals, contractor services, mechanical services, and fuel and lubricants.

## Brazil

In 2022, BAMIN commissioned a specialist company to implement its Local Supplier Development Programme, which aims to foster local suppliers across all segments of the operation, including the mine, railway and port. The programme will help local suppliers achieve the quality and ESG standards necessary to be integrated into BAMIN's supply chain – and explore business opportunities with other companies. BAMIN's current focus is on identifying and engaging potential suppliers, before their assessment and development (including through training, mentoring and workshops) – with an initial focus on facility services and construction services.



## Promoting broader economic development in Bahia through our FIOL 1 railway project

In addition to promoting local content, BAMIN's development of the FIOL 1 railway project and the Porto Sul port terminal in Brazil (p. 22) is expected to facilitate broader economic growth in the state of Bahia. Once built, both the railway and the terminal will have significant excess capacity beyond what is needed to transport and export BAMIN's iron ore output (almost 50% excess capacity in the case of FIOL 1 and approximately 60% in the case of Porto Sul) – which can be used

for third-party cargoes. A 2022 internal study supported by external experts noted that, as well as providing BAMIN with a secondary revenue stream, this will establish an important new regional corridor that can service the transportation needs of regional agribusinesses (including soybeans, corn and fertilisers) and can also expand inland fuel distribution. This is our biggest opportunity to develop the regional economy at scale and in a sustainable way.

This is in addition to ongoing partnership programmes aimed at supporting local entrepreneurs and micro-enterprises (including guidance on qualifications, entrepreneurship, training and income generation) and building the professional capabilities of local people.

## Tax payments and transparency

Our Group Tax Policy commits us to (amongst other things) complying not only with the letter but also the spirit of all local laws. In terms of transfer pricing, we conduct all internal transactions on an arm's length basis and determine pricing in line with the nature of the economic functions performed and risks taken by each company. In addition, we follow the methods and principles set out in the OECD Transfer Pricing Guidelines and retain relevant documentation relating to our intercompany transactions to demonstrate compliance with the same.<sup>2</sup>

Our Group Tax Code of Conduct includes detailed guidance with respect to tax reporting, transfer pricing, tax dispute resolution and tax risk management (amongst other issues) – as well as our tax assurance process.

We submit Extractive Industries Transparency Initiative (EITI) reports in Kazakhstan, the DRC and Zambia, as required.<sup>3</sup> In addition, we file the following with the Luxembourg authorities:

- Report on Payments to Governments under the EU Accounting Directive (2013/34/EU)<sup>4</sup>
- OECD Country-by-Country Report under OECD BEPS Action 13

<sup>1</sup> With exceptions where Congolese expertise is unavailable or inaccessible.

<sup>2</sup> In December 2021, the European Commission presented a proposal for a Directive aiming to implement OECD Pillar 2 rules in a way that is consistent and compatible with EU law. ERG has analysed the impact of Pillar 2 for the Group to ensure full compliance with the Directive.

<sup>3</sup> For more information on EITI status in our countries of presence, see p. 78 and [eiti.org](http://eiti.org).

<sup>4</sup> EU, Directive 2013/34/EU, see [eur-lex.europa.eu](http://eur-lex.europa.eu).

## OUR PERFORMANCE

In 2022, we distributed US\$7,254 million – or 94% of our revenues – to our stakeholders (2021: US\$6,240 million / 78%). This increase reflected, amongst other things:

- Higher purchase prices for reductants, reagents, diesel and acid, as well as increased consumption of anodes
- Increased headcount in Africa to support production growth, as well as the indexation of salaries in Kazakhstan
- Increased dividend payments to our shareholders
- Increased capital spending in Kazakhstan, including on Shubarkol Komir's Special Coke Plant, advancement of the ERG Green project at Donskoy GOK, continued development of Kazchrome's ore deposits, multiple environmental projects and the expansion of Frontier's mining fleet

At the same time, overall revenue generation fell as a result of (amongst other factors, p. 13) suspension of iron ore shipments to Russia. Nonetheless, ferroalloys and aluminium saw higher prices, partially offsetting this fall in revenue. In addition, our realised losses from hedging fell due to the early termination of derivative contracts (again, as a result of international sanctions, p. 13).

In Kazakhstan, the rise in purchases from domestic producers reflected price inflation, as well as an increase in intra-Group contracts. At the same time, the share of local suppliers in the total volume of purchases (excluding intra-Group purchases) decreased, reflecting increased purchases of imports.

## ECONOMIC VALUE GENERATED AND DISTRIBUTED (US\$M)

Type and detail	Value in 2022					2021	2020
	Kazakhstan	Africa	Brazil	Other	Total	Total	Total
<b>Economic value generated</b>	<b>5,071</b>	<b>2,444</b>	<b>107</b>	<b>128</b>	<b>7,750</b>	7,994	5,209
<b>Economic value distributed</b>							
Operating costs / payments to suppliers	(1,724)	(926)	(110)	(42)	(2,802)	(2,412)	(1,911)
Employee wages and benefits	(796)	(138)	(13)	(188)	(1,135)	(956)	(802)
Payments to providers of capital	(294)	(22)	-	(568)	(884)	(677)	(642)
Tax expenses	(626)	(601)	(7)	(23)	(1,257)	(1,426)	(683)
Community social investment spending	(86)	(8)	(2)		(96)	(65)	(65)
Other <sup>1</sup>	(813)	(163)	(103)	(1)	(1,080)	(704)	(508)
Total	(4,339)	(1,858)	(235)	(822)	(7,254)	(6,240)	(4,611)
<b>Economic value retained</b>							
Retained revenue	<b>732</b>	<b>586</b>	<b>(128)</b>	<b>(694)</b>	<b>496</b>	598	598

## DOMESTIC SPENDING IN KAZAKHSTAN (US\$M)

Procurement spend type	2022	2021	2020
Total volume of purchases from local producers (including intercompany procurement)	<b>2,318</b>	1,975	1,412
Total volume of purchases from local producers (excluding intercompany procurement)	<b>1,127</b>	908	775
Share of local procurement in overall procurement <sup>2</sup>	<b>44%</b>	49%	52%

## KEY LOCAL PROCUREMENT FIGURES (GOODS AND SERVICES)

Kazakhstan		Africa	Brazil		
<b>44%</b>	sourced from within the country (i.e. domestically produced) (2021: 49%)	<b>18%</b> <sup>3</sup>	sourced from companies operating in our local mining towns <sup>4</sup> (2021: 21%)	<b>86%</b>	sourced from domestically registered companies (2021: 85%)
				<b>99%</b>	sourced from Brazilian companies (2021: 99%)
				<b>43%</b>	sourced from companies located in the state of Bahia (2021: 40%)

1 Other includes capex, i.e. capitalised cash outflow for property, plant, equipment and intangible assets, net of capitalised borrowing costs and capitalised salaries. Capex is presented gross before taking into account any disposals of property, plant and equipment.

2 Includes goods, works and services.

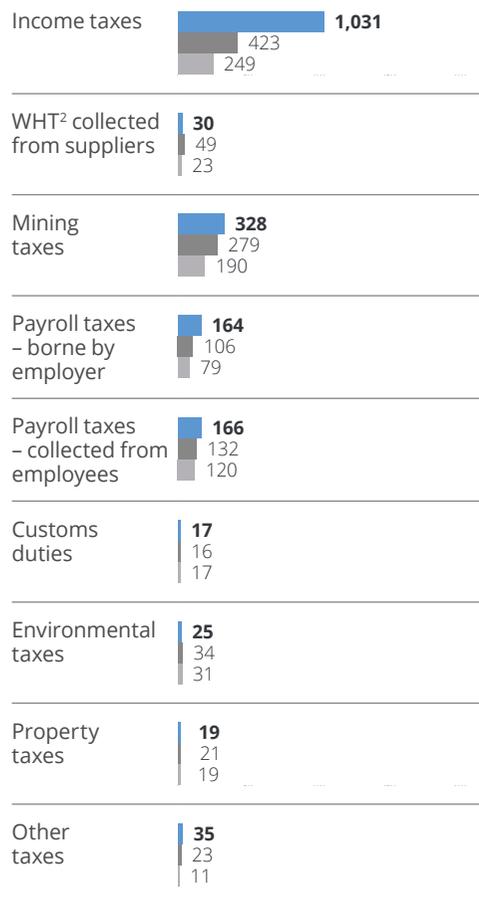
3 Including intra-Group purchases.

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

## GROUP TAX PAYMENTS BY LOCATION (US\$M)



## GROUP TAX PAYMENTS BY TYPE (US\$M)



### Taxes and duties

We paid US\$1,815 million to governments in taxes and duties (2021: US\$1,083 million), driven primarily by higher corporate income tax and royalty payments. This was caused mainly by copper and cobalt price and sales volume increase in Metalkol. Additionally, in Kazakhstan operating entities, some of the payments for 2021 were transferred to 2022, also resulting in higher taxes and duties paid in 2022.

Our effective corporate income tax rate of 42.8% (2021: 27.5%) mainly reflects statutory corporate income tax rates in the countries where we have our mining and processing operations, and where we pay almost 97% of our Group taxes (2021: more than 97%). In addition, it reflects tax losses in certain jurisdictions for which no deferred tax is recognised.

### NEXT STEPS

For further details on how we plan to maintain and grow the value that we generate and distribute, see 'Preparing our business for the future' on p. 18.

■ 2022 ■ 2021 ■ 2020

<sup>1</sup> Please note, the figures for total payments also include taxes paid in other countries (less than US\$100,000 in 2022), which are not listed separately in the graph for rounding reasons.

<sup>2</sup> Withholding tax.

# How we deliver societal value in Kazakhstan

We deliver societal value from the national through to the local level. This includes the jobs we create and sustain (directly and indirectly), the taxes and royalties we pay, the communities we invest in and the goods and services we procure.

We aim to support, where possible, the broader development agenda of the Government of the Republic of Kazakhstan. This includes our multi-layered approach to community social investment (CSI), which seeks to address local, regional and national development priorities, and also supports the social needs of our employees and their families.



## REGIONAL BREAKDOWN<sup>2</sup>

### TAXES PAID (US\$M)

Aktobe	303
Kostanay	314
Pavlodar	161
Karaganda	69
Shymkent	2

### CSI SPEND (US\$M)

Aktobe	8.1
Kostanay	5.2
Pavlodar	5.5
Karaganda	0.8
Shymkent	0.2

### LOCAL PROCUREMENT (US\$M)

Aktobe	124.8
Kostanay	363.9
Pavlodar	731.0
Karaganda	155.3
Shymkent	20.0

### JOBS PROVIDED (People)

Aktobe	13,971
Kostanay	18,654
Pavlodar	23,367
Karaganda	3,619
Shymkent	489

<sup>1</sup> Including intercompany procurement.

<sup>2</sup> The contribution to other regions is not reported in the table. The contribution of ERG to the development of Shymkent includes the city only.

<sup>3</sup> Figure taken from 2021 impact assessment study by EY.

<sup>4</sup> The difference between this figure and the figure quoted in our 2021 Sustainable Development Report reflects changes in the Tenge / US dollar exchange rate.

<sup>5</sup> Figure taken from 2021 impact assessment study by EY.

## IMPACT ON STAKEHOLDERS

ERG is one of the largest tax payers in Kazakhstan, accounting for 2.8% of all taxes paid in 2020.<sup>3</sup> Beyond this, we make significant voluntary contributions to support national-level socio-economic development, in line with the policy priorities of the Government. In January 2022, for example, we donated

US\$65 million<sup>4</sup> to support the creation of the Kazakhstan Khalkyna public social fund (p. 40). The fund is helping to generate positive impacts for broader society, including through the enhancement of healthcare, education and social services, amongst other areas.

We deliver much of our CSI through structured, transparent partnerships with the Government of the Republic of Kazakhstan – at the regional and national levels. This helps to align our efforts with official priorities, including economic diversification (e.g. through the upskilling of local communities), digitisation, entrepreneurship, the building of

workforce capabilities, job creation, infrastructure development and regional development.

In addition, these efforts also benefit the families of our employees – and help incentivise their children to build prosperous, long-term careers in their regions of birth.

We purchase goods and services from a range of domestic companies – from raw materials through to mining services. This supports indirect economic development in our mining towns and beyond.

the National Centre for Industry and Export 'QazIndustry' to support the creation of new local businesses (p. 56).

We also work with the Ministry of Industrial Development, the National Chamber of Entrepreneurs of Kazakhstan 'Atameken' and

In addition, the power we generate, the rail services we provide and the machinery we manufacture also benefit domestic industrial customers.

We provide high-quality employment opportunities to more than 64,000 people in Kazakhstan, the vast majority of whom are Kazakhstani nationals. We build the capabilities of our workforce through targeted training and development – ranging from advanced mining methods through to the application of digital technologies (p. 30).

Our impact on job creation extends far beyond our own operations. For example, according to the EY study we commissioned, our estimated contribution to employment across our operating regions stood at 137,298 people in 2020.<sup>5</sup>

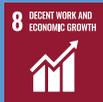
# ETHICS AND COMPLIANCE, INCLUDING HUMAN RIGHTS

## STRATEGIC CONTEXT

The application of strong ethical standards, including those relating to human rights, underpins all that we do. Any failure in this regard not only has the potential to affect others, but also to damage our reputation, harm our relationships, undermine our ability to access finance and undermine our long-term business objectives.

## Relevant UN SDGs

See p. 84 for associated UN Targets



In addition to applying a ‘beyond compliance’ approach to business ethics that looks beyond our strict legal obligations, we are pursuing the closer alignment of our policies with evolving legislation and fast-changing environmental, social and governance (ESG) standards and frameworks. This includes relevant human rights standards, which are addressed on p. 64.

The year was characterised by a dynamic external landscape, including in relation to international sanctions, responsible sourcing requirements and anti-corruption and bribery legislation. Despite this, we have maintained a strong compliance stance – whilst pursuing continuous improvement.

For further information on key compliance risks in 2022, see p. 78 of Appendix.

## HOW WE MANAGE OUR RISKS

Our compliance policies are implemented through our risk-based Group Compliance management system, which covers anti-bribery and corruption, anti-money laundering, sanctions, human rights and data protection. Key elements of the system include compliance risk identification and management, counterparty due diligence, training, monitoring and reporting.

For further information, see [eurasianresources.lu](http://eurasianresources.lu)

### Transition to a process-focused internal assurance model

Our Compliance team provides assurance around the internal application of our compliance-related policies and procedures. In 2022, we started to shift from an entity-level assurance model to an ‘entity-specific’ or ‘cross-entity’ process-focused assurance model.

## Enhancing our human and organisational capabilities through our Compliance School

Our Compliance School is an internal project to help enhance the capabilities of compliance professionals across the Group, develop the skills of new Compliance team members and build common baseline knowledge within all parts of our business.

This includes the use of externally facilitated workshops, as well as a focus not only on ‘core’ compliance issues, but broader issues such as geopolitics, social licence to operate, digitisation and supply chain disruption.

This approach places more focus on the engagement of process owners to ensure controls are adequate, well designed and efficient – and to understand overall compliance risks. Our initial efforts have been focused on ERG Africa, although the approach will ultimately be applied across the Group.

These assurance activities have been expanded beyond issues of ‘pure’ legal compliance, to address our compliance with relevant internal and / or external frameworks, including:

- The Clean Cobalt and Copper Framework (Metalkol, p. 65)
- The RMI responsible sourcing standards (Metalkol, p. 65)
- EcoVadis’ sustainability rating framework (Kazchrome, p. 65)
- The Toyota Production System (Aktobe Ferroalloys Plant, p. 24)

### Training and communication

ERG ensures that its business partners, governance body members and employees have a deep understanding of the Group’s ethical standards through the application of a robust Compliance Training and Awareness Programme.

Key elements of the Programme include:

- Compliance communications from senior management
- E-learning modules for employees, including those on:
  - The ERG Code of Conduct
  - Anti-bribery and corruption
  - Respect for human rights
  - Conflict of interest
  - Personal data protection
- An e-learning module for third parties focused on the ERG Supplier Code of Conduct
- Dedicated, face-to-face compliance training for employees involved in high-risk processes (such as CSI, procurement, sales and finance, etc.), who receive additional instruction on Counterparty Due Diligence (CPDD), personal data protection, human rights and sanctions

In 2022, we placed particular emphasis on rolling out training on our recently updated Code of Conduct in Kazakhstan and at our corporate offices.<sup>1</sup> In addition, we also focused on resuming face-to-face training at our operations in the DRC and Brazil, following the lifting of COVID restrictions.

<sup>1</sup> This followed the rollout of the same to Africa and Brazil in 2021 via our e-learning platform.

## Sanctions

In combination with our exposure to Russian suppliers, customers and finance providers, the dynamic sanctions environment in 2022 meant that we focused on the effective implementation of controls, the updating of our processes and ensuring other parts of the business (including our Global Crisis Team) received active support as they navigated related risks.

Our Sanctions Compliance Programme is aligned with the US Office of Foreign Assets Control (OFAC) Framework for Compliance Commitments (2019) and the Guidelines on Implementation and Evaluation of Restrictive Measures (Sanctions) in the Framework of the EU Common Foreign and Security Policy (2018), and we review and incorporate other regulatory updates and guidance as they are issued. Key elements include, amongst others, clear policy statements, training, real-time updates, risk assessment and monitoring, ongoing relationship reviews, sanctions screening (including during CPDD), scenario planning and contractual provisions.

### Russia-related sanctions

We formed a dedicated Global Crisis Team to address sanctions related to the Russia-Ukraine conflict. Our Sanctions Compliance Programme has supported the Global Crisis Team (as well as our Executive Committee and Compliance Committee) through the provision of real-time sanctions monitoring and reporting. This has resulted in the suspension of shipments to sanctioned customers, as well as the suspension of relations with sanctioned suppliers, amongst other relevant management actions. Notably, this included the suspension of shipments to a key iron ore customer in Russia, as well as the reconfiguration of our financing arrangements, which had previously been highly reliant on a number of Russian banks that were subject to sanctions.

In addition, we have developed 2022-2023 scenarios to provide insight into the impact of current and possible sanctions on our financial position.

1 Conflict-affected and high-risk areas.

## Third-party due diligence

### Counterparty Due Diligence process

Our compliance managers conduct CPDD using reputable third-party information and compliance databases. This Group-wide process allows us to assign risk ratings to each transaction and third party and identify appropriate mitigation actions, and covers issues including (amongst other things), sanctions violations, money laundering, bribery and corruption and human rights infringements. It also identifies and assesses CAHRAS<sup>1</sup> in the context of the OECD Due Diligence Guidelines.

In 2022, we worked with a UK-based law firm to review our CPDD process. As well as validating the CPDD framework and its implementation, it provided recommendations for further enhancement. As a result, we are further improving the process and continuing to apply technology to achieve additional efficiencies in this area.

### Third-Party Risk Management (TPRM) programme

We are continuing to develop our Group-wide TPRM programme. This builds on our CPDD process and will:

- Support a broader, more integrated and full-cycle approach to contract management
- Help us to anticipate and respond to a broader set of evolving ESG regulations and requirements

Once fully operational, the TPRM programme (which integrates a range of existing third-party risk management tools and processes) will cover all of our counterparties and will generate related compliance / ESG metrics and analytics. It will be triggered during the procurement / onboarding process and will apply throughout the relationship lifecycle.

In 2022, we also carried out a review of our TPRM approach (in conjunction with a UK-based law firm) to ensure it integrates external best practice, is well aligned with recent regulatory developments and effectively addresses the needs of internal and external stakeholders.

## Whistleblowing

We are committed to protecting whistleblowers who report suspected violations in good faith, while maintaining confidentiality where requested. In 2022, we enhanced our Group Hotline (*erg.integrityline.org*) and broader whistleblower system following a 2021 self-assessment exercise. Key changes to the whistleblowing system included:

- Engagement of a new, more advanced independent third-party service operator
- Application of an improved incident logging process that integrates ESG issues
- Further training and development of our internal case analysis team
- Process improvements to involve other internal teams in case analysis (as required)

We also conducted a Group-wide workshop involving Compliance and other departments to provide training on these enhanced processes and investigative approaches.

### Closure of SFO investigation into ENRC

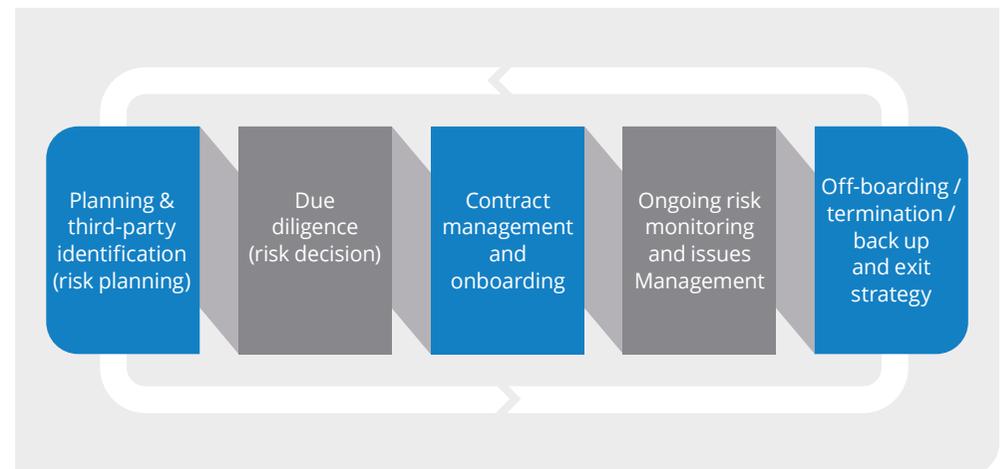
In August 2023, the Serious Fraud Office (SFO) officially closed its long-standing investigation into Eurasian Natural Resources Corporation (ENRC).

This investigation, which opened in 2013, had a proclaimed focus on allegations of fraud, bribery and corruption relating to the acquisition of mineral assets in Africa. No charges were brought against ENRC or its officers as a result of the investigation.

### RAID allegations in the DRC

In November 2021, NGO Rights and Accountability in Development (RAID) published a report alleging cases of past exploitation and labour abuses affecting Congolese workers at a number of industrial copper and cobalt mines in the DRC – including those working for contractor companies at Metalkol. We reviewed and followed up on the allegations in the RAID report, and in January 2022 published a detailed response to these claims (p. 35). In addition, we provided related details (including information about our relevant management systems and controls) in our second *Clean Cobalt and Copper Performance Report*, which has been assured by an independent third party (p. 66).

### TPRM PROCESS



## 2022 COMPLIANCE TRAINING FIGURES (NUMBER OF EMPLOYEES TRAINED)

Category	Senior management <sup>1</sup>	Management	Employees	Total
Code of Conduct	106	2,004	7,358	<b>9,468</b>
CPDD	72	133	2,082	<b>2,287</b>
Data protection	71	182	1,887	<b>2,140</b>
Conflict of interest	41	12	1,554	<b>1,607</b>
Anti-bribery	55	27	1,701	<b>1,783</b>
Human rights	69	837	3,967	<b>4,873</b>

## CODE OF CONDUCT REPORTS IN 2022 (NUMBER OF REPORTS BY CATEGORY)

Category	All reports	Confirmed reports (i.e. risks identified)
Fraud / theft	74	19
Fair employment practices	69	14
Procurement	53	25
Other	50	14
Conflict of Interest	8	4
Health, Safety, Environment	16	8
Bribery and corruption	1	-
Data protection / misuse of confidential information	1	-
Human rights	12	-
<b>Total</b>	<b>284</b>	<b>84</b>

## OUR PERFORMANCE

In 2022, we were not subject to any:

- Material judicial findings or regulatory sanctions (including those linked to our social, economic and / or labour impacts)
- Investigations, legal actions or findings in relation to internationally applicable sanctions
- New human rights allegations, either publicly or via our established internal or external engagement processes and / or grievance mechanisms (including in relation to security and human rights)

We received 284 reports from our employees and business partners via our Group Hotline (2021: 289 reports). This included 84 confirmed Code of Conduct violations (2021: 95). Corrective actions – ranging from enhanced business controls through to disciplinary measures – were taken in all cases.

Over the same period, we completed over 24,000 CPDD reviews (2021: 17,000) and delivered:

- Code of Conduct training<sup>2</sup> to 9,468 employees (2021: 2,455). This increase reflected a new, Group-wide training cycle, as well as a return to less disrupted, post-pandemic working patterns



- Training on ERG Supplier Code of Conduct to 635 employees of onsite contractors
- Training on the Voluntary Principles on Security and Human Rights to 2,393 private security personnel in Africa (representing 100% of our private security personnel in the region)

In addition, we issued 78 email communications within the Group to inform relevant personnel about the evolving sanctions environment.

## NEXT STEPS

In 2023, we plan to revise key policies (including our Sanctions Policy and related guidance), continue to develop our TPRM programme and CPDD process and further align our due diligence processes with the requirements of the OECD Due Diligence Guidelines. We also plan to expand our due diligence focus to address human rights more broadly.

<sup>1</sup> C-Level, chief engineer, chief accountant, etc.

<sup>2</sup> Including a focus on human rights.

## OUR APPROACH TO HUMAN RIGHTS

We are working to identify, prevent and mitigate potential adverse human rights impacts resulting from, caused by or linked to our business. We do so through the implementation of processes aligned with the UN Guiding Principles on Business and Human Rights. Where ERG has caused or contributed to adverse human rights impacts, we will contribute to their prevention, mitigation and remediation, as appropriate. Whilst this section provides an overview of our human rights approach, supplementary and / or associated details can be found in the following chapters:

- Health and safety (p. 27)
- Employee relations (p. 33)
- Community impacts (p. 37)
- Managing impacts on air and water (p. 47)
- Responsible value chains (p. 65)

### Human Rights Policy

Our commitment to respecting human rights is set out in our Code of Conduct, ERG Supplier Code of Conduct and is further supported by Human Rights Policy, Human Resources Policies and associated implementation statements, processes, frameworks and systems.

Amongst other things, our Human Rights Policy commits us to:

- Respecting human rights
- Working to identify, prevent and mitigate potential adverse human rights impacts
- Providing a grievance mechanism for the reporting of human rights incidents
- Recording, assessing and investigating all human rights incidents
- Training employees on the Human Rights Policy
- Working with third parties which have comparable human rights standards to those of ERG

➤ For further information, see: [eurasianresources.lu](http://eurasianresources.lu)

## Group-wide activity

### Group-level risk assessment

We carry out human rights risk assessments in all higher risk jurisdictions. The last assessments were carried out over 2018 and 2019. For higher risk operating sites, these were updated in 2021 and 2022, with key findings incorporated into our Metalkol Human Rights Statement of Commitment and Boss Mining Human Rights Statement of Commitment (see below). The results of these assessments are integrated into relevant risk management processes at a site level.

### Training

In 2022, we launched additional e-learning training modules on human rights and the Supplier Code of Conduct to supplement our existing compliance-focused training programmes (p. 61). The additional human rights modules are targeted at senior- and management-level employees, with the Supplier Code of Conduct training being delivered to suppliers.

### Grievance mechanisms

Stakeholders can report human rights incidents through our:

- Confidential, independently managed whistleblowing ERG hotline (p. 62)
- Standard human resources channels (p. 34)
- Community engagement processes (p. 77)
- Site-based grievance mechanisms (p. 37)

All incidents are recorded, assessed, investigated and remediated in accordance with our Code of Conduct, internal procedures and legislation.

### Suppliers and third parties

We assess our suppliers, all of which are required to comply with the ERG Code of Conduct, ERG Supplier Code of Conduct and Human Rights Policy, in accordance with our CPDD process (p. 62). Our Supplier Code is not only aligned to the requirements of the OECD Due Diligence Guidance, but contains explicit prohibitions on forced labour and child labour.

In addition, it requires suppliers (and their subcontractors) to comply with:

- The ERG Human Rights Policy
- The UN Guiding Principles on Business and Human Rights
- The Voluntary Principles on Security and Human Rights (VPs)

Where necessary (e.g. with respect to higher risk suppliers and / or regions, including in Africa) we implement additional procedures and / or targeted action plans to further remove the risks of forced labour and child labour in our supply chain. These include detailed reviews of labour practices of suppliers during our audits and the review of these processes and systems by independent assurance providers. Labour brokers are subject to detailed annual audits.

In accordance with the ERG Supplier Code of Conduct and Human Rights Policy, where allegations are made in respect of third parties, we follow up to ensure clarity and provide advice and support as needed, including audits and mitigation measures.

## Operation- and region-specific activity

### Site-level impact assessments in the DRC

In Africa, much of our human rights due diligence activity takes place within the context of our Clean Cobalt and Copper Framework. For example, at Metalkol and (as of 2022) Boss Mining, cross-functional Human Rights Working Groups oversee the implementation of the Framework and each site's associated Human Rights Statements of Commitment.<sup>1</sup> The sites carry out regular UN Guiding Principles-aligned impact / risk assessments, which includes a focus on ongoing areas of potential risk (i.e. security, traffic safety, labour brokers and emissions to air and water). Subsequent actions are subject to ongoing monitoring by a dedicated manager.

Labour rights allegations raised by NGO RAID meant that much of our effort in 2022 was focused on investigating these claims and carrying out labour audits. These did not identify any unmitigated issues in this regard (p. 62).

➤ For further information, see: *Metalkol Human Rights Statement of Commitment, Boss Mining Human Rights Statement of Commitment, Clean Cobalt & Copper Performance Report 2022 and Independent Limited Assurance Report 2022, Clean Cobalt & Copper Performance Report 2023 and Independent Limited Assurance Report 2023.*

### Security and human rights

We seek to align ourselves with the VPs at our sites in the DRC, and run awareness campaigns including 'toolbox talks', posters and training for our security employees and contractors. We have – or are in the process of renewing – memoranda of understanding with relevant public security forces protecting each of our operations in the DRC. These communicate and embed our human rights commitments. We also require our private security providers in the DRC to abide by the VPs and implement policies and procedures reflecting the same. Providers are required to implement training on the VPs, and they are subject to audit as part of our supplier audit schedule.

In 2022, 100% of our private security personnel at Metalkol, Boss Mining, Comide and Frontier were trained on the VPs.

<sup>1</sup> Human Rights Working Groups are also being established at Frontier and Comide.

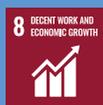
# RESPONSIBLE VALUE CHAINS

## STRATEGIC CONTEXT

Our commitment to contribute to the socio-economic development and well-being of communities in our operating regions extends beyond our own activities and areas of operation. We also seek to promote responsible behaviours amongst our suppliers, contractors and peers – and to deliver assurance to our customers and consumers that the products we sell have been responsibly mined and processed, and are not associated with negative environmental, social or governance impacts.

## Relevant UN SDGs

See p. 84 for associated UN Targets



In addition to maintaining a responsibly managed supply chain, it is important that we can reassure downstream actors that they can source minerals and metals from us – and the broader industry – with confidence. This not only includes the cobalt we produce in the DRC, but also, increasingly, our other products.

## WHAT WE ARE DOING

### Responsible supply chain management

#### Group Supplier Code of Conduct

In 2022, we completed the first phase of the Group-wide rollout of our Group Supplier Code of Conduct (Supplier Code). This included the distribution of the Supplier Code to key suppliers, its integration into our terms and conditions and its incorporation into our supplier CPDD onboarding process. We also extended related training for – and audits of – key suppliers beyond Metalkol, to include other operations in the DRC, and started similar supplier training in Kazakhstan and Brazil.

Our suppliers are required to adhere to the terms of the Supplier Code, and similarly to ensure that their subcontractors agree to do the same. Key topics covered by the Supplier Code<sup>1</sup> include health and safety, bribery and corruption and human rights.

This builds on our comprehensive CPDD process, as well as the ongoing development of our TPRM (p. 62).

For further information, see: [eurasianresources.lu](https://eurasianresources.lu)

#### Additional measures in Kazakhstan

The Supplier Code supplements our existing responsible supply chain management practices in Kazakhstan. Prior to onboarding, each supplier and contractor is assessed in relation to its legal standing, commercial viability and compliance criteria.

## Responsible Chromium at Kazchrome

In 2021 and 2022, Kazchrome was given the 'Responsible Chromium' label by the International Chromium Development Association (ICDA). This was in recognition of its responsible and sustainable production practices. In June 2022, EcoVadis gave Kazchrome (which already held a Silver Award) a Platinum Award, ranking the company in the top 1% of the global iron and steel industry.



In addition, onsite contractors and suppliers in Kazakhstan are subject to:

- 'Beyond compliance' contractual provisions relating to health, safety and the environment
- Initial safety compliance assessments, as well as defined penalties for safety violations
- Supplementary contractual oversight and controls, where they are involved in higher-risk activities

In 2022, we also introduced new sustainability-focused requirements into our contracts with major suppliers, including those relating to their reporting of GHG emissions.

#### Working with national and regional suppliers in Africa

Some of our suppliers in Africa have higher risk profiles compared to Group norms. This includes Congolese, South African and Zambian companies that recruit local people / nationals, transport hazardous materials, use labour brokers or provide security services. These are subject to our supplier audit processes (as described above), as well as strengthened contractual terms. Given the local context – as well as the local content requirements in the DRC's 2018 Mining Code (p. 57) – we work with local suppliers constructively so that they can meet our requirements.

#### Delivering assurance around our cobalt and copper production

We apply a range of initiatives to help ensure that our customers can buy our cobalt and copper with confidence.

#### Clean Cobalt and Copper Framework and Responsible Minerals Assurance Process (RMAP)

Our Clean Cobalt and Copper Framework goes beyond conformance with the OECD Due Diligence Guidance and plays an active role in improving conditions for local people living and working near our operations. In 2022, we updated the Framework to cover not only Metalkol, but all our producing assets in the DRC.

The Framework integrates our commitment to the RMI RMAP. This demonstrates our compliance with the relevant RMI standards, which have been developed to meet the requirements of the OECD Due Diligence Guidance, as well as EU and US regulations around conflict minerals.<sup>2</sup> Our first RMAP assessment was completed at Metalkol in early 2022 and the site has been found to be in conformance with the relevant RMI standards. This status was reconfirmed in 2023 (p. 68).

Further information on RMAP can be found at [responsiblemineralsinitiative.org](https://responsiblemineralsinitiative.org)

1 The Supplier Code is aligned with the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (OECD Due Diligence Guidance).  
2 Including EU Regulation 2017/821 on conflict minerals and Section 1502 of the US Dodd-Frank Wall Street Reform and Consumer Protection Act.

This follows the publication of our second Metalkol Clean Cobalt and Copper Performance Report in July 2022. This was independently assured by PwC, which verified Metalkol's compliance with the statements made in the report. Our third Metalkol Clean Cobalt and Copper Performance Report (and accompanying third-party assurance statement) was published in June 2023.

🔗 For further information, see: *Clean Cobalt and Copper Framework*, *Clean Cobalt and Copper Performance Report 2022* and *Independent Limited Assurance Report 2022*, *Clean Cobalt and Copper Performance Report 2023* and *Independent Limited Assurance Report 2023*.

## Working with others to deliver cross-value chain assurance

### Global Battery Alliance (GBA)

More than 140 organisations – including companies ranging from BASF to Tesla, as well as governments and civil society – participate in the Global Battery Alliance. They share the common aim of promoting traceability, transparency and sustainable practices across the battery value chain (p. 67). ERG is a founding member and its Supervisory Council is co-chaired by ERG's CEO.

The Battery Passport is the GBA's flagship project. It is a digital tool that conveys information about key ESG and lifecycle performance indicators based on a comprehensive definition of a sustainable battery.



The GBA's Battery Passport is the first and only passport to be developed by stakeholders spanning the entire battery value chain, making it the standard bearer for battery transparency

### Benedikt Sobotka

CEO, Eurasian Resources Group

The GBA is working with other initiatives to pursue common goals. These include:

- The Battery Pass Coalition
- The Zero Emission Vehicles Transition Council (ZEVTC)
- The Sustainable Markets Initiative
- Catena-X

🔗 For further information, see: [thebatterypass.eu](http://thebatterypass.eu), [zevtc.org](http://zevtc.org), [sustainable-markets.org](http://sustainable-markets.org) and [catena-x.net](http://catena-x.net)

### Battery Passport rulebooks

In late 2022, the GBA launched three Battery Passport rulebooks (and, where relevant, accompanying assessment indices) focused on child labour, human rights and GHG emissions. These represent the world's first multi-stakeholder, consensus-driven frameworks to measure / score companies or products in the battery value chain based on their support for the elimination of child labour and their respect for human rights – and to calculate / track the cross-lifecycle GHG footprints of lithium-ion batteries in electric vehicles.

### Launch of the Battery Passport – and the successful piloting of its proof of concept

In January 2023, the GBA unveiled its Battery Passport at the World Economic Forum's annual meeting in Davos.



This included three Battery Passport implementation pilots that integrated example data from Audi, Tesla and their value chain partners relating to:

- The battery's technical specifications
- Material provenance
- Key sustainability performance indicators, including partial reporting (in line with the rulebooks referenced above) of:
  - The battery's carbon footprint
  - The child labour and human rights performance linked to the battery and its materials
  - Information on data collection across different steps of the value chain

Two of these three pilots were supported by ReSource, a digital platform powered by blockchain technology that ensures the traceability of minerals from the mine to the electric vehicle (p. 67). The results of the Battery Passport pilots can be found at [globalbattery.org](http://globalbattery.org).

The pilots demonstrated how the Battery Passport will enable customers and other stakeholders to make more informed purchasing decisions and drive sustainable sourcing, processing and manufacturing practices in future. Indeed, the Battery Passport is designed to meet the requirements of the new EU Battery Regulation, which will require 'digital battery passports' from 2026 and builds on work carried out by the GBA.<sup>1</sup>

🔗 For further information, see: [globalbattery.org](http://globalbattery.org), [eurasianresources.lu](http://eurasianresources.lu) (launch of proof-of-concept), [eurasianresources.lu](http://eurasianresources.lu) and [re-source.tech](http://re-source.tech)

<sup>1</sup> See [europarl.europa.eu](http://europarl.europa.eu).

# The Battery Passport proof of concept

The piloting of the GBA Battery Passport, which provides a 'digital twin' of the physical battery that conveys information about its provenance, manufacture and ESG metrics, took place in 2022. This groundbreaking process was supported by, amongst other things, the innovative ReSource blockchain platform (p. 25).

Following the successful piloting, the Battery Passport proof of concept was launched in early 2023 at the World Economic Forum's meeting at Davos – heralding a new era in multi-stakeholder, cross-lifecycle battery transparency and traceability.

## DELIVERING TRACEABILITY...

### ReSource

ReSource is an industry collaboration founded by ERG, Glencore and IXM and includes miners and manufacturers. It is one of the key tools supporting the proof of concept. ReSource uses blockchain technology to securely trace battery material and relevant sustainability indicators from mine origin to end-producer – supporting battery value chain due diligence. ReSource supported two of the three Battery Passport pilot exercises.



#### Blockchain

Use of blockchain technology and zero-knowledge proofs to link digital data flows with material flows on the ground



#### 'Big bag' registration

Registration modules that ensure the integrity of cobalt origin data, secure bag transfer and capture of the chain of custody



#### 'Smart seals'

Seals that support automated data transfer without the need for human input



#### Blockchain mass balancing

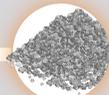
Algorithms to calculate input cobalt mass / output cobalt mass during processing, generating additional traceability assurance



Crude refiner



Fine refiner



Precursor producer



Cathode producer



Battery cell producer



Battery pack producer



Electric vehicle producer



'Second life' and / or recycling

## ...STANDARD-SETTING AND ASSURANCE

### GBA Battery Passport

With the first pilot proof of concept launched in January 2023, the Battery Passport establishes a digital twin of a physical battery that conveys information about all applicable sustainability and lifecycle requirements based on a comprehensive definition of a sustainable battery. It brings new levels of transparency to the global battery value chain by supporting the flow of trusted sustainability performance data (amongst other aspects) across all lifecycle stakeholders.



#### Human Rights Index

Contains relevant expectations regarding the management of human rights risks, including:

- Policy
- Risk / impact assessment
- Prioritisation, prevention and mitigation
- Monitoring and reporting
- Stakeholder engagement
- Remediation



#### Child Labour Index

Contains similar steps as the Human Rights Index, but specifically focused on child labour. This includes (amongst other things) requirements around:

- Minimum age
- Age checks
- Addressing root causes
- Children's rights training
- Family friendly policies



#### GHG Emissions Rulebook

Technical guidance to facilitate the calculation of comparable GHG footprints of lithium-ion batteries (i.e. across the manufacturing lifecycle)

TRACEABLE AND SUSTAINABLE BATTERIES

## ASM Cobalt Framework

From 2020 to 2022, the GBA supported the advancement of an ASM<sup>1</sup> cobalt framework to define a common set of global expectations for responsibly-produced ASM cobalt sourced from the DRC.<sup>2</sup> This was with the aim of, amongst other things, supporting official ASM formalisation efforts in the DRC.

In March 2022, the GBA signed a memorandum of understanding for the RMI to continue work on the development / implementation of the framework and to start application pilots in the DRC (with the support of the DRC Government). In the meantime, the GBA is broadening its thematic focus to include the advancement of responsible and sustainable critical minerals value chains, as well as circular battery value chains.

🔗 For further information, see: [responsiblemineralsinitiative.org](https://responsiblemineralsinitiative.org)

## Value chain assurance around aluminium

The aluminium we produce at KAS is an 'approved brand' of the London Metal Exchange (LME) Responsible Sourcing requirements. We have full oversight and control of the origins of the ore in our aluminium supply chain as it is mined at our own operations. Nonetheless, as part of our ongoing efforts to deliver broader value chain assurance, we are applying our Responsible Aluminium Framework. This helps demonstrate that we manage human rights, business ethics, and environmental and health and safety risks in a way that meets internationally accepted standards – as well as our compliance with the LME Responsible Sourcing requirements.

In particular, the Framework renews our commitment to respecting human rights and delivering sustainable aluminium production in line with the OECD Due Diligence Guidance.

Key elements include:

- Our CPDD process includes CAHRA principles (p. 62)
- Additional Red Flag assessments triggered by corruption, sanctions and other issues
- 'Beyond compliance' HSE requirements for onsite suppliers / contractors
- Third-party assurance

In future, we plan to extend the Framework to include other product lines.

🔗 For further information, see: [erg.kz](https://erg.kz) and [eurasianresources.lu](https://eurasianresources.lu)

## OUR PERFORMANCE

In 2022, we carried out over 24,000 CPDD reviews (2021: more than 17,000) across the Group. In cases where compliance risks were identified, we applied relevant controls up to and including refusal to enter into a contractual relationship and / or the termination of existing contracts.

With respect to Metakol (and in addition to the publication of our second third-party assured Clean Cobalt and Copper Performance Report, p. 66):

- In August 2022, the RMI determined that Metakol was in conformance with the RMAP Cobalt Due Diligence Standard (2018) and relevant sections of the Joint Due Diligence Standard for Copper, Lead, Nickel and Zinc (2021). This followed the completion of the operation's first RMAP assessment in early 2022 and the closing out of a small number of issues in relation to reporting and implementation of the Group CAHRA procedure.<sup>3</sup> In March 2023, the operation received its updated confirmation of conformance, after no further findings were identified during its second RMAP assessment



- The operation was subject to multiple customer audits (including an onsite second-party audit on behalf of a number of major automotive companies) focused on a wide range of sustainability criteria. These did not identify any material issues

In 2023, we published our third, third-party assured Clean Cobalt and Copper Performance Report (p. 66). We also completed, in accordance with the LME Responsible Sourcing requirements, a Red Flag assessment report for the aluminium we produce at KAS. This received reasonable assurance in June 2023.

## NEXT STEPS

In 2023 (and beyond), we plan to continue playing a leading role in the development and implementation of the GBA Battery Passport, as well as the development of additional indicators. Within our own operations, we plan to advance the application of RMAP at Frontier and Comide.

In addition, we will continue to advance the responsible management of our own supply chains, including through the ongoing application of our group supplier code of conduct and our expanded CPDD process.

1 Artisanal and small-scale mining.

2 This multi-stakeholder initiative builds on the work already undertaken by the RMI to further develop a draft framework for ASM cobalt that was initially composed by the founding members of the Fair Cobalt Alliance. This was shared with the RMI and the Cobalt Action Partnership for their feedback. Since then, the RMI and the CAP have held introductory meetings with key DRC and global stakeholders, benchmarked the framework against relevant DRC standards and laws as well as other ASM standards, and adapted the framework in line with key stakeholder feedback.

3 A procedure introduced in 2021 to define conflict-affected and high-risk areas, and thus to support the management of upstream and downstream supply chain risks.

# GOVERNMENT RELATIONS AND POLICY

## STRATEGIC CONTEXT

The governments and public institutions we work with count amongst our most important stakeholders. This reflects the actual and potential impact of public policy, legislation and regulation on our business. In addition, the Government of the Republic of Kazakhstan's 40% shareholding in ERG makes this a particularly important relationship.

## Relevant UN SDGs

See p. 84 for associated UN Targets



ERG adheres to the highest principles of ethical business conduct with respect to its relationships with its host (and other) governments. In addition, we actively engage with our host governments to better understand how we can positively contribute to their legitimate policy priorities, including their socio-economic development agendas.

## WHAT WE ARE DOING

### Relationship with the Government of the Republic of Kazakhstan

ERG is 40% owned by the Government of the Republic of Kazakhstan. As of 31 December 2022, it was represented on our Board of Managers by:<sup>1</sup>

- Deputy Prime Minister – Minister of Finance, Mr Yerulan Zhamaubayev
- Deputy Prime Minister – Minister of Trade and Integration, Mr Serik Zhumangarin

In addition, our size, economic role, regional footprint and community social investment contributions mean we play a strategic socio-economic role in Kazakhstan – from national through to local level.

We actively engage the Government and support (where it fits with our business objectives) its national strategy. The Government is placing significant emphasis on (amongst other things) the promotion of broad-based economic development, higher living standards amongst the population and social harmony. This includes a focus on economic diversification, digitalisation, entrepreneurship, the building of workforce capabilities, the creation of high quality jobs, improved public services and regional development.

In this context, we are committed to our continued delivery of social value to the country, whether in terms of job creation, digitalisation, community social investment, skills development or local procurement (p. 60).

Key areas of engagement with the Government in this regard include:

- The promotion of socio-economic development in our regions of operation, including through our memoranda of understanding with regional governments (Regional MoUs) – and beyond (p. 40)
- Economic growth and the enhancement of national capabilities, including through the promotion of digital innovation (p. 25), entrepreneurship (p. 40), the development of local suppliers (p. 56) as well as professional development (p. 30)
- Taxation policies towards the metals and mining sector, in the context of global metal prices and efforts to attract investment

In addition, discussions with the Government also focused on:

- The development of its Low Carbon Development Strategy, which was approved in early 2023 and will support its pursuit of national carbon neutrality by 2060. This has given fresh impetus to our decarbonisation efforts in Kazakhstan, including our pursuit of renewable energy (p. 51)
- Alignment with – and support of – the government's 'Green Economy' concept, its climate change commitments and the new Environmental Code, which came into force in July 2021 (p. 47)

This is in addition to ongoing engagement around measures to mitigate the impact of the Russia-Ukraine conflict on Kazakhstan's companies and broader trading relationships. For further details on how the situation has affected ERG, see p. 9.

### Government relations in Africa

The Government of the DRC holds direct interests in Metallkol and Frontier, as well as in Boss Mining and Swanmines via state mining company Gécamines.

In 2022, key areas of government engagement included:

- Energy security, including the national energy deficit and its impact on the mining sector
- The implementation of the 2018 Mining Code and its impact on investments in the country
- Measures to prevent illegal ASM activity and mitigate its impacts on our host communities, including at Boss Mining (p. 37)
- The delivery of community benefits, including through our Commitments Registers (p. 43) and through our input into government development initiatives (p. 43)

In addition, engagement also focused on the restarting of operations at Boss Mining in 2022 (p. 21), which had been in care and maintenance since 2019. Along with our ongoing investment in both Metallkol and Frontier, this is a concrete demonstration not only of our commitment to invest in the DRC, but of our ultimate intention to pursue active growth in Africa (p. 19).

In May 2023 the DRC Ministry of Mines temporarily suspended operations at Boss Mining following localised flooding. We have appealed this decision and, at the time of writing, were awaiting a response from the Ministry. For further details, see p. 38.

### Government relations in Brazil

Much of our engagement in Brazil is focused on local municipalities (including mayors and government representatives). This helps us better understand our social, economic and political context, as well as the impacts, risks and opportunities associated with the planned expansion of BAMIN – including the FIOL 1 railway. In parallel, we are engaging at state and federal level with relevant officials and institutions, as we seek to bring economic development to our areas of operation, implement our sustainability commitments and establish a world-class iron ore mining, transportation and export operation.

Following Brazil's state and federal elections in October 2022, we are also monitoring the subsequent political and regulatory developments to better understand the potential impacts on BAMIN, if any.

<sup>1</sup> Both individuals remained in place at the time of publishing of this report. For further information, see p. 71.



## NEXT STEPS

In Kazakhstan, we plan to continue engaging with the Government on our delivery of social value (p. 10) and the advancement of its environmental agenda. This includes a focus on how we can best support broader national development.

In the DRC, we plan to work with the Government to explore how we can further grow our presence in the country and deliver real benefits to local people, including a focus on formalising the ASM sector.

In Brazil, we plan to continue building our relationships with our local municipalities, the state of Bahia and the new federal government to ensure that our BAMIN operation can be developed to its full potential, to the benefit of ERG, local communities and the broader economy of Bahia.

## OUR PERFORMANCE

In line with our Code of Conduct, we do not, directly or indirectly, make political contributions other than in exceptional circumstances approved in advance by the ERG Board of Managers. Any political contribution must be authorised in accordance with internal ERG policy and procedures, and applicable law. In 2022, ERG did not make any contributions (financial or in-kind) to political parties.

We work with both the national government and regional governments in Kazakhstan to support socio-economic development, both in line with our regulatory and / or licence commitments and (where it is also aligned with the interests of our business) through our voluntary participation in projects that actively support the Government's policy agenda.

Key examples include:

- Our Regional MoUs with regional governments to support community development (p. 40)
- Mandatory development contributions in our operating regions

Similarly, in the DRC, we implement local development projects, in line with the terms of the 2018 Mining Code (p. 43).

## APPENDIX

# Governance, management structures and risk management

We have commenced the organisational restructuring of our business to further support our long-term resilience. Please note that all content in this section reflects relevant company arrangements during 2022.

### CORPORATE GOVERNANCE

The shareholders of ERG appoint the Board of Managers (the Board), oversee financial performance and pass resolutions on certain matters reserved for the shareholders.

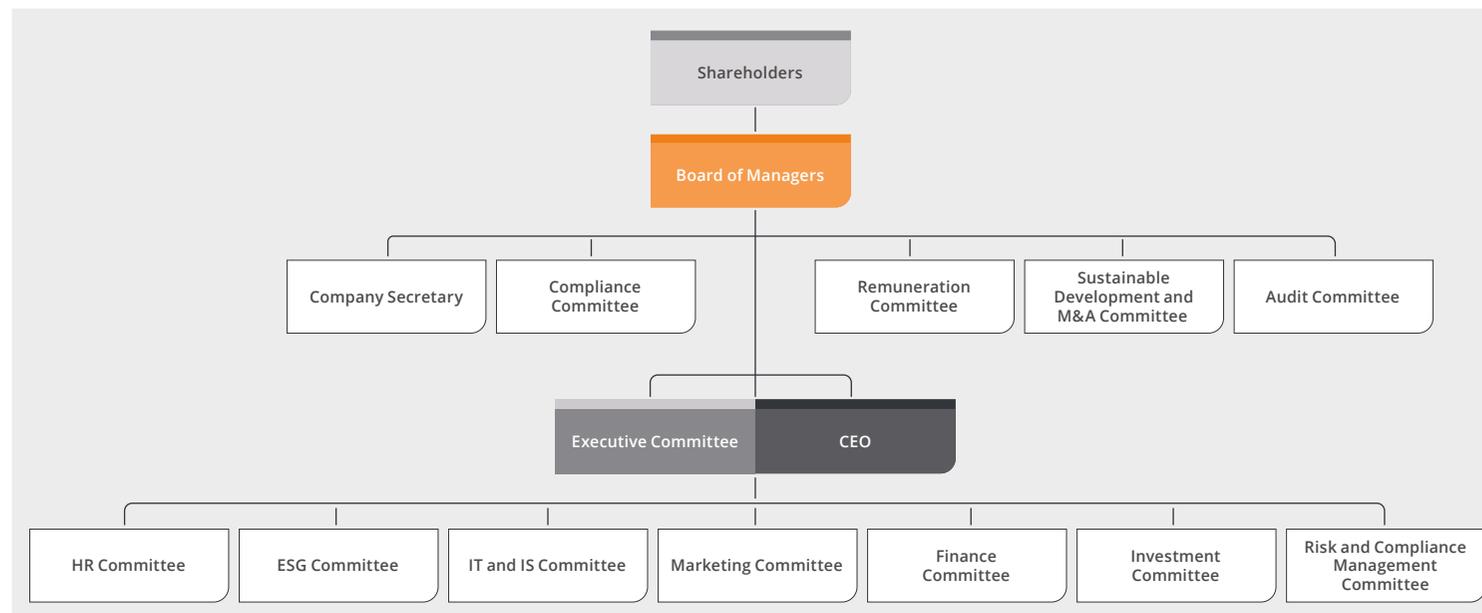
The Board is composed of five members:

- Dr Alexander Machkevitch (founding shareholder)
- Mr Patokh Chodiev (founding shareholder)
- Mr Shukhrat Ibragimov (appointed in 2021)
- Mr Yerulan Zhamaubayev (representing the Government of the Republic of Kazakhstan since 2022)<sup>1</sup>
- Mr Serik Zhumangarin (representing the Government of the Republic of Kazakhstan since 2022)<sup>2</sup>

The Board determines and implements the strategy of the Group, appoints the Group CEO and other senior managers, and considers key transactions. 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 approved our Code of Conduct and Group Compliance policies.

The Board has 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:

### Group corporate governance structure



- **Compliance Committee:** Responsible for review, oversight and approval of the Group compliance systems, policies and controls, as well as 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, assessment and mitigation of related risks, structuring and implementation of projects, and post-acquisition integration), as well as supporting Group-wide transformation and business sustainability

- **Audit Committee:** Responsible for overseeing the integrity of ERG's financial reporting, the effectiveness of its internal controls and risk mitigation actions, the effectiveness of its Internal Audit function and the engagement of external auditors

### Executive Committee (ExCom)

ExCom is a Group-level collegial management body. It is authorised to pass resolutions on matters within its competence and to provide consultations and recommendations in relation to matters pertaining to the Group's business. Its resolutions, consultations and recommendations support the coordination of the Group's business and the provision of assistance to the management bodies of relevant Group companies.

<sup>1</sup> Mr Yerulan Zhamaubayev replaced Mr Beibut Atamkulov, who resigned from his role on the Board in early 2022.

<sup>2</sup> Mr Serik Zhumangarin replaced Mr Bakyt Sultanov, who resigned from his role on the Board in late 2022.

## APPENDIX continued

ExCom's strategic function is to:

- Guide the overall performance of the Group
- Act in line with targets and strategies approved by the Board
- Develop a long-term financial plan and key performance indicators
- Implement standards and policies for key processes, including their communication to regional level
- Identify and allocate key resources for the Group to fulfil its key obligations and tasks

### ESG Committee

In 2021, we established an Environmental, Social and Governance (ESG) Committee to support the integration of sustainability practices into our Group strategy and decision-making processes. In 2022, the Committee continued a formal process to establish 2030 ESG Goals and develop supporting action plans in priority areas for the Group (p. 11).

During 2022, the Committee met four times and reviewed the following issues (amongst others):

- Health and safety performance
- Sustainability reporting disclosure requirements, including the EU Corporate Sustainability Reporting Directive
- ESG ratings requirements
- Environmental protection
- Energy efficiency programmes
- Reuse and disposal of production waste
- Green financing opportunities

### Regional health & safety, environmental and social management

#### Kazakhstan

We have established the following regional committees made up of senior regional management and the CEOs of our business units:

- Environmental Protection Committee
- Occupational and Industrial Safety Committee
- Investment 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

Our Environmental Protection Committee did not meet in 2022, with strategic environmental matters instead being considered by the Group ESG Committee (see opposite). Similarly, while there was one meeting of the Occupational and Industrial Safety Committee, health and safety issues were again considered by the Group ESG Committee.

#### Africa

In Africa, our Safety, Health and Sustainability (SHS) performance is reported on a monthly basis to the region's Long Term Planning and Strategy Committee, site General Managers, site SHS managers, and selected senior employees. Participants in this process discuss the cause of serious incidents, as well as preventative measures.

Specific attention is given to:

- Incidents, grievance mechanisms and resolution
- The monitoring of environmental and social risks
- Progress against internal / external audit reports and internal ESG Goals
- Host community needs and the progress of community social investment (CSI) projects
- Artisanal and small-scale mining (ASM) monitoring and appropriate mitigation actions
- Security and human rights risks assessments and stakeholder engagement

At our operations in the DRC, we operate a formal Safety and Hygiene Committee, as required under local law.

#### Brazil

In 2022, BAMIN established a Sustainability Committee. The primary role of the committee is to monitor ESG performance and establish strategy for the implementation of BAMIN's ESG programme. In addition, the committee provides guidance and oversight to help prioritise the mitigation of risks and the management of relevant topics identified via the operation's materiality assessment process.

## RISK MANAGEMENT

Our risk management framework helps us to identify and understand potential threats to the sustainability of our business, as well as related opportunities. This includes our most material Sustainable Development issues, which have the potential to impact our people, local communities and the environment, as well as our ability to achieve our operational and strategic objectives.

Our Group Risk Management Policy is informed by the International Standard for Risk Management (ISO 31000), and recommended ISO 31010 techniques are applied when assessing risk. In addition, business continuity management practices are applied in accordance with the 'Good Practice Guidelines' of the British Business Continuity Institute, as well as the recommendations of the international business continuity standard ISO 22301.

We embed risk management at every level of the organisation to effectively manage threats and opportunities. Our three lines of defence framework provides necessary assurance that risks are effectively managed in line with our policies, standards and procedures.

We regularly assess the potential impact and likelihood of our principal risks (current and residual), and monitor the effectiveness of mitigation actions and associated controls.

Our principal risks are set out in the table on p. 73. There may be additional risks that are as yet unknown to the Group and other risks currently not believed to be material, which could have a significant impact on our business performance and financial results.

## APPENDIX continued

### PRINCIPAL RISKS AND SELECTED MITIGATION ACTIONS

Key risk areas	Selected mitigation actions	
<p><b>Political risks</b></p> <p>We conduct our business in complex environments, which are characterised by ever-changing political dynamics and the potential for unexpected risks – including those relating to international sanctions. In addition, geopolitical tensions and military conflicts have the potential to affect our key markets, supply routes, vendors and customers.</p>	<ul style="list-style-type: none"> <li>Monitoring and analysis of political and macroeconomic trends in our regions of operations</li> <li>Close monitoring of, and compliance with, applicable international sanctions</li> </ul>	<ul style="list-style-type: none"> <li>Regular engagement with third-party legal advisors</li> </ul>
<p><b>Regulatory and legal risks</b></p> <p>There are a number of factors that could affect our regulatory context and present risks to our business. This includes the introduction of new (or changes to existing) laws and regulations by our host governments.</p>	<ul style="list-style-type: none"> <li>Monitoring of potential legislative and regulatory changes</li> <li>Implementation of internal training and awareness-raising to ensure up-to-date knowledge and common understanding of regulatory developments amongst our teams</li> </ul>	<ul style="list-style-type: none"> <li>Representation of our interests through professional bodies / associations</li> <li>Monitoring of compliance with our licence and permit obligations</li> </ul>
<p><b>Personnel management risks</b></p> <p>The fact we operate in remote locations presents challenges in terms of accessing skilled labour and our ability to attract, develop and retain people with the skill sets required for our operations. In addition, failure to deliver broader social benefits to our workforce, many of whom live in relatively remote mining towns in Kazakhstan, may result in a loss of talent and skills and would make it hard to recruit new employees.</p>	<ul style="list-style-type: none"> <li>Maintenance of competitive remuneration packages</li> <li>Training and development to maintain the skills pipeline (p. 30)</li> <li>Maintenance of partnerships with local universities, as well as the engagement of educational institutions with the aim of attracting young professionals</li> </ul>	<ul style="list-style-type: none"> <li>Application of succession planning</li> <li>Continuous monitoring of staff satisfaction and engagement</li> <li>Implementation of social support programmes for personnel (see 'Social risks' below)</li> </ul>
<p><b>Health, safety and security risks</b></p> <p>The nature and location of our operations mean they have, in the absence of appropriate controls, the potential to affect the physical well-being and health of our employees, contractors and community members. In turn, this can pose risks to the Group in terms of regulatory responses, workforce morale, production disruption and the physical integrity of our facilities.</p>	<ul style="list-style-type: none"> <li>Application of ISO 45001-certified occupational health and safety management systems in Kazakhstan – as well as management systems in Africa that are informed by ISO 45001 (p. 27)</li> <li>Zero Harm approach towards critical health and safety risks and reinforcement of our safety culture through training, the implementation of standards and team engagement</li> </ul>	<ul style="list-style-type: none"> <li>Risk assessment using Hazard Identification (HAZID) methodologies</li> <li>Implementation of safety management system audits</li> <li>Integration of safety targets into managers' KPIs</li> <li>Implementation of a dedicated programme to address COVID-19 risks in our workforce, while maintaining operational continuity</li> </ul>
<p><b>Social risks</b></p> <p>Our business activities may negatively affect nearby communities, including in relation to their human rights (see p. 64 for an overview of ERG's approach to human rights). Therefore, there is a risk this could affect our social licence to operate. Similarly, a failure to deliver broader social benefits to our workforce in Kazakhstan, many of whom live in relatively remote mining towns, would result in a loss of talent and skills and would make it hard to recruit new employees.</p>	<ul style="list-style-type: none"> <li>Delivery of sustainable, long-term benefits to local communities through sponsorship and strategic community social investment (CSI), including regional economic development in our host countries (p. 40)</li> <li>Application of the Commitments Register framework as well as the Clean Cobalt and Copper Framework in the DRC (p. 65)</li> <li>Social attitude monitoring in our host regions, and the maintenance of community grievance mechanisms (p. 76)</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of employee housing programmes, the provision of social benefits to employees and the improvement of local urban environments (p. 37)</li> <li>Application of our Human Rights Policy and a range of implementation actions (see 'Compliance risks' below)</li> <li>Provision of social support for employees under the terms of the collective agreement</li> </ul>
<p><b>Environmental risks</b></p> <p>The nature of our activities and processes mean they have, in the absence of appropriate controls, the potential to harm the environment. In turn, this could pose regulatory risks to our business and undermine our social licence to operate.</p>	<ul style="list-style-type: none"> <li>ISO 14001-certified and / or aligned environmental management systems (p. 46)</li> <li>Implementation of our Environmental Strategy in Kazakhstan, including the phased implementation of advanced filter and air monitoring technology at our key operations (p. 47)</li> </ul>	<ul style="list-style-type: none"> <li>Regular risk analysis and technical review of our residual waste storage facilities (p. 53)</li> <li>Plans for the adoption of a dry-stack tailings storage facility at BAMIN's Pedra de Ferro mine in Brazil (a design that is widely considered to be more sustainable and physically stable compared to conventional designs)</li> </ul>
<p><b>Climate change risks</b></p> <p>We face regulatory and market risks in relation to our GHG emissions that require the implementation of appropriate management actions. In addition, our operating facilities may be affected by harsh weather conditions, as well as extreme temperatures, floods and other extreme weather impacts.</p>	<ul style="list-style-type: none"> <li>Adoption of our new Climate Change Impact Management and Adaptation Policy for Kazakhstan (p. 77)</li> <li>Investigation and implementation of renewable energy projects (p. 51)</li> <li>Implementation of energy efficiency measures at our operations in Kazakhstan, as well as ISO 50001-certified energy management systems in Kazakhstan (p. 51)</li> </ul>	<ul style="list-style-type: none"> <li>Assessment of our carbon footprint to help us manage the same</li> <li>Analysis of our carbon risks to better understand and manage exposure, and inform our future carbon strategy (p. 50)</li> <li>Factoring-in of GHG emission implications when making long-term investment decisions, with the aim of reducing our emissions where it is commercially feasible to do so (p. 50)</li> </ul>

## APPENDIX continued

Key risk areas	Selected mitigation actions	
<p><b>Compliance risks</b></p> <p>We are subject to a range of internal and external compliance obligations, including those relating to sanctions, confidentiality, data protection, human rights, money laundering / the financing of terrorism, and bribery and corruption. Any non-compliance in this regard could result in financial and non-financial sanctions, as well as reputational damage.</p>	<ul style="list-style-type: none"> <li>• Implementation of Group Compliance Programme, including training / monitoring of adherence to policies and guidance (ERG Code of Conduct, ERG Supplier Code of Conduct, etc.) (p. 61)</li> <li>• Application of updated counterparty and supply chain due diligence processes, including a special focus on human rights / OECD Due Diligence Guidance<sup>1</sup> (p. 65)</li> <li>• Implementation of Sanctions Compliance Programme (p. 62)</li> </ul>	<ul style="list-style-type: none"> <li>• Implementation of data protection programme to ensure compliance with the EU General Data Protection Regulation (EU GDPR) and other related laws (p. 61)</li> <li>• Maintenance of whistleblower system (p. 62)</li> <li>• Application of our Human Rights Policy and a range of implementation actions, including risk assessment, training, grievance mechanisms, counterparty due diligence and the rollout of our Supplier Code of Conduct (p. 65)</li> </ul>
<p><b>Price risks</b></p> <p>Volatile commodity prices could materially affect our business, including our financial results and our liquidity.</p>	<ul style="list-style-type: none"> <li>• Investigation of opportunities to expand and diversify our product portfolio</li> <li>• Regular reviews and forecasts of short- and medium-term market fundamentals (consumption, supply, availability, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance of long-term sales contracts that link commodity prices to benchmarks</li> <li>• Price analysis and hedging of commodity prices</li> <li>• Development of alternative sales channels</li> </ul>
<p><b>Production and operational risks</b></p> <p>The company's production activities are subject to risks relating to equipment failure and geological uncertainty, as well as both natural and human-induced accidents.</p>	<ul style="list-style-type: none"> <li>• Risk-based reliability planning and maintenance</li> <li>• Independent technical diagnostics of machines and equipment</li> <li>• Control of input materials</li> <li>• Implementation of business continuity processes</li> </ul>	<ul style="list-style-type: none"> <li>• Application of comprehensive technical regulations to ensure efficient and safe production</li> <li>• Maintenance of property damage and business interruption insurance</li> <li>• Ongoing assessment / evaluation of Mineral Resources and Mineral Reserves</li> </ul>
<p><b>Supply chain and logistics risks</b></p> <p>The Group's large supply chain exposes it to risks related to contractual non-compliance by suppliers, shortages and delays in transportation, price fluctuations and international sanctions.</p>	<ul style="list-style-type: none"> <li>• Supply chain analysis to identify the risk of losing key suppliers due to sanctions and logistical restrictions</li> <li>• Ongoing efforts to establish alternative / more efficient logistical routes for our supply chain</li> <li>• Maintenance of long-term supplier contracts and category strategies for key goods / services</li> <li>• Implementation of initiatives to develop local and domestic suppliers in our countries of operation</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance of our own fleet of railway wagons</li> <li>• Quality / specification / completeness controls related to the supply of goods and services</li> <li>• Creation and maintenance of supplementary stocks of critical items (including PPE)</li> <li>• Quality control of delivered goods</li> </ul>
<p><b>Capital project execution risks</b></p> <p>A failure to deliver major capital projects within planned timeframes, budgets and quality criteria could negatively affect the long-term profitability and reputation of the Group, including our ability to attract future financing.</p>	<ul style="list-style-type: none"> <li>• Systematic, transparent and stage-gated project implementation process</li> <li>• Enhanced project due diligence, including independent project reviews prior to stage gates</li> <li>• Contingency planning based on quantitative schedule and cost risk analysis</li> </ul>	<ul style="list-style-type: none"> <li>• The insurance of construction risks and risks relating to the delayed start-up of critical capital projects</li> <li>• Monitoring / control of project deadlines, budgets and ramp-up, etc.</li> </ul>
<p><b>Financial risks</b></p> <p>Risks relating to the ability of the Group to carry out necessary operational and investment activities, and the potential for these to be undermined by credit risks, liquidity risks, foreign exchange risks and interest rate risks.</p>	<ul style="list-style-type: none"> <li>• Maintenance of strong relationships with existing non-sanctioned lenders as well the renegotiation and amendment of the applicable terms of certain financing arrangements and the termination of certain transactions with some of our lenders in compliance with all applicable laws and regulations</li> <li>• Expansion of our credit lines to allow for diversified sources of funding, improvements to our debt portfolio and new funding opportunities / conditions (in the context of current sanctions restrictions)</li> </ul>	<ul style="list-style-type: none"> <li>• Prudent financial policies (including the regular updating of our cash flow plan, control over the Group's liquidity level, compliance with our covenants, monitoring of the Group's open FX position and compliance with tax legislation)</li> <li>• Disciplined credit control process</li> <li>• Analysis of our counterparties' creditworthiness</li> </ul>
<p><b>Information technology and information security risks</b></p> <p>In the context of our digitalisation and the enhancement of our information technology (IT) landscape, we recognise that we are exposed to potential risks, including, but not limited to: loss of access to IT infrastructure, disruption of business processes including industrial control systems, internal and / or external fraud, data leakage and data breaches, non-compliance with information security regulations, and other related risks.</p>	<ul style="list-style-type: none"> <li>• Maintenance of a reliable cybersecurity system</li> <li>• Prompt response to failures in IT services and cybersecurity incidents</li> <li>• Implementation of continuity plans for key IT processes</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring of compliance with the terms of software licence agreements</li> <li>• User training</li> <li>• Backup validation and disaster recovery for all critical systems</li> </ul>

<sup>1</sup> OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas.

# Management approach

## OUR VALUES

Our Values reflect how we want to do business and guide us on our journey towards true business sustainability.

We apply our Values in every decision we make, at all levels of our business – from the most senior manager to the most junior employee:

 <p><b>Safety</b></p> <ul style="list-style-type: none"> <li>• We put safety first</li> <li>• We ensure safe labour conditions for all our employees and contractors, and continuously work to prevent any injuries occurring in the workplace</li> </ul>	 <p><b>Unity</b></p> <ul style="list-style-type: none"> <li>• We work together as a team of passionate people aiming to achieve our set goals</li> <li>• We respect the cultural and regional traditions where we operate</li> </ul>	 <p><b>Efficiency</b></p> <ul style="list-style-type: none"> <li>• We do not work for the sake of it – we are focused on delivering results</li> <li>• We manage our resources carefully to achieve results</li> <li>• We prioritise the most relevant issues</li> <li>• We minimise tasks that do not add value</li> </ul>	 <p><b>Development</b></p> <ul style="list-style-type: none"> <li>• We appreciate our employees and create conditions for their development</li> <li>• We efficiently implement new technologies and develop as a company</li> <li>• We ensure the sustainable development of the Group</li> </ul>	 <p><b>Responsibility</b></p> <ul style="list-style-type: none"> <li>• We fulfil our obligations to our employees, their families, customers, partners, shareholders and society</li> <li>• We carefully manage the resources and the environment entrusted to us</li> <li>• We build a culture of mutual confidence and respect within the Group, as well as with partners and customers</li> </ul>
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## Key external management system standards applied by ERG in Kazakhstan

- ISO 45001 Occupational health and safety management system standard
- ISO 50001 Energy management system standard<sup>1</sup>
- ISO 14001 Environmental management system standard
- ISO 9001 Quality management system standard
- ISO / IEC 27001 Information security management system standard

Below, we set out additional information regarding our commitments and management approaches with respect to our people, communities, the environment and broader society.

## HOW WE MANAGE OUR PEOPLE

➤ See 'Helping our people thrive' on p. 26.

We continue to strive towards achieving Zero Harm, and are fully committed to delivering a safe, healthy, productive and stable working environment for all our employees and contractors. This includes the pursuit of continual improvement in health and safety performance.

Our commitments are supported by the requirements of our Health, Safety and Environment (HSE) Policy Statement, our Human Rights Policy, our Code of Conduct and our Supplier 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

All of our operations in Kazakhstan<sup>2</sup> are certified to ISO 45001, with Metalkol in the DRC continuing to work towards certification and our other operations in Africa applying a management system informed by the same standard. At our BAMIN operation in Brazil, we apply a safety management system based on the requirements of ISO 45001. In addition, we continue to implement a coordinated response to COVID-19, including the application of a range of preventative measures across our global operations.

During the year, we established a new Work Safety Committee at BAMIN (p. 28).

<sup>1</sup> Including our energy generating assets (i.e. Kazchrome, SSGPO, EEC and Aluminium of Kazakhstan with the exception of 3-Energoortalyk, which was purchased in 2018) and KAS.

<sup>2</sup> With the exception of 3-Energoortalyk.

## APPENDIX continued

### Emergency preparedness

Emergency preparedness plans have been rolled out across our operations in Kazakhstan. We conduct regular emergency scenario exercises in line with these plans, as well as periodic risk assessments. This helps support the competencies 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.

At our BAMIN iron ore operation in Brazil, we have implemented an Emergency Response Programme. Under the programme, we have established an emergency response team who conduct emergency scenario and crisis response planning, as well as related employee training.

### HOW WE MANAGE COMMUNITY DEVELOPMENT AND WELL-BEING

🔗 See 'Community development and well-being' on p.36.

We pursue continual improvement in social performance and contribute to development of our host communities. In particular, we support CSI 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:

- Healthcare
- Safety and environmental programmes
- Infrastructure and social welfare
- Education and support for youth initiatives
- Sports and the promotion of healthy lifestyles
- Preservation of cultural heritage
- Economic development, as well as community training and development programmes
- Human rights (e.g. external programmes focused on the elimination of child labour)

We implement this policy through a systematic process framework, which ensures a comprehensive, well-targeted approach to the identification, implementation, monitoring and review of our CSI spending (p. 40). In addition, our approach is guided by structured, tailored engagement with our communities to ensure we remain responsive to local priorities (p. 37).

In line with both our Values and our Human Rights Policy (p. 64), we aim to minimise our negative impacts, and respect cultural and regional traditions wherever we operate.

Where possible, we aim to avoid the involuntarily resettlement of communities. Where this is not possible, we will take measures such as fair compensation and improve the livelihoods of affected communities through inclusive engagement including community consultations and public hearings.

We primarily manage our community impacts in Kazakhstan through our international standard environmental management systems. These focus on the detection, prevention and / or minimisation of harmful discharges to local water systems and to the air (p. 47).

In Kazakhstan, we also conduct comprehensive impact assessments and public consultations whenever undertaking major developments or operational changes (p. 37). In addition, local communities can raise grievances through our publicly available Group Hotline (see: [erg.integrityline.org](http://erg.integrityline.org)).

In Africa, we manage our community impacts through our integrated SHS management system. This provides a structured framework to (amongst other things):

- Identify, assess and manage negative impacts on communities
- Manage, monitor and control community grievances and complaints
- Maintain open and enduring relationships with communities
- 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 (based on structured consultation with communities)

In addition, we apply site-based community grievance procedures across our Africa operations. Local communities are made aware of our site-based grievance mechanisms through our engagement processes. We provide multiple channels to raise grievances, including through our community liaison officers and via community-based 'drop off points'.

At Metalkol and Boss Mining our structured approach to ASM management is guided by our:

- Dedicated ASM Procedures
- ASM Management Plans and related procedures, including those concerning the responsible management of ASM activities on our concessions (where it takes place), to ensure our operations do not purchase or profit from ASM-sourced ore
- Human Rights Policy and related procedures (p. 64)
- Socio-economic development procedures and related activities (p. 36)

In addition, we maintain ongoing and constructive engagement with local communities (including those involved in ASM), relevant Government agencies<sup>1</sup> and other mining companies.

In Brazil, we implement a grievance management and engagement system covering the Pedra de Ferro mine, Porto Sul port development and the FIOL 1 railway. This facilitates enhanced oversight of community complaints, follow-up actions and response times. It also provides a structured communications channel for communities to register requests and to provide broader feedback.

Our grievance management system at BAMIN is supported by our established and comprehensive social communication programme, which focuses on:

- The hosting of multiple public consultations and site visits
- The distribution of environmental and social awareness-raising materials
- Ongoing stakeholder surveys to help guide our mandatory environmental and social programmes (p. 38)

<sup>1</sup> This includes engagement with the 'Strategy for ASM in DRC and a National Action Plan for the ASM Technical Services' (SAEMAPE, formerly SAESSCAM).

## APPENDIX continued

### HOW WE MANAGE ENVIRONMENTAL STEWARDSHIP

🔗 See 'Environmental stewardship' on p. 46.

We seek to preserve and maintain healthy, natural environments through the application of sustainable practices wherever we operate. We pursue continual improvement in our environmental performance, including with respect to water, energy and climate change – as well as our contribution to the conservation of biodiversity and integrated land-use planning.

Our commitment is supported by the requirements of our HSE Policy Statement, which 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 considered in business planning and decision-making

Our Group HSE policy is supplemented by ERG Africa's 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 the degradation of ecosystems

- Comply with and, where appropriate, exceed applicable laws and regulations. This includes working towards full compliance with applicable international good practice guidelines, such as the IFC Performance Standards and the relevant SHS components of the OECD Guidelines for Multinational Enterprises

Our active sites in the DRC are subject to legally mandated, third-party ESAs and associated management plans. These require regular monitoring of our emissions to air (such as particulates, SO<sub>x</sub> and NO<sub>x</sub>) and water (such as suspended solids, dissolved solids and heavy metals).

In addition, we adopted a new Climate Change Impact Management and Adaptation Policy for Kazakhstan in early 2023.

Our operations in Kazakhstan are certified to ISO 14001 (with the exception of 3-Energoortalyk, which is scheduled for certification in 2023). In Africa, our SHS management systems are informed by ISO 14001, with plans to achieve certification for Metakol in 2023. In Brazil, BAMIN implements an environmental management system to ensure its compliance with all environmental licence requirements (p. 38).

#### Community engagement

Our environmental performance is closely linked to our social licence to operate. This means we need to engage with our community stakeholders and civil society organisations on environmental issues in a transparent and constructive manner. In addition, we carry out community consultations focused on the environment in all of our operating regions.

In Kazakhstan, we also:

- Publicly disclose live air quality performance data from Aluminium of Kazakhstan's Pavlodar Aluminium Plant and Power Station
- Participate in public events, which in 2022 included a World Environment Day conference of industrial ecologists organised by the Ministry of Ecology, Geology and Natural Resources (with the support of the United Nations Development Programme), as well as the second international ECOJER<sup>1</sup> congress
- Meet with environmental NGOs to hear their queries and concerns – and to present how we are addressing the same
- Take part in grass-roots community engagement events in Pavlodar (which in 2022 included events focused on conservation, tree planting, biodiversity and awareness-raising around our environmental management programmes)

In addition, we submit 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 Kazakhstan, Africa and Brazil we also carry out community consultations focused on the environment, in the context of our impact assessment activity.

#### Waste management

Our established large-scale waste storage facilities in Kazakhstan and Africa are subject to regular, legally mandated monitoring inspections (p. 53). In Brazil, we plan to adopt a dry-stack TSF system for BAMIN's Pedra de Ferro mine (p. 54).

In accordance with Kazakhstan's 2021 Environmental Code, industrial waste generated by our operations in the country is divided into hazardous and non-hazardous waste. The collection, transportation, processing and / or disposal of hazardous waste is usually carried out by specialist third-party organisations. We check that contractors have the necessary production sites, equipment, transportation, qualified personnel and environmental permits.

In 2022, we developed a comprehensive, cross-region waste management programme for our operations in Africa.

In Brazil, we maintain a Solid Waste Management Plan. Key areas of focus include:

- Waste identification, generation reduction, segregation and conditioning
- Waste storage, collection, transportation and disposal by the operation and / or with the involvement of third-party organisations (where required)

<sup>1</sup> An association of regional environmental initiatives in Kazakhstan. See: [ecojer.kz](http://ecojer.kz)

## APPENDIX continued

### HOW WE MANAGE OUR BROADER ROLE IN SOCIETY

➤ See 'Our broader role in society' on p. 55.

We seek to play a positive role in society by delivering societal value and building stakeholder trust. More specifically, we aim to:

- Contribute to the social, economic and institutional development of our host countries
- Apply sound systems of corporate governance, ethical business practices and transparency to support sustainable development
- Respect the human rights of workers and communities affected by our activities

Our approach is based on our Values, Code of Conduct, policies and procedures, and is subject to regular review. Relevant Group policies that govern our broader interactions with society include, but are not limited to:

- **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 of Conduct
- **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 (see below)
- **Competition Compliance Policy:** This commits us to not engaging in or tolerating any form of conduct that fails to comply with applicable competition laws
- **CSR Projects and Sponsorship Policy:** This sets out the process, criteria and approvals necessary for ERG to commit to and manage 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
- **Data Protection Policy:** This commits us to complying with all data protection and privacy legislation and regulations applicable to the jurisdictions in which we operate
- **Group Tax Policy:** This sets out our commitments with respect to our approach to tax compliance

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

- Compliance with laws, internal rules and regulations
- Anti-bribery and corruption
- Fair employment practices
- Health, safety and environment
- International trade, export controls, and financial, economic and political sanctions and other restrictions
- Human rights
- Political and non-political contributions, donations and sponsorships by ERG

Similarly, our Group **Supplier Code of Conduct** sets out our expectations in relation to our suppliers and contractors.

#### Compliance governance

Our compliance efforts are driven by the Board's Compliance Committee, which is responsible for:

- Oversight and approval of our Group Compliance Programme, policies, systems and controls
- Monitoring of the effectiveness of our Compliance function

In 2022, they were supported in this role by the executive-level Risk and Compliance Committee, which analysed compliance trends, risks and specific cases, and linked compliance issues and activities to the Group's 2025 Strategy. The Group Head of Compliance reports to the CEO and the Board's Compliance Committee (p. 71). Our senior managers are kept informed of key risk areas on a frequent basis.

#### Compliance management

Our Code of Conduct, Group Supplier Code of Conduct and supporting policies and procedures (such as our Counterparty Due Diligence (CPDD) process) sit at the heart of our Compliance management system. In 2022, we reviewed and updated our existing Anti-Money Laundering, Data Protection and Human Rights Policies to ensure their ongoing effectiveness and alignment with external requirements. These were approved in 2023 and will be rolled out by the end of the year. We also revised our active Whistleblower and Integrity Policy and implemented a new Investigations Manual to support our enhanced approach in this area (p. 61).

➤ For further details, see: [eurasianresources.lu](https://eurasianresources.lu)

#### Tax and payment transparency

In line with our Group Tax Policy, which is approved by the Board of Managers, we are committed to complying not only with the letter but also the spirit of local laws. This includes the submission of Extractive Industries Transparency Initiative (EITI) reports in our host countries, where required.

### Compliance risks

Key compliance risks that we identified in 2022 are set out below:

- **Sanctions**, including in relation to our potential exposure to those imposed on Russia as a result of the conflict in Ukraine
- **Anti-bribery and corruption**, reflecting the fact that some of the countries in which we operate pose relatively high latent corruption risks
- **Human rights risks**, including in relation to the presence of ASM activity on or near our sites in Africa, as well as downstream demand for assurance
- **Anti-money laundering**, reflecting the latent risks posed by some of the countries in which we do business
- **Data protection**, including in relation to the EU General Data Protection Regulation and related measures in other jurisdictions in which we do business

#### EITI STATUS OF HOST COUNTRIES

Actual / potential mining locations	EITI status (validation assessment)
<b>Brazil</b>	Non-participant
<b>DRC</b>	Participant (high)
<b>Kazakhstan</b>	Suspended for missing deadline
<b>Mali</b>	Participant (fairly low)
<b>Mozambique</b>	Participant (moderate)
<b>South Africa</b>	Non-participant
<b>Zambia</b>	Participant (high)
<b>Zimbabwe</b>	Non-participant

# What are ERG's most material issues and why?

	Material issue	Relevant 2025 Strategy goal	Relevance to ERG	Relevance to stakeholders	Page
<b>Preparing our business for the future</b>	Growth and asset maintenance	Balanced portfolio growth	Replenishment and growth of Mineral Resources and Ore Reserves, maintenance / renewal of existing projects and access to new commercial opportunities	Establishment of new projects (with all attendant positive and / or negative impacts), the continued commercial viability of existing projects and the maintenance of long-term value generation and distribution	19
	Technology, efficiency and digitalisation	Efficiency in all that we do	Support of short-, medium- and long-term business sustainability – including through reduced costs, enhanced competitiveness and higher levels of productivity	Impact on returns, the protection of shareholder / finance provider value and the sustainability of economic value distribution (see below)	23
	Financial performance and value distribution	Sustainable development of our host regions Financial stability	The need to generate revenue and profits in order to sustain ERG as a going concern – and achieve future growth. In addition, the ongoing ability of the business to successfully navigate external shocks and continue as a successful going concern	The continued ability to generate and distribute value, and the positive impact of direct payments to suppliers, employees, capital providers, governments and communities – including associated indirect and induced economic impacts	13, 56
<b>Helping our people thrive</b>	Health & safety	Happy and professional team	The right thing to do – as well as the maintenance of our operational continuity, efficiency and the motivation of our employees	Protection of employees and contractors from occupational injury, as well as occupational illnesses	27
	Talent attraction, development and retention	Happy and professional team	Maintenance of our ability to generate value and to transform our business by attracting, developing, motivating and retaining high quality, skilled employees	The professional advancement of employees – and their ability to reach their full socio-economic, technical and personal potential	30
	Employee relations	Happy and professional team	Nurturing of a productive, positive workplace culture that directly supports our productivity, efficiency and profitability	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 (many of whom reside in remote communities in Kazakhstan that are highly reliant on ERG's activities)	33
<b>Community development and well-being</b>	Community impacts	Sustainable development of our host regions	Responsible management of ERG's impacts, as well as the maintenance of constructive stakeholder relations	The delivery of positive impacts from ERG's operations, as well as the need to ensure ERG's activities do not undermine the social and economic interests of local people	37
	Community social investment	Sustainable development of our host regions	Maintenance of our social licence to operate and the delivery of positive living standards for our workers in our local communities – many of which have historically grown around our operations. This is in addition to the fulfilment of legal obligations relating to mandatory socio-economic development contributions required under our operating licences	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), as well as in Africa and Brazil (where many local communities live in conditions of poverty, with limited access to formal employment opportunities) The improvement of socio-economic conditions for ASM communities and the transitioning of children out of ASM activity	40

## APPENDIX continued

	Material issue	Relevant 2025 Strategy goal	Relevance to ERG	Relevance to stakeholders	Page
<b>Environmental stewardship</b>	Managing impacts on air and water	Sustainable development of our host regions	Legal compliance and the maintenance of our social licence to operate through the avoidance / minimisation of our negative environmental impacts	The potential for ERG activities (including mining, smelting, refining, power generation and the operation of railway systems) to result in discharges to the environment that result in possible human and ecological harm	47
	Energy and climate change	Sustainable development of our host regions	Compliance with current and / or future emissions regulations, minimisation of future carbon tax liabilities, reduced costs (associated with energy consumption), the meeting of customer carbon transparency and / or reduction requirements and the maintenance of our broader social licence to operate	The potential for ERG activities to contribute (over the long term) to climate change and its associated negative environmental and socio-economic impacts. Plus, ERG's contribution to the full lifecycle carbon footprints of downstream partners' products	50
	Tailings and broader waste management	Sustainable development of our host regions	Compliance, operational continuity and social licence requirements around the physical and environmental management of large volumes of waste (including tailings, waste rock, sludges and industrial waste) – plus potential commercial opportunities around waste processing	The need to avoid catastrophic failures of large-volume waste management facilities (as well as associated human, economic and environmental harm). Plus, the broader need to responsibly manage waste that could otherwise result in ground, water or air contamination – and / or serious human and / or environmental consequences	53
<b>Our broader role in society</b>	Ethics and compliance	Compliance is a cross-cutting issue that is relevant to all aspects of our 2025 Strategy	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	Preventing the potential undermining of legitimate economic, social, legal, political and business interests (including human rights), as well as the undermining of the broader governance environment – plus the avoidance of association with such behaviour and related reputational harm	61
	Responsible value chains	Sustainable development of our host regions	The avoidance of reputational harm as a result of any indirect negative impacts that may take place in ERG's supply chain – plus the delivery of assurance to customers and other downstream actors that their own products are responsibly sourced	The need to ensure workers and other stakeholders in the value chain are not negatively impacted – plus the need to avoid reputational harm as a result of any indirect negative impacts (including those relating to human rights) that may take place as a result of company activities and / or relationships	65
	Government relations and policy	Government relations and policy is a cross-cutting issue that is relevant to all aspects of our 2025 Strategy	The potential impact of governments on ERG's 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 – as well as the DRC government's interests in a number of ERG subsidiaries	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	69
	Geopolitics	Financial stability	The impact on our ability to access financing, our customer / supplier relationships and our logistics capabilities – as well as our ongoing compliance with relevant sanctions	Our ability to deliver commodities to our customers – as well as restrictions on our relationships / agreements with finance providers and other third parties exposed to international sanctions. Plus, our adherence to sanctions imposed by foreign governments	16

# Stakeholder engagement overview

We proactively engage with our stakeholders on sustainable development issues in a constructive and transparent way, and report on our performance.

We select stakeholders for engagement on the basis of:

- Their actual / potential impact on ERG's achievement of its business objectives (including with respect to its financial performance)

- ERG's actual / potential impact (positive and negative) on them and their interests

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 influenced by our own activities and impacts
- Identify and support partnerships
- Improve site level conditions

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)

Key examples of our stakeholder engagement activities are provided in the table below.

## Stakeholder engagement details

Category	Stakeholder group	Engagement channel	Issues of interest	Relevant report section	
Commercial	Customers	<ul style="list-style-type: none"> <li>• Direct interaction focused on product development and quality assurance</li> <li>• Responses to customer surveys</li> <li>• CPDD / KYC process</li> </ul>	<ul style="list-style-type: none"> <li>• Supply stability / predictability</li> <li>• Product specifications and / or delivery terms, including packaging</li> <li>• Accuracy of assays and weights, as well as the dispute / claims process</li> <li>• Product quality / price</li> <li>• Responsible production</li> </ul>	<ul style="list-style-type: none"> <li>• Value chain assurance and broader ESG assurance (including human rights)</li> <li>• Product lifecycle carbon footprints</li> <li>• Sanctions compliance</li> <li>• Responses to KYC enquiries</li> <li>• Logistics scheduling / reliability</li> </ul>	Introduction, 1, 5
	Suppliers, business partners and contractors	<ul style="list-style-type: none"> <li>• Engagement through business associations and initiatives</li> <li>• Ongoing dialogue focused on health and safety, training and auditing of performance</li> <li>• Group Supplier Code of Conduct</li> <li>• CPDD / KYC process</li> </ul>	<ul style="list-style-type: none"> <li>• Contract stability</li> <li>• Legal / regulatory compliance, KYC and onboarding process</li> <li>• Transaction efficiency</li> <li>• Logistics scheduling / reliability</li> <li>• Health and safety, anti-bribery and corruption, human rights and labour standards</li> </ul>	<ul style="list-style-type: none"> <li>• Local content opportunities and local supplier capabilities</li> <li>• Responsible production</li> <li>• Broader ESG assurance</li> <li>• Import / export regulations</li> </ul>	Introduction, 5

## APPENDIX continued

Category	Stakeholder group	Engagement channel	Issues of interest	Relevant report section	
Financial	Shareholders	<ul style="list-style-type: none"> <li>• Updates to website, media releases, public statements and operational reports</li> <li>• Meetings and roadshows</li> <li>• Engagements focused on financial services, their structure, volumes and value</li> </ul>	<ul style="list-style-type: none"> <li>• Sustainable business development, including financial resilience, operational agility, innovation, digitalisation and ESG integration</li> <li>• Government of the Republic of Kazakhstan policy and development priorities</li> </ul>	<ul style="list-style-type: none"> <li>• Dividend policy</li> <li>• Corporate reputation</li> <li>• Capital spending</li> <li>• Geopolitical risk</li> <li>• Sanctions compliance</li> </ul>	Introduction, 1, 5
	Lenders		<ul style="list-style-type: none"> <li>• Successful project execution</li> <li>• Borrower risks, including geopolitical risk</li> <li>• Legal compliance</li> <li>• Credit and debt arrangements</li> </ul>	<ul style="list-style-type: none"> <li>• Climate change and ESG performance</li> <li>• Sanctions compliance</li> <li>• Green finance opportunities</li> </ul>	Introduction, 1, 4, 5
Government	National governments	<ul style="list-style-type: none"> <li>• Engagement regarding the issuing of permits, compliance with regulations and supervision of activities</li> <li>• Development of regulations and public policy</li> <li>• Development of business / government partnerships (e.g. regional memoranda of understanding in Kazakhstan)</li> <li>• Implementation of projects for socio-economic development</li> </ul>	<ul style="list-style-type: none"> <li>• Tax and royalty payments</li> <li>• National socio-economic development</li> <li>• Development of domestic skills and capabilities</li> <li>• Local content</li> <li>• Climate change agenda in Kazakhstan</li> </ul>	<ul style="list-style-type: none"> <li>• Kazakhstan's Environmental Code</li> <li>• Legal / fiscal regime for mining in the DRC</li> <li>• Energy security in the DRC</li> <li>• ASM in the DRC</li> </ul>	1, 2, 3, 4, 5
	Regional governments		<ul style="list-style-type: none"> <li>• Regional socio-economic development in Kazakhstan, including through our long-term regional development programme</li> <li>• Socio-economic development programmes under our Commitments Registers in the DRC</li> </ul>	<ul style="list-style-type: none"> <li>• The resumption (and subsequent temporary suspension (p. 38)) of operations at Boss Mining in the DRC</li> <li>• Social and environmental programmes under our established PBAs in Brazil</li> <li>• The promotion of broader economic activity in the state of Bahia, Brazil</li> </ul>	3
	Regulatory bodies		<ul style="list-style-type: none"> <li>• Environmental impacts, including emissions to air in Kazakhstan</li> <li>• Workplace fatalities and injuries</li> <li>• Tailings management and safety</li> <li>• Sanctions compliance</li> </ul>		2, 4, 5

## APPENDIX continued

Category	Stakeholder group	Engagement channel	Issues of interest	Relevant report section	
Society	Local communities	<ul style="list-style-type: none"> <li>Public hearings and meetings</li> <li>Grievance mechanisms and procedures</li> <li>Large scale surveys and socio-economic benchmarking</li> <li>Formal feedback mechanisms (including Tugan Qala 'Home Town' in Kazakhstan)</li> <li>CSI projects</li> <li>Information in local media</li> <li>Commitments Register framework in the DRC</li> <li>Educational institutions</li> </ul>	<ul style="list-style-type: none"> <li>Rising living costs</li> <li>Employment opportunities and job creation</li> <li>Local living conditions and infrastructure</li> <li>Local procurement and enterprise promotion</li> <li>Alternative livelihoods</li> <li>Emissions to air and water, including particulate emissions in Kazakhstan</li> </ul>	<ul style="list-style-type: none"> <li>Site-related traffic, noise and dust emissions</li> <li>Tailings management and safety</li> <li>Security and ASM in the DRC</li> <li>Investment in educational institutions and skills development for teachers and students in Kazakhstan and Africa</li> <li>The resumption (and subsequent temporary suspension (p. 38)) of operations at Boss Mining in the DRC</li> <li>Access to water in Brazil</li> </ul>	2, 3, 4
	NGOs, civil society organisations and media	<ul style="list-style-type: none"> <li>Membership of industry / sector initiatives</li> <li>Multi-stakeholder initiatives and partnerships</li> <li>Implementation of CSI projects</li> <li>Press releases and other publications on CSI projects, financial information, information on project development</li> </ul>	<ul style="list-style-type: none"> <li>Climate change</li> <li>National and regional socio-economic development</li> <li>Conservation, biodiversity and environmental education</li> <li>Information access and transparency</li> </ul>	<ul style="list-style-type: none"> <li>Business ethics</li> <li>Human rights</li> <li>Tailings management and safety</li> </ul>	3, 4, 5
	Broader society		<ul style="list-style-type: none"> <li>Climate change and the energy transition</li> <li>Responsible battery value chains</li> </ul>	<ul style="list-style-type: none"> <li>Circular economy</li> <li>Environmental impacts</li> <li>Employment generation</li> <li>Human rights</li> </ul>	1, 4, 5
Workforce	Employees and their representatives	<ul style="list-style-type: none"> <li>Ongoing dialogue between the management and teams</li> <li>Internal communication channels</li> <li>Suggestions for ideas to improve productivity</li> <li>Engagement surveys</li> <li>Formal feedback mechanisms (including School of Active Citizens in Kazakhstan)</li> <li>Ongoing dialogue through established industrial relations channels</li> <li>Collective bargaining agreements and union engagement</li> <li>Accident investigations</li> </ul>	<ul style="list-style-type: none"> <li>Rising living costs</li> <li>Occupational health and safety</li> <li>Psychological health and well-being</li> <li>Training and development</li> <li>Remuneration and career opportunities</li> <li>Conditions of employment / working conditions</li> </ul>	<ul style="list-style-type: none"> <li>External living conditions for employees and families</li> <li>Organisational change and corporate culture</li> <li>Union member interests</li> <li>Benefits</li> <li>Social investment and economic diversification in our mining towns in Kazakhstan</li> </ul>	2, 3
	Senior managers		<ul style="list-style-type: none"> <li>Organisational change and corporate culture</li> <li>Skills development</li> <li>Professional development</li> </ul>		1, 2

# UN SDG mapping

Chapter	Section	Relevant UN SDGs	Relevant UN Targets <sup>1</sup>
<b>Preparing our business for the future</b>	Growth and asset maintenance		8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation
	Technology, efficiency and digitalisation		8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation
	Financial performance and value distribution		9.2 Promote inclusive and sustainable industrialisation and, by 2030, significantly raise industry's share of employment and gross domestic product
<b>Helping our people thrive</b>	Health and safety		3.8 Achieve universal health coverage
	Talent attraction, development and retention		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
	Employee relations		8.8 Protect labour rights and promote safe and secure working environments for all workers
<b>Community development and well-being</b>	Community impacts		3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination
			5.2 Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation
	Community social investment		1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty
			2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers
			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
			5.1 End all forms of discrimination against all women and girls everywhere
Community impacts		6.3 By 2020, improve water quality by reducing pollution, eliminating dumping and minimising release of hazardous chemicals and materials	
		12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle	
Community social investment		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	
		8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalisation and growth of micro-, small- and medium-sized enterprises	
		11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums	

<sup>1</sup> 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.

## APPENDIX continued

Chapter	Section	Relevant UN SDGs	Relevant UN Targets <sup>1</sup>			
<b>Environmental stewardship</b>	Managing impacts on air and water		3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination		9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable	
			6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimising release of hazardous chemicals and materials		12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle	
			8.4 Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation			
	Energy and climate change		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		12.2 Achieve the sustainable management and efficient use of natural resources	
			8.4 Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation		13.2 Integrate climate change measures into national policies, strategies and planning	
			9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable			
	Tailings and broader waste management		12.2 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		12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	
	<b>Our broader role in society</b>	Ethics and compliance, including human rights		8.7 Eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour		16.5 Substantially reduce corruption and bribery in all their forms
				8.7 Eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour 8.8 Protect labour rights and promote safe and secure working environments for all workers		16.5 Substantially reduce corruption and bribery in all their forms
		Government relations and policy		16.5 Substantially reduce corruption and bribery in all their forms		17.16 Enhance the global partnership for sustainable development 17.17 Encourage and promote effective public, public-private and civil society partnerships

<sup>1</sup> 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.

# Key examples of participation in external initiatives

Level of engagement	Organisation
<b>Group</b>	<p>We participate in the following Group-level external initiatives:</p> <ul style="list-style-type: none"> <li>• <b>Global Battery Alliance</b> (founding member and co-chair of supervisory council and board of directors) and its related initiatives</li> <li>• <b>World Economic Forum</b> (Strategic Partner Associate)<sup>1</sup></li> <li>• <b>Responsible Minerals Initiative</b> (Responsible Minerals Assurance Process assessment)<sup>2</sup></li> <li>• <b>Cobalt Institute</b> (member)</li> <li>• <b>ReSource project</b> (founding member)</li> <li>• <b>International Chromium Development Association</b> (member)</li> <li>• <b>UN Global Compact</b> (participant)</li> <li>• <b>Sustainable Markets Initiative</b> (task force champion<sup>3</sup>), as well as the related <b>Terra Carta</b> (signatory)</li> </ul> <p>In addition, ERG is committed to adherence with the principles of the following external initiatives:</p> <ul style="list-style-type: none"> <li>• <b>Extractive Industries Transparency Initiative (EITI)</b>: We continue to submit EITI reports in our host countries, where required<sup>4</sup></li> <li>• <b>UN Guiding Principles on Business and Human Rights</b>: The Principles are embedded within our Human Rights Policy, Code of Conduct and Supplier Code of Conduct</li> <li>• <b>OECD Due Diligence Guidance on Responsible Supply Chains of Minerals</b>: Our Clean Cobalt and Copper Framework aims to ensure our compliance with the Guidance, which is also embedded within our Code of Conduct and Supplier Code of Conduct</li> <li>• <b>Voluntary Principles on Security and Human Rights</b>: The Principles are embedded within our Code of Conduct and Supplier Code of Conduct</li> </ul>

1 Including: Partnering Against Corruption Initiative; Mining and Metals Governors; Securing Minerals for the Energy Transition; Accelerating Clean Hydrogen Initiative; Coal to Renewables Initiative.  
 2 In August 2022, RMI determined that Metalkol was in conformance with the RMAP Standards for Cobalt Due Diligence Standard (2018) and relevant sections of the Joint Due Diligence Standard for Copper, Lead, Nickel and Zinc (2021). This status was reconfirmed in 2023.

Level of engagement	Organisation
<b>Kazakhstan</b>	<ul style="list-style-type: none"> <li>• Eurasian Industrial Association</li> <li>• Association of Mining and Metallurgical Enterprises</li> <li>• National Chamber of Entrepreneurs of Kazakhstan 'Atameken'</li> <li>• Association of Taxpayers of Kazakhstan</li> <li>• Kazakhstan Foreign Investors' Council</li> <li>• Kazakhstan Business Council for Sustainable Development</li> <li>• Kazakhstan Association of Regional Environmental Initiatives 'ECOJER'</li> </ul>
<b>DRC and Zambia</b>	<ul style="list-style-type: none"> <li>• Cobalt Institute (UK – Board representation)</li> <li>• Chamber of Mines of the DRC</li> <li>• Zambia Chamber of Mines</li> <li>• Zambia Institute of Human Resource Management</li> </ul>
<b>Brazil</b>	<ul style="list-style-type: none"> <li>• UN Global compact (participant)<sup>5</sup></li> <li>• Brazilian Mining Institute</li> <li>• Bahia Ports User Association</li> <li>• Federation of Industries of the State of Bahia</li> <li>• Agency for Technological Development of the Brazilian Mining Industry</li> <li>• Brazilian Center for International Relations</li> <li>• National Association of Railway Transporters (ANTF)</li> <li>• Women in Mining Brazil</li> <li>• Union of Extractive Industries for Metals, Precious and Noble Metals, Precious and Semiprecious Stones, and Magnesite in the State of Bahia</li> <li>• Brazilian Association of Business Communication (ABERJE)</li> </ul>

3 ERG's CEO, Benedikt Sobotka, is a founding non-executive director of the Sustainable Markets Initiative.  
 4 For more information on EITI status in our other countries of presence, see p. 78 and *eti.org*.  
 5 Since August 2022, BAMIN has been a participant in the UN Global Compact. This is in addition to ERG's Group-level participation in the initiative.

## APPENDIX continued

# Key operating assets

Commodity / division	Number of key operational assets	Name of key operating asset	Principal activity	Country / region of operation
<b>Ferroalloys</b>	5	Aksu Ferroalloys Plant (TNC Kazchrome JSC)	Processing	Kazakhstan
		Aktobe Ferroalloys Plant (TNC Kazchrome JSC)	Processing	Kazakhstan
		Donskoy Gornoobogatitelyny plant <sup>1</sup> (TNC Kazchrome JSC)	Mining and processing	Kazakhstan
		Kazmarganets (TNC Kazchrome JSC)	Mining and processing	Kazakhstan
		Manganese Zhayrema JSC	Mining	Kazakhstan
<b>Iron ore</b>	3	Sokolovsko Sarbaiskoye Ore Mining and Processing Association JSC <sup>2</sup>	Mining and processing	Kazakhstan
		Kachary Ruda JSC	Mining and processing	Kazakhstan
		Bahia Mineração S / A <sup>3</sup>	Mining and processing	Brazil
<b>Alumina and aluminium<sup>4</sup></b>	3	Krasno-Oktyabrskoye Mining Unit (Aluminium of Kazakhstan JSC)	Mining and processing	Kazakhstan
		Pavlodar Aluminium Plant (Aluminium of Kazakhstan JSC)	Processing	Kazakhstan
		Kazakhstan Aluminium Smelter JSC <sup>5</sup>	Processing	Kazakhstan
<b>Cobalt, copper and other non-ferrous<sup>6</sup></b>	6	Metalkol SA	Mining and processing	DRC
		Frontier SA	Mining and processing	DRC
		Chambishi Metals PLC <sup>7</sup>	Processing	Zambia
		Boss Mining SAS	Mining and processing	DRC
		Todal Mining (Pvt) Limited	Mineral exploration	Zimbabwe
		Sabot Management Limited	Transportation	Central and Southern Africa <sup>8</sup>
<b>Energy</b>	4	Vostochny Open Pit Coal Mine (EEC JSC <sup>9</sup> )	Mining	Kazakhstan
		Aksu Power Plant (EEC JSC)	Power generation	Kazakhstan
		Shubarkol Komir JSC	Mining and processing	Kazakhstan
		3-Energoortalyk JSC	Power generation	Kazakhstan
<b>Logistics</b>	1	TransCom LLP	Transportation	Kazakhstan

1 Referred to as 'Donskoy GOK' throughout the report.

2 Referred to as 'SSGPO' throughout the report.

3 Referred to as 'BAMIN' throughout the report.

4 Our Torgayskoye Mining Unit (Aluminium of Kazakhstan JSC) was closed in 2023.

5 Referred to as 'KAS' throughout the report.

6 Our logistics entity Sabot is included in Other non-ferrous as it primarily acts in a supporting capacity for our operations in Africa.

7 Our Chambishi Metals operation in Zambia is currently in care and maintenance.

8 There are several companies headed by Sabot and present across the various countries in Africa.

9 Referred to as 'EEC' throughout the report.

## APPENDIX continued

# GRI content index

ERG has reported the information cited in this GRI content index for the 2022 calendar year with reference to the GRI Standards. It has used GRI 1: Foundation 2021 in the preparation of this report.

Disclosure No.	Disclosure description	Page(s)	Comments
<b>GRI 2: General Disclosures 2021</b>			
2-1	Organisational details	4, 69, 71	Front and back cover; ERG's headquarters are in Luxembourg.
2-3	Reporting period, frequency and contact point	2	
2-4	Restatements of information	14, 44	
2-6	Activities, value chain and other business relationships	7	
2-7	Employees	7, 33	
2-9	Governance structure and composition	71-72	
2-13	Delegation of responsibility for managing impacts	71-72	
2-22	Statement on sustainable development strategy	5-6, 7, 8, 9, 10, 11	
2-23	Policy commitments	61-64	
2-25	Processes to remediate negative impacts	37, 39, 63, 64	
2-26	Mechanisms for seeking advice and raising concerns	62, 64	
2-27	Compliance with laws and regulations	63	None
2-28	Membership associations	86	
2-29	Approach to stakeholder engagement	16, 81-83	
2-30	Collective bargaining agreements	33	
<b>GRI 3: Material Topics 2021</b>			
3-1	Process to determine material topics	15, 81	
3-2	List of material topics	17, 79	
3-3	Management of material topics	18-25, 26-35, 36-45, 46-54, 55-70, 73-74, 75-78	

Disclosure No.	Disclosure description	Page(s)	Comments
<b>GRI 201: Economic Performance 2016</b>			
201-1	Direct economic value generated and distributed	58	
<b>GRI 203: Indirect Economic Impacts 2016</b>			
203-1	Infrastructure investments and services supported	33-35, 40-45	
203-2	Significant indirect economic impacts	33-35, 37-39, 40-45	
<b>GRI 204: Procurement Practices 2016</b>			
204-1	Proportion of spending on local suppliers	56-58	
<b>GRI 205: Anti-corruption 2016</b>			
205-1	Operations assessed for risks related to corruption		We assess 100% of our processes and transactions subject to relevant compliance procedures requirements in Kazakhstan, Africa and Brazil and for corruption-related risks as part of the regional and Group-level application of our Group-wide risk management system.
205-2	Communication and training about anti-corruption policies and procedures	61-63	
205-3	Confirmed incidents of corruption and actions taken	63	None
<b>GRI 206: Anti-competitive Behavior 2016</b>			
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices		None

## APPENDIX continued

# GRI content index

Disclosure No.	Disclosure description	Page(s)	Comments
<b>GRI 207: Tax 2019</b>			
207-1	Approach to tax	57, 59, 78	
207-2	Tax governance, control, and risk management	57, 74, 78	
207-3	Stakeholder engagement and management of concerns related to tax	57, 58	
207-4	Country-by-country reporting	59	
<b>GRI 302: Energy 2016</b>			
302-1	Energy consumption within the organisation	52	
302-4	Reduction of energy consumption	52	
<b>GRI 303: Water and Effluents 2018</b>			
303-1	Interactions with water as a shared resource	43	
303-2	Management of water discharge-related impacts	47-49	
303-3	Water withdrawal	7	
<b>GRI 305: Emissions 2016</b>			
305-1	Direct (Scope 1) GHG emissions	52	
305-2	Energy indirect (Scope 2) GHG emissions	52	
<b>GRI 306: Waste 2020</b>			
306-1	Waste generation and significant waste-related impacts	53-54	
306-2	Management of significant waste-related impacts	53-54	
<b>GRI 401: Employment 2016</b>			
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	33	

Disclosure No.	Disclosure description	Page(s)	Comments
<b>GRI 402: Labor / Management Relations 2016</b>			
402-1	Minimum notice periods regarding operational changes		Minimum notice periods vary across the Group. In Kazakhstan, minimum notice periods of one month or more are specified in collective bargaining agreements (in excess of the 15 calendar days' notice required under local labour laws). In the DRC, the collective bargaining agreement at Metalkol RTR specifies a minimum notice period of one month. Minimum notice periods are not specified in either local labour laws or collective bargaining agreements at our other operations in Africa or at our BAMIN integrated iron ore operation in Brazil.
<b>GRI 403: Occupational Health and Safety 2018</b>			
403-1	Occupational health and safety management system	27-29, 73, 75-76	
403-2	Hazard identification, risk assessment, and incident investigation	27-29, 72-73	
403-3	Occupational health services	28-29, 73	
403-4	Worker participation, consultation, and communication on occupational health and safety	28, 72, 83	
403-5	Worker training on occupational health and safety	28-29	
403-6	Promotion of worker health	29, 34	
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	29, 38	
403-9	Work-related injuries	27	
403-10	Work-related ill health	29	

APPENDIX continued

# GRI content index

Disclosure No.	Disclosure description	Page(s)	Comments
<b>GRI 404: Training and Education 2016</b>			
404-2	Programmes for upgrading employee skills and transition assistance programmes	23, 30-32	
404-3	Percentage of employees receiving regular performance and career development reviews	31-32	
<b>GRI 406: Non-discrimination 2016</b>			
406-1	Incidents of discrimination and corrective actions taken	35	None
<b>GRI 407: Freedom of Association and Collective Bargaining 2016</b>			
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	35	None
<b>GRI 408: Child Labour 2016</b>			
408-1	Operations and suppliers at significant risk for incidents of child labour	44, 64	
<b>GRI 409: Forced or Compulsory Labor 2016</b>			
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	64	
<b>GRI 410: Security Practices 2016</b>			
410-1	Security personnel trained in human rights policies or procedures	39, 63	
<b>GRI 413: Local Communities 2016</b>			
413-1	Operations with local community engagement, impact assessments, and development programmes	37-39, 40-45	
413-2	Operations with significant actual and potential negative impacts on local communities	37-39	

Disclosure No.	Disclosure description	Page(s)	Comments
<b>GRI 414: Supplier Social Assessment 2016</b>			
414-1	New suppliers that were screened using social criteria	65	
<b>GRI 415: Public Policy 2016</b>			
415-1	Political contributions	70	None

## APPENDIX continued

# UN Global Compact reference table

Category	Principle	Page(s)
<b>Human rights</b>	1: Businesses should support and respect the protection of internationally proclaimed human rights	63, 74, 75, 77, 85
<b>Human rights</b>	2: Businesses should make sure that they are not complicit in human rights abuses	36-38, 60-63, 64-67, 71
<b>Labour</b>	3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining	32, 34, 74
<b>Labour</b>	4: Businesses should uphold the elimination of all forms of forced and compulsory labour	63, 64-67, 74-75
<b>Labour</b>	5: Businesses should uphold the effective abolition of child labour	43, 63, 64-67, 74-75
<b>Labour</b>	6: Businesses should uphold the elimination of discrimination in respect of employment and occupation	32, 34, 74
<b>Environment</b>	7: Businesses should support a precautionary approach to environmental challenges	11-12, 45-48, 49, 52, 72-73, 76
<b>Environment</b>	8: Businesses should undertake initiatives to promote greater environmental responsibility	11-12, 47-49, 50-52, 53-54, 74, 77
<b>Environment</b>	9: Businesses should encourage the development and diffusion of environmentally friendly technologies	19, 22, 47-49, 50-52, 53-54
<b>Anti-corruption</b>	10: Businesses should work against corruption in all its forms, including extortion and bribery	61-64, 65-66, 74, 78

## Units of measurement

US\$	US dollars
M	Million
kt	Thousand tonnes
ktpa	Thousand tonnes per annum
Mt	Million tonnes
mtpa	Million tonnes per annum
GWh	Gigawatt
MW	Megawatt
km	Kilometres
m <sup>3</sup>	Cubic metre
ha	Hectare

**Forward looking statements**

This Sustainable Development Report contains certain forward-looking statements. Forward-looking statements are not based on historical facts and are inherently prospective in nature. Forward-looking statements may be identified by the use of terminology including, but not limited to, 'intend', 'aim', 'project', 'anticipate', 'estimate', 'plan', 'believes', 'expect', 'may', 'should', 'will', 'potential', 'possible', 'investigate', 'explore', or similar terms.

Forward-looking statements involve known and unknown risks, uncertainties and other variables that may cause actual performance, events and outcomes to vary significantly from any future performance, events or outcomes expressly or implicitly anticipated by such forward-looking statements. Such variables may include, but are not limited to, actual operational performance, market conditions, exchange rate fluctuations, operational disruption, macroeconomic dynamics, political uncertainty, government regulation and other related factors. As such, undue reliance should not be placed on such forward-looking statements.

Forward-looking statements contained in this report are only made with respect to the situation at the date of publishing. ERG will not be under any obligation and will not undertake to update or revise any forward-looking statements contained in this report after this date.



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