

# IVANHOE MINES

NEW HORIZONS

## MANAGEMENT'S DISCUSSION AND ANALYSIS

FOR THE YEAR ENDED DECEMBER 31, 2021

***DATED: MARCH 7, 2022***

## INTRODUCTION

This management's discussion and analysis (MD&A) should be read in conjunction with the audited consolidated financial statements of Ivanhoe Mines Ltd. ("Ivanhoe", "Ivanhoe Mines" or the "Company") for the years ended December 31, 2021 and 2020, which have been prepared in accordance with International Financial Reporting Standards (IFRS). All dollar figures stated herein are in U.S. dollars, unless otherwise specified. References to "C\$" mean Canadian dollars and references to "R" mean South African Rands.

The effective date of this MD&A is **March 7, 2022**. Additional information relating to the Company is available on SEDAR at [www.sedar.com](http://www.sedar.com). Certain statements contained in the MD&A are forward-looking statements that involve risks and uncertainties. See "*Forward-Looking Statements*" and "*Risk Factors*".

This MD&A includes references to earnings before interest, tax, depreciation and amortization (EBITDA), and "Cash costs (C1) per pound" which are non-GAAP financial performance measures. For a detailed description of each of the non-GAAP financial performance measures used in this MD&A, and a detailed reconciliation to the most directly comparable measure under IFRS, please refer to the Non-GAAP Financial Performance Measures section of this MD&A starting on page 42. The non-GAAP financial performance measures set out in this MD&A are intended to provide additional information to investors and do not have any standardized meaning under IFRS, and therefore may not be comparable to other issuers, and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with IFRS.

## FOURTH QUARTER HIGHLIGHTS

- Production at the Kamoakakula Mining Complex for the fourth quarter of 2021 was 54,481 tonnes of copper in concentrate.
- Kamoakakula produced a total of 105,884 tonnes of copper in concentrate in 2021, which significantly exceeded the initial 2021 production guidance range of 80,000 to 95,000 tonnes, as well as the raised guidance of 92,500 to 100,000 tonnes for 2021.
- During Q4 2021, Kamoakakula sold 53,165 tonnes of payable copper and recognized revenue of \$488.5 million, with an operating profit of \$198.9 million and an EBITDA of \$357.6 million.
- Kamoakakula's cost of sales per pound (lb) of payable copper sold was \$1.12/lb for Q4 2021, while cash costs (C1) per pound of payable copper produced totaled \$1.28/lb, compared to \$1.08/lb and \$1.37/lb in Q3 2021. Cash costs are expected to continue to trend downward as the Phase 2 concentrator plant is commissioned and the mine's fixed operating costs are spread over increased copper production.
- Kamoakakula's Phase 2 concentrator plant is on track to begin operations in April 2022, which will see a doubling of Kamoakakula's nameplate milling capacity throughput to 7.6 million tonnes of ore per annum (Mtpa). A de-bottlenecking program is underway to expand processing capacity of Phase 1 and Phase 2 concentrators by 21%, to a combined total of 9.2 million tonnes of ore per year. Copper production from Kamoakakula's first two phases are projected to exceed 450,000 tonnes per year by Q2 2023.
- Ivanhoe Mines recorded a profit of \$48.2 million for Q4 2021, compared to a loss of \$10.9 million for the same period in 2020. Ivanhoe Mines' share of profit from the Kamoakakula joint venture and the finance income therefrom in aggregate of \$103.9 million were the principal contributors to the profit recorded in the current quarter.
- Ivanhoe Mines has a strong balance sheet with cash and cash equivalents of \$608.2 million on hand as at December 31, 2021, and expects that the majority of Kamoakakula's expansion capital expenditures on Phase 2 and Phase 3 will be funded from copper sales and facilities

already in place at Kamoa-Kakula. Based on current market conditions, it is expected that Ivanhoe Mines will start to receive shareholder loan repayments from Kamoa-Kakula in 2022.

- During Q4 2021, Ivanhoe continued its copper exploration program on its Western Foreland licences that cover approximately 2,550 square kilometres (km<sup>2</sup>) in close proximity to Kamoa-Kakula. An extensive drilling program is planned for 2022, commencing with the onset of the dry season in the DRC.
- In December 2021, the Platreef Project secured a \$200 million gold stream financing and additional \$100 million palladium and platinum stream financing, with the first prepayment of \$75 million received in December 2021.
- At the end of 2021, Kamoa-Kakula had reached 2.7 million work hours free of a lost-time injury, Kipushi had reached 4.0 million work hours free of a lost-time injury, and Platreef had reached 677,450 work hours free of a lost-time injury.

## REVIEW OF OPERATIONS

Ivanhoe Mines is a mining, exploration and development company. At present, the Company's financial performance is primarily affected by ongoing mining operations at its Kamoa-Kakula Mining Complex, and ongoing exploration and development activities being conducted at its three material properties and the highly prospective Western Foreland Exploration Project. These consist of:

- **The Kamoa-Kakula Mining Complex.** A joint venture between Ivanhoe Mines and Zijin Mining Group Co., Ltd., ("Zijin" or "Zijin Mining") within the Central African Copperbelt in the Democratic Republic of Congo's (DRC) southern Lualaba province. Ivanhoe Mines and Zijin Mining each hold an indirect 39.6% interest in the Kamoa-Kakula Mining Complex, Crystal River Global Limited (Crystal River) holds an indirect 0.8% interest and the DRC government holds a direct 20% interest. The Kamoa-Kakula Mining Complex began producing copper in May 2021 and, through phased expansions, is positioned to become one of the world's largest copper producers. (See "*Kamoa-Kakula Mining Complex*")
- **The Platreef Project.** Construction of the planned Platreef Mine on the Company's discovery of palladium, rhodium, platinum, nickel, copper and gold, on the Northern Limb of South Africa's Bushveld Igneous Complex is in progress. Ivanhoe Mines holds a 64% interest in Platreef, the South African beneficiaries of a broad-based, black economic empowerment structure have a combined 26% stake in the Platreef Project and the remaining 10% is owned by a Japanese consortium of ITOCHU Corporation, Japan Oil, Gas and Metals National Corporation; and Japan Gas Corporation. (See "*Platreef Project*")
- **The Kipushi Project.** The existing Kipushi Mine is located on the Central African Copperbelt in the DRC's southern Haut-Katanga province, one of Africa's major mining hubs. The mine, which operated between 1924 and 1993, is approximately 30 kilometres southwest of the provincial capital, Lubumbashi, and less than one kilometre from the DRC-Zambia border. Ivanhoe Mines holds a 68% interest in Kipushi; the state-owned mining company, La Générale des Carrières et des Mines (Gécamines), holds the remaining 32% interest. (See "*Kipushi Project*")
- **The Western Foreland Exploration Project.** A group of exploration licences totalling approximately 2,550 km<sup>2</sup> and located in close proximity to the Kamoa-Kakula Mining Complex, the majority of which are 90%-100%-owned. Ivanhoe's DRC exploration group is targeting Kamoa-Kakula-style copper mineralization through a regional exploration and drilling program. (See "*DRC Western Foreland Exploration Project*")

## KAMOA-KAKULA MINING COMPLEX

The Kamoa-Kakula Mining Complex, a joint venture between Ivanhoe Mines and Zijin Mining, has been independently ranked as the world's fourth-largest copper deposit by international mining consultant Wood Mackenzie. The project is approximately 25 kilometres west of the town of Kolwezi and about 270 kilometres west of Lubumbashi. Kamoa-Kakula began producing copper in May 2021 and achieved commercial production on July 1, 2021.

Ivanhoe sold a 49.5% share interest in Kamoa Holding Limited (Kamoa Holding) to Zijin Mining and a 1% share interest in Kamoa Holding to privately owned Crystal River in December 2015. Kamoa Holding holds an 80% interest in the project. Since the conclusion of the Zijin transaction, each shareholder has been required to fund expenditures at Kamoa-Kakula in an amount equivalent to its proportionate shareholding interest. Ivanhoe and Zijin Mining each hold an indirect 39.6% interest in the Kamoa-Kakula Mining Complex, Crystal River holds an indirect 0.8% interest and the DRC government holds a direct 20% interest.

**Photo: Kamoa-Kakula's Phase 1 and Phase 2 concentrator plants at dusk.**



### *Kamoa-Kakula summary of operating and financial data*

	Q4 2021	Q3 2021
Ore tonnes milled (000's tonnes)	1,059	861
Copper ore grade processed (%)	5.96%	5.89%
Copper recovery (%)	86.40%	83.40%
Copper in concentrate produced (tonnes)	54,481	41,545
Payable Copper sold (tonnes)	53,165	41,490
Sales revenue (\$'000)	488,536	342,584
Cost of sales per pound (\$ per lb)	1.12	1.08
Cash cost (C1) (\$ per lb)	1.28	1.37
EBITDA (\$'000)	357,619	233,212

Prior to the start of commercial production on July 1, 2021, 9,858 tonnes of copper in concentrate was produced in Q2 2021, bringing the total tonnes produced for the year ending December 31, 2021, to 105,884.

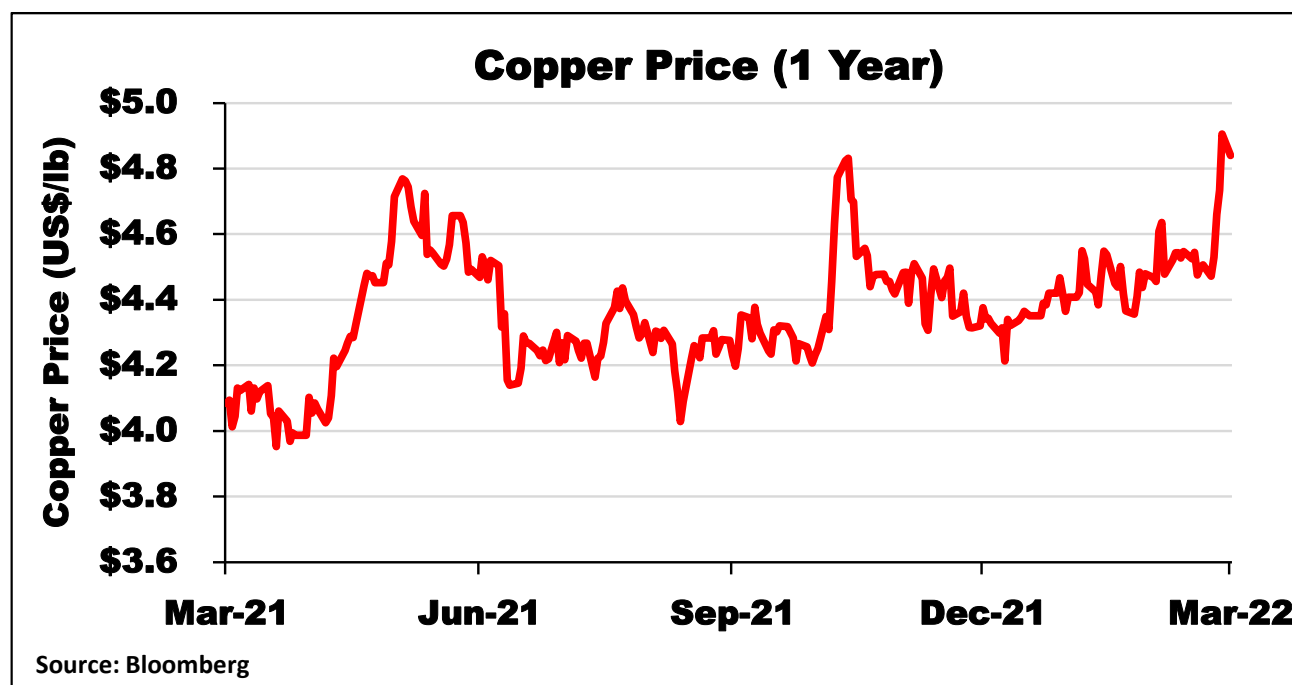
C1 cash costs are prepared on a basis consistent with the industry standard definitions by Wood Mackenzie cost guidelines, but are not measures recognized under IFRS. In calculating the C1 cash cost, the costs are measured on the same basis as the Company's share of profit from the Kamoā Holding joint venture that is contained in the financial statements. C1 cash costs are used by management to evaluate operating performance and include all direct mining, processing, and general and administrative costs. Smelter charges and freight deductions on sales to final port of destination, which are recognized as a component of sales revenues, are added to C1 cash cost to arrive at an approximate cost of delivered, finished metal. C1 cash costs exclude royalties and production taxes and non-routine charges as they are not direct production costs.

**C1 cash cost per pound of payable copper produced can be further broken down as follows:**

		<b>Q4 2021</b>	<b>Q3 2021</b>
Mining	(\$ per lb)	0.27	0.36
Processing	(\$ per lb)	0.17	0.16
Logistics charges (delivered to China)	(\$ per lb)	0.37	0.35
Treatment, refining and smelter charges	(\$ per lb)	0.24	0.21
General and administrative expenditure	(\$ per lb)	0.23	0.29
<b>C1 cash cost per pound of payable copper produced</b>	<b>(\$ per lb)</b>	<b>1.28</b>	<b>1.37</b>

All figures in the above tables are on a 100%-project basis. Metal reported in concentrate is prior to refining losses or deductions associated with smelter terms. This MD&A includes EBITDA and "Cash costs (C1) per pound" which are non-GAAP financial performance measures. For a detailed description of each of the non-GAAP financial performance measures used in this MD&A, and a detailed reconciliation to the most directly comparable measure under IFRS, please refer to the Non-GAAP Financial Performance Measures section of this MD&A starting on page 42.

**Chart: Spot price of copper (US\$/lb) over the last 12 months.**



### ***Health and safety at Kamoā-Kakula***

At the end of December 2021, Kamoā-Kakula reached 2,696,794 work hours free of a lost-time injury. One lost-time injury occurred in Q4 2021. The project continues to strive toward its workplace objective of zero harm to all employees and contractors.



Kamoa-Kakula has successfully focused on prevention, preparation, and mitigation in managing the risks associated with COVID-19. Large-scale testing, combined with focused preventative measures, ensured that positive cases were quickly identified, isolated, and treated, with cross contamination kept to a minimum. Kamoa-Kakula also continues to focus intensively on rolling out vaccinations across the workforce and local communities. Maintaining this high standard of risk management remains a daily focus, to prevent future cases. More than two thousand employees have at minimum received their first dose of the vaccine.

The Kamoa Hospital continues to treat COVID-19 patients when required, as construction progresses well for the expansion and upgrade of the primary healthcare wing. Kamoa-Kakula's highly experienced doctors and nurses apply the latest medical treatments, supported by a world-leading emergency response and paramedic team.

As the pandemic evolves, the medical team at the Kamoa hospital continues to review and update risk-mitigation protocols, while ensuring that new medical advances are investigated and applied to protect the health and safety of employees and community members.

**Photo: The new Kamoa Hospital is a world-class medical facility featuring state-of-the-art equipment and highly-experienced doctors, nurses and paramedics.**



**Photo: John Botomwito, Kamoa Copper's Superintendent of Health, in the ICU ward of the new hospital.**



***Copper concentrate production from the initial 3.8-Mtpa Kakula concentrator plant commenced in May 2021; commercial production achieved on July 1, 2021***

First ore was introduced into the Phase 1, 3.8-Mtpa concentrator on May 20, 2021, and the first saleable concentrate was filtered on May 25, 2021, marking the start of concentrate production of the project's Phase 1 concentrator plant and associated facilities.

The Kamoakakula Mining Complex was deemed to have reached commercial production on July 1, 2021, after achieving a milling rate exceeding 80% of design capacity and recoveries close to 70% for a continuous, seven-day period. Revenue recognition, as well as depreciation of Kamoakakula's Phase 1 concentrator plant and milling operation, commenced on this date.

Copper recoveries progressively increased from an average of approximately 81% in July 2021 to approximately 85% in September 2021. Copper flotation recoveries averaged approximately 86% in Q4 2021 and achieved a record 88.5% in December 2021. The Phase 1, steady-state-design copper recovery is approximately 86%, depending on ore feed grade.

The Phase 1 concentrator currently is running at a throughput that is in excess of its design capacity of 3.8 Mtpa by more than 15%, with 117% of design throughput achieved in December.

54,481 tonnes of copper in concentrate were produced in Q4 2021, up from 41,545 in Q3 2021, for a total of 105,884 tonnes for the year ending December 31, 2021, for delivery to either the Lualaba Copper Smelter near Kolwezi, or to international markets.

**Photo: The Phase 2 high-pressure-grinding-rolls (HPGR) stockpile feed conveyor (on the right) began commissioning in February 2022. The Phase 1 HPGR feed conveyor and stockpile are on the left.**





**Photo: One of Kamoakakula's talented Congolese mining crews at the entrance to the Kakula Mine's northern decline.**



***Project completion of Kamoakakula's Phase 2 processing plant almost complete; Phase 3 engineering studies and early works advancing well***

Construction of Kamoakakula's Phase 2, 3.8-Mtpa concentrator plant almost is complete with early stage commissioning activities now underway. Hot commissioning of the concentrator with first ore and initial copper concentrate production are both on track for April 2022.

Engineering and early works for the Phase 3 expansion, including a new box cut and twin declines to access new mining areas, are progressing quickly. The third, significantly larger concentrator is being designed and is expected to be commissioned in Q4 2024. Phase 3 is expected to be fed from a combination of the established mine at Kansoko Sud, together with the new mines at Kamoakakula 1 and Kamoakakula 2. An updated pre-feasibility study, including the Phase 3 expansion, is expected in Q3 2022.

After successfully operating the Phase 1 concentrator for more than eight months, the Kamoakakula team identified a number of relatively minor modifications that are expected to increase ore throughput from the current design of 475 tonnes per hour to 580 tonnes per hour. These modifications include increasing the diameter of a number of pipes, replacing a number of motors and pumps with larger ones and installing additional flotation, concentrate-thickening, concentrate-filtration and tailings-disposal capacity.

These modifications will allow the team to consistently operate the concentrator plant at the increased throughput without compromising plant availability, copper recovery or copper concentrate grade. Engineering design is underway and procurement of long-lead items already has started. This debottlenecking project is expected to cost approximately \$50 million and will increase Kamoakakula's combined processing capacity to 9.2 Mtpa by Q2 2023.



**Photo: Riaan Vermeulen, Kamoa Copper's incoming Managing Director (middle-left) and Mark Farren, Kamoa Copper's CEO (middle-right), with members of Zijin Mining's senior management team during a recent Zijin site visit.**



**Photo: Members of Kamoa-Kakula's diverse, multi-national team that has delivered the first two phases ahead of schedule, inside one of the new Phase 2 ball mills.**





**Photo: Excellent progress is being made on the excavation of Kamo-Kakula's new box cut that will provide access to the Kamo 1 and Kamo 2 mines, part of the project's Phase 3 expansion.**



#### ***Kamo-Kakula smelter basic engineering underway***

Early works on the planned direct-to-blister flash smelter at Kamo-Kakula adjacent to the Phase 1 and Phase 2 concentrator plants is underway. The smelter is designed to use technology supplied by Outotec Oyj of Helsinki, Finland, and has been sized to process the bulk of the copper concentrate forecast to be produced by the Phase 1, 2 and 3 concentrator plants, with a production capacity of 500,000 tonnes per annum of blister copper.

China Nerin Engineering Company Co., Ltd. has been appointed to carry out the basic engineering design and develop a control budget estimate for the smelter; work is progressing well.

#### ***Ore stockpiles now hold more than 4.6 million tonnes grading 4.58% copper, containing more than 212,000 tonnes of copper at the end of February 2022***

Kamo-Kakula's total high- and medium-grade ore surface stockpiles totalled approximately 4.19 million tonnes at an estimated grade of 4.63% copper as of the end of December 2021. The operation mined 1.70 million tonnes of ore grading 5.44% copper in Q4 2021, which was comprised of 1.52 million tonnes grading 5.60% copper from the Kakula Mine, including 0.81 million tonnes grading 6.68% copper from the mine's high-grade centre, and 0.18 million tonnes grading 4.05% copper from the Kansoko Mine. At the end of February 2022, the total high- and medium-grade ore surface stockpiles totalled approximately 4.65 million tonnes at an estimated grade of 4.58% copper.

During October, a north-south, water-bearing structure was intersected at the Kakula Mine's northern perimeter drift. This new structure produced considerable water inflow that caused some localized flooding in the nearby surrounding workings in early October. Since then, the water inflow has decreased and has been controlled by the mining team, with the flooded areas largely dewatered and no impact on overall production from underground. No additional water-bearing structures have been identified since October. Hydrological studies are ongoing with industry experts, which will be used for planning in advance of mining operations. Kakula has further pumping capacity expansions planned in 2022.



**Photo: Kamoa-Kakula's Phase 1 and Phase 2 concentrator plants and the ore stockpiles at the Kakula Mine's northern decline. The direct-to-blister flash smelter is being constructed adjacent to the Phase 1 and Phase 2 concentrator plants.**



***Kamoa-Kakula delivering Phase 1 blister copper and copper concentrate under off-take agreements***

Kamoa Copper's off-take agreements are with CITIC Metal (HK) Limited (CITIC Metal) and Gold Mountains (H.K.) International Mining Company Limited, a subsidiary of Zijin, for 50% each of the copper products from Kamoa-Kakula's Phase 1 production. The off-take agreements are evergreen for the production volumes from Phase 1, including copper concentrate and blister copper resulting from processing of copper concentrates at the nearby Lualaba Copper Smelter.

CITIC Metal and Zijin are purchasing the copper concentrate at the Kakula Mine and the blister copper at the Lualaba Copper Smelter on a free-carrier basis, meaning the buyers are responsible for arranging freight and shipment to the final destination, initially via the port of Durban, South Africa.

Kamoa-Kakula delivered its first bulk copper concentrates to the Lualaba Copper Smelter on June 1, 2021. The smelter is expected to treat up to 150,000 wet metric tonnes of copper concentrates from Kamoa-Kakula annually. Kamoa-Kakula began exporting its copper concentrate internationally in July 2021. The first truckloads of copper concentrate destined for smelters outside of the DRC departed from the mine site on July 17, 2021.

***Mwadingusha hydropower plant fully operational and providing 78 MW of clean electricity for Kamoa-Kakula's phases 1 and 2; focus now shifted to upgrading turbine 5 at the Inga II hydropower plant to provide power for expansions***

All six new turbines at the Mwadingusha hydropower plant were synchronized to the national electrical grid in August 2021, with each generating unit producing approximately 13 megawatts (MW) of power, for a combined output of approximately 78 MW.



In August 2021, Kamoakakula's energy company signed an extension of the existing financing agreement with La Société Nationale d'Electricité (SNEL) to upgrade turbine 5 at the Inga II hydropower complex. Since June 2021, rehabilitation scoping works and technical visits have been conducted by Stucky Ltd. of Renens, Switzerland, and Voith Hydro of Heidenheim, Germany, a leading engineering group. Voith Hydro, the contractor for upgrading turbine 5, has successfully rehabilitated two turbine generators at the adjoining Inga I hydropower plant, a project that was financed by the World Bank.

Turbine 5 is expected to produce 162 MW of renewable hydropower, providing the Kamoakakula Copper Complex and the planned, associated smelter with abundant, sustainable electricity for future expansions.

***Kamoakakula aiming to be first net-zero carbon emitter among top-tier copper mines by electrifying mining fleet with state-of-the-art equipment powered by electric batteries or hydrogen fuel cells***

In May 2021, Ivanhoe Mines announced its pledge to achieve net-zero operational greenhouse gas emissions (Scope 1 and 2) at the industry-leading Kamoakakula Copper Mine.

In support of the Paris Agreement on climate change, and in the spirit of the commitments at the April 2021 Leaders Summit on Climate by the Chinese and American governments to sharply cut emissions, Ivanhoe Mines has committed to working with its joint-venture partners and leading underground mining equipment manufacturers to ensure that Kamoakakula becomes the first net-zero operational carbon emitter among the world's top-tier copper producers.

Since the Kamoakakula mines and concentrator plants are powered by clean, renewable hydro-generated electricity, the focus of the Company's net-zero commitment will be on electrifying the project's mining fleet with new, state-of-the-art equipment powered by electric batteries or hydrogen fuel cells.

Kamoakakula is working closely with its mining equipment suppliers to decrease the use of fossil fuels in its mining fleet, and evaluate the viability, safety and performance of new electric, hydrogen and hybrid technologies. The mine plans to introduce them into its mining fleet as soon as they become commercially available.

### ***Empowering local communities through sustainable development***

Ivanhoe Mines founded the Sustainable Livelihoods Program in 2010 to strengthen food security and farming capacity in the host communities near Kamoakakula by establishing an agricultural demonstration garden to support local farmers. Today, approximately 900 community farmers are benefiting from the Sustainable Livelihoods Program, producing high-quality food for their families and selling the surplus for additional income. The Sustainable Livelihoods Program, which commenced with maize and other vegetable production, now includes fruit, aquaculture, poultry and honey.

**Photo: Farmer Omba Gertrude Muwana (left) and Benoit Muringa, Kamoa Copper's Sustainability Agronomist, at one of the community gardens and fish-farming operations near Kamoa-Kakula.**



Construction of 100 new fishponds is complete, bringing the total number of fishponds to 138. The project will significantly contribute toward local entrepreneurship and enhanced regional food security. A group of community participants took part in, and graduated as facilitators for, an adult literacy training program.

**Photo: Newly constructed fish ponds near Kamoa-Kakula.**



Additional non-farming-related activities continued during Q4 2021 and include education programs, enterprise and supplier development programs, and the supply of fresh water to a number of local communities using solar-powered boreholes. The planned community borehole project was completed, with all 35 boreholes drilled using local contractors, providing approximately 12,000 community members with easy access to clean water. Construction, landscaping and equipping of the Kaponda Primary School was completed, thereby achieving another milestone in the ambition to advance the objectives set out in the United Nations Sustainable Development Goals. Local community enterprise programs continued including brick-making and sewing, which are planned for project expansion in 2022, as well as landscaping and gardening, which may be reviewed for business efficiency and continued growth.

Construction of resettlement houses for the relocation program is continuing as planned. To date, 129 homes have been relocated, with five households remaining. The remaining families are scheduled for relocation upon completion of the construction of their new homes. Construction of the community church at Kaponda was completed and the new church was officially handed over to the community. The livelihood restoration program focused on the distribution of 758 chickens for all project-affected people, as well as three goats each to all 45 beneficiaries. Additional livelihood restoration efforts included planting of 3,600 orange seedlings to cover nine hectares, 1,000 grafted avocados across 10 hectares and approximately 54 hectares of cassava.

## **COPPER PRODUCTION GUIDANCE FOR 2022**

The Kamoa-Kakula joint venture produced a total of 105,884 tonnes of copper in concentrate for the year ending December 31, 2021. The figures are on a 100%-project basis and metal reported in concentrate is prior to refining losses or deductions associated with smelter terms.

Guidance for 2022 is based on a number of assumptions and estimates as of December 31, 2021, including among other things, assumptions about the timing of the Phase 2 expansion and anticipated costs and expenditures. Production and cost guidance assumes the Phase 2 concentrator plant will commence copper production in Q2 2022 and that ramp-up will be in line with what was achieved with Phase 1. Guidance involves estimates of known and unknown risks, uncertainties and other factors which may cause the actual results to be materially different.

### **Kamoa-Kakula 2022 Guidance**

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<b>Contained copper in concentrate (tonnes)</b>	<b>290,000 to 340,000</b>
<b>Cash cost (C1) (\$ per pound)</b>	<b>1.20 to 1.40</b>

Cash costs (C1) per pound of payable copper was \$1.37/lb for Q3 2021 and was \$1.28/lb for Q4 2021, reflecting the measured ramp-up of production at Kamoa-Kakula to steady-state, and is expected to trend downward as the Phase 2 concentrator plant is commissioned and the mine's fixed operating costs are spread over increased copper production.

C1 cash cost is a non-GAAP measure used by management to evaluate operating performance and includes all direct mining, processing, and general and administrative costs. Smelter charges and freight deductions on sales to final port of destination (typically China), which are recognized as a component of sales revenues, are added to C1 cash cost to arrive at an approximate cost of delivered finished metal.

Cost of sales per pound of payable copper sold for Q4 2021 was \$1.12/lb. For historical comparatives, see the Non-GAAP Financial Performance Measures section of this MD&A.



## PLATREEF PROJECT

The Platreef Project is owned by Ivanplats (Pty) Ltd (Ivanplats), which is 64%-owned by Ivanhoe Mines. A 26% interest is held by Ivanplats' historically-disadvantaged, broad-based, black economic empowerment (B-BBEE) partners, which include 20 local host communities with approximately 150,000 people, project employees and local entrepreneurs. Ivanplats reached Level 4 contributor status in its most recent verification assessment on the B-BBEE scorecard. A Japanese consortium of ITOCHU Corporation, Japan Oil, Gas and Metals National Corporation, and Japan Gas Corporation, owns a 10% interest in Ivanplats, which it acquired in two tranches for a total investment of \$290 million.

The Platreef Project hosts an underground deposit of thick, platinum-group metals, nickel, copper and gold mineralization on the Northern Limb of the Bushveld Igneous Complex in Limpopo Province – approximately 280 kilometres northeast of Johannesburg and eight kilometres from the town of Mokopane.

On the Northern Limb, platinum-group metals mineralization primarily is hosted within the Platreef, a mineralized sequence that is traced more than 30 kilometres along strike. Ivanhoe's Platreef Project, within the Platreef's southern sector, is comprised of two contiguous properties: Turfspruit and Macalacaskop. Turfspruit, the northernmost property, is contiguous with, and along strike from, Anglo Platinum's Mogalakwena group of mining operations and properties.

Since 2007, Ivanhoe has focused its exploration and development activities on defining and advancing the down-dip extension of its original discovery at Platreef, now known as the Flatreef Deposit, which is amenable to highly-mechanized, underground mining methods. The Flatreef area lies entirely on the Turfspruit and Macalacaskop properties that form part of the Company's mining right.

### ***Health and safety at Platreef***

As at the end of December 2021, the Platreef Project reached a total of 677,450 lost-time, injury-free hours worked.

**Photo: Kgalalelo Tladi, Chief Safety Officer, conducting a safety inspection of the Shaft 1 underground equipping stage.**



COVID-19 protocols are continuously reviewed and optimized; as a result, the Company implemented several measures to prevent and mitigate the escalation of infections. Those measures included the mass testing of employees and visitors, provision of transport to employees and a vaccination rollout. By the end of December 2021, a total of 6,516 COVID-19 tests had been conducted. In support of the National Department of Health's national vaccine rollout strategy, Ivanplats launched an on-site COVID-19 vaccination campaign that has administered 470 vaccine doses to date. Approximately 70% of the Platreef Project's employees and contractors working on site have at minimum received their first dose of the vaccine.

### ***Outstanding results of new Platreef feasibility study***

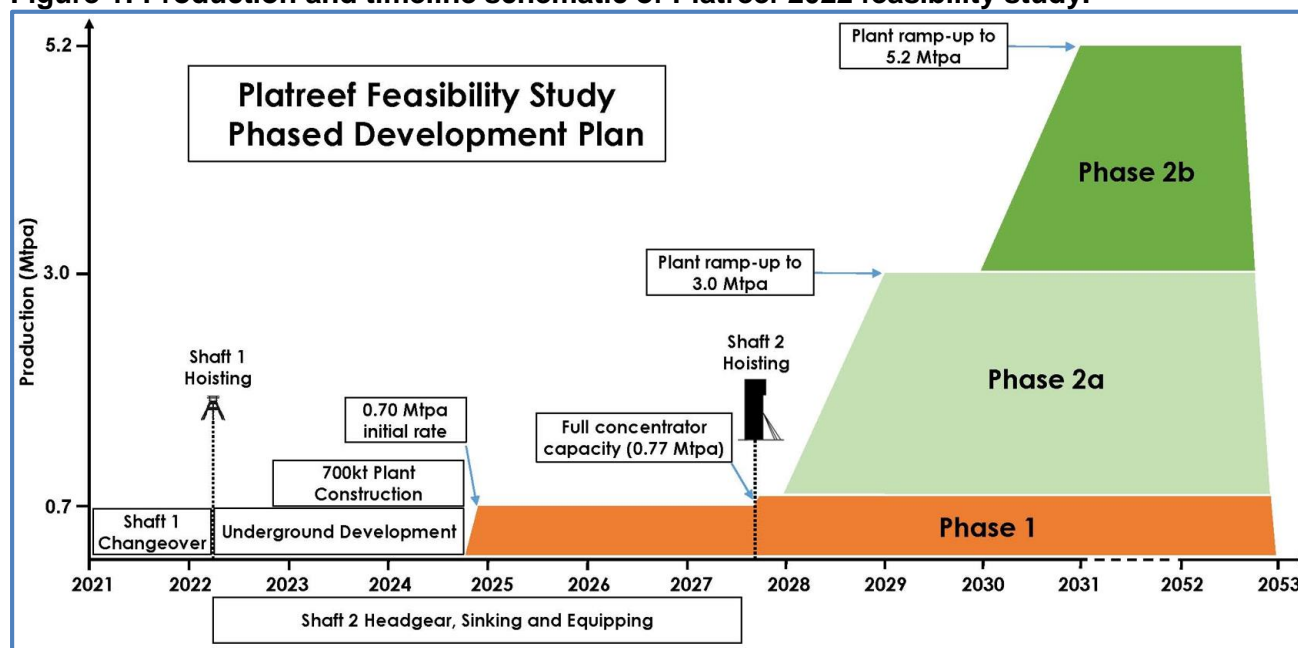
On February 28, 2022, Ivanhoe Mines announced the results of a new independent feasibility study for the Platreef Project (Platreef 2022 FS). The Platreef 2022 FS builds on the excellent results of the preliminary economic assessment (PEA) for an alternate scenario to expedite production, announced in November 2020, alongside the 2020 feasibility study.

The Platreef 2022 FS is based on a steady-state production rate of 5.2 Mtpa, as well as an accelerated ramp up to steady state through the earlier development of Shaft 2. The Platreef 2022 FS is based on the detailed design and engineering scenario first presented in the 2020 PEA, confirming the viability of a new phased-development pathway to fast-track Platreef into production by Q3 2024.

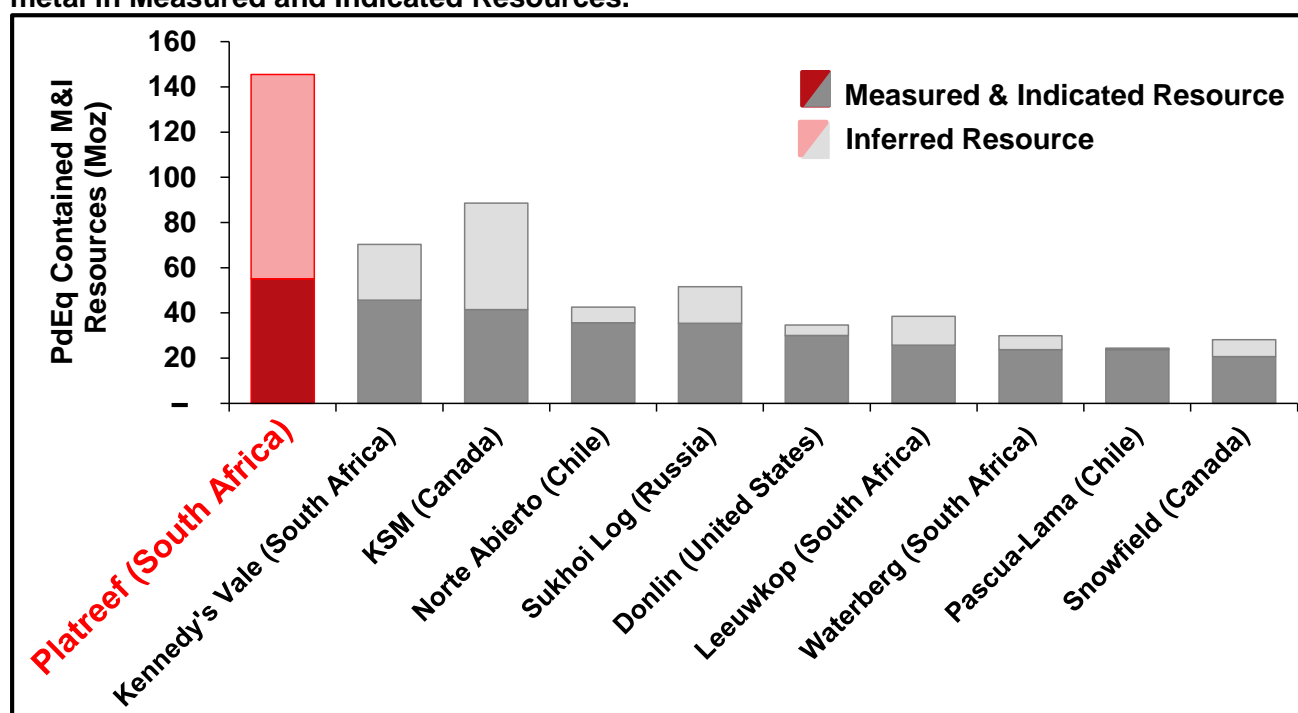
Highlights of the Platreef 2022 FS include:

- The Platreef 2022 FS evaluates the phased development of Platreef, with an initial 700-ktpa underground mine and a 770-ktpa capacity concentrator, targeting high-grade mining areas close to Shaft 1, with an initial capital cost of \$488 million.
- First concentrate production for Phase 1 is planned for Q3 2024, with the Phase 2 expansion based on the commissioning of Shaft 2 in 2027, followed by the commissioning of two 2.2-Mtpa concentrators in 2028 and 2029. This would increase the steady-state production to 5.2 Mtpa by using Shaft 2 as the primary production shaft.
- Expansion capital cost for Phase 2 is estimated at \$1.5 billion, which may be partially funded by cash flows from Phase 1 and a project financing package.
- Ivanplats' dedicated engineering teams and leading consultants are evaluating optimizations to the sinking methodology for Shaft 2 to further accelerate the availability of the shaft for hoisting, which may accelerate the overall development timeline.
- Phase 1 average annual production of 113,000 ounces (oz.) of palladium, rhodium, platinum and gold (3PE+Au), plus 5 million pounds of nickel and 3 million pounds of copper.
- Phase 2 average annual production of 591,000 oz. of 3PE+Au, plus 26 million pounds of nickel and 16 million pounds of copper, which would rank Platreef as the fifth largest primary PGM producer on a palladium equivalent basis.
- Life-of-mine cash cost of \$514 per ounce of 3PE+Au, net of by-products, and including sustaining capital costs, would rank Platreef as the industry's lowest cost primary PGM producer.
- After-tax net present value at an 8% discount rate (NPV8%) of \$1.7 billion and an internal rate of return (IRR) of 18.5%, based on long-term consensus prices.
- The sensitivity analysis at current metal prices of approximately \$1,121/oz platinum, \$2,979/oz palladium, \$22,200/oz rhodium, \$1,995/oz gold, \$4.84/lb copper and \$13.12/lb nickel (March 7, 2022), results in an after-tax NPV8% of \$5.1 billion with an after-tax real IRR of 33%.

**Figure 1: Production and timeline schematic of Platreef 2022 feasibility study.**



**Figure 2: World's largest precious metal deposits under development ranked by contained metal in Measured and Indicated Resources.**



Source: Company filings, S&P Global Market Intelligence. Notes: Chart ranks the largest undeveloped primary palladium, platinum, gold, silver and rhodium projects from the S&P Global Market Intelligence database based on measured and indicated palladium equivalent resource. Palladium equivalent calculation includes palladium, platinum, gold, silver and rhodium ounces and has been calculated using spot price metal price assumptions (February 23, 2022) of \$1,095/oz platinum, \$2,480/oz palladium, \$18,750/oz rhodium, \$1,909/oz gold and \$24.55/oz silver. Measured and Indicated resources for Platreef correspond to palladium, platinum, gold and rhodium ounces at a 1 g/t cut-off grade.

### **Platreef secures \$200 million gold stream financing and additional \$100 million palladium and platinum stream**

In December 2021, Ivanplats entered into a gold, palladium and platinum stream financing with Orion Mine Finance, a leading international provider of customized financing to mining companies, and Nomad Royalty Company, a precious metals royalty company, in which Orion Mine Finance is a significant shareholder (Orion Mine Finance and Nomad Royalty Company, together, the Stream



Purchasers). This transaction will fund a large portion of the Phase 1 capital costs, with first concentrate production for Phase 1 planned for Q3 2024.

The stream facilities are a prepaid forward sale of refined metals, with prepayments totalling \$300 million, available in two tranches with the first prepayment of \$75 million received in December 2021 following the closing of the transaction, and \$225 million to be paid upon satisfaction of certain conditions precedent.

Under the terms of the \$200 million gold stream agreement, the Stream Purchasers will receive an aggregate total of 80% of contained gold in concentrate until 350,000 ounces have been delivered, after which the stream will be reduced to 64% of contained gold in concentrate for the remaining life of the facility. The expected life of this facility will extend from the effective date of the stream agreement until the date when 685,280 ounces of gold have been delivered to the Stream Purchasers. The Stream Purchasers will purchase each ounce of gold at a price equal to the lower of the market price of gold or \$100 per ounce.

Under the terms of the \$100 million palladium and platinum stream agreement, Orion Mine Finance will receive an aggregate total of 4.2% of contained palladium and platinum in concentrate until 350,000 ounces have been delivered, after which the stream will be reduced to 2.4% for the remaining life of the facility. The expected life of this facility will extend from the effective date of the stream agreement until the date when 485,115 ounces of palladium and platinum have been delivered to the purchaser, which will pay for each ounce at a price equal to 30% of the market price of palladium and platinum.

**Photo: Members of the Orion Mine Finance and Nomad Royalty teams, with members of Platreef's mine development team, on the top platform of Platreef's Shaft 1 headgear.**



***Conclusion of the stream agreements allows Ivanplats to focus efforts on finalizing the senior debt facility***

Société Générale and Nedbank were appointed as mandated lead arrangers for the project debt facility in early 2021. Both the gold stream facility, and palladium and platinum stream facility, will be subordinated to any senior secured financing.

The senior debt facility is anticipated to be used only after the stream facilities are fully drawn. Ivanplats remains flexible to raise additional debt or equity at a later date, and has pre-agreed with the Stream Purchasers the inter-creditor arrangements for any future senior debt. While the stream facilities are guaranteed by Ivanplats and secured over the assets and Ivanhoe's shares of Platreef, there is no recourse to Ivanhoe Mines.

### ***Shaft 1 changeover to a production shaft nearing completion***

The construction of the 996-metre-level station at the bottom of Shaft 1 was completed in July 2020. Shaft 1 initially will be used to access the orebody and is approximately 450 metres away from a high-grade area of Flatreef that is planned for bulk, mechanized mining. The three development stations that will provide initial, underground access to the high-grade orebody also have been completed on the 750-, 850- and 950-metre levels.

The auxiliary winder has been installed and commissioned. The headgear, both winders, equipping stage, conveyances and control systems comply with the highest current industry safety standards, with proven and tested safety and redundancy systems in place.

The changeover construction at Shaft 1 is progressing to plan and is on schedule to soon commence rock hoisting. All equipment for the shaft changeover has been procured and is on site. The changeover work within the shaft is being performed by Platreef's experienced owners' team.

**Photo: Construction activities at the Platreef Project site, including Shaft 1 on the left, and the hitch-to-collar advancement for Shaft 2 on the right.**



The winder that was used to successfully sink Shaft 1 has been converted to function as the main equipping conveyance during the shaft changeover, and will serve as the permanent rock, personnel and material winder following the shaft-equipping phase. The shaft will be equipped with two cages on top of two 12.5-tonne skips with hoisting capacity of 1 million tonnes per year, resulting from an amended configuration that does not require the cage to be interchanged mid-shift, thereby increasing the hoisting time during the initial phase of mining.

Shaft equipping commenced in May 2021 and remains on track to be completed by the end of March 2022. Following the completion of the changeover work in the shaft, underground stations, and establishment of the ore and waste passes, lateral underground mine development will commence toward high-grade ore zones.

### ***Key electric underground mining equipment orders placed***

Ivanplats placed an initial order with Epiroc of Stockholm, Sweden, for its primary mining fleet consisting of emissions-free, battery electric jumbo face drill rigs and load haul dump (LHD) vehicles, due for delivery in the next few months. The mine development contract was successfully concluded with Murray & Roberts Cementation, with site on-boarding well advanced, and the first blast on the 950-metre level anticipated in April 2022.

### ***Shaft 2 headgear construction from hitch to collar well underway***

Early works surface construction for Shaft 2 began in 2017, including the excavation of a surface box-cut to a depth of approximately 29 metres below surface and construction of the concrete hitch for the 103-metre-tall concrete headgear (headframe), which will house the shaft's permanent hoisting facilities and support the shaft collar. The Shaft 2 headframe construction, from the hitch to the collar level, is progressing well with the sixth and seventh headgear lifts completed and the eighth and final lift well advanced. Construction of the eight civil lifts, including a ventilation plenum and personnel access tunnel, is targeted for completion in May 2022.

### ***Long-term supply of bulk water for the Platreef Mine***

The water requirement for the Phase 1 operation is projected to peak at approximately three million litres per day, which will then increase to nine million litres per day once the Phase 2 expansion is complete. On January 17, 2022, Ivanhoe announced the signing of new agreements for the rights to receive local, treated water to supply the bulk water needed for the phased development plan at Platreef. These agreements replace those originally signed in 2018.

Under the terms of a new offtake agreement, the Mogalakwena Local Municipality (MLM) has agreed to supply at least three million litres per day of treated effluent, up to a maximum of 10 million litres per day for 32 years, from the date of first production, sourced from the town of Mokopane's Masodi Waste Water Treatment Works, currently under construction.

Ivanplats also has signed a sponsorship agreement where Ivanplats has undertaken the commitment to complete the partially constructed Masodi Waste Water Treatment Works, which was halted in 2018. Ivanplats anticipates spending approximately ZAR 215 million (\$14 million) to complete the works, whereby Ivanplats' financial contribution will take the form of a sponsorship in favour of the municipality. Ivanplats will purchase the treated water at a reduced rate of ZAR 5 per thousand litres. Arrangements are underway to re-commence the construction works in Q3 2022, which are scheduled to take approximately 18 months.

### ***Development of human resources and job skills***

Implementation of the Platreef Project's second Social and Labour Plan (SLP) is underway, through which Ivanplats plans to build on the first SLP and continue with its training and development suite, including 15 new mentors, internal skills training for 78 staff members, a legends program to prepare retiring employees with new/other skills, community adult education training for host community members, core technical skills training for at least 100 community members, portable skills training, and more. The Platreef Project also continues to support several educational programs and the provision of free Wi-Fi in host communities. Community climate awareness was promoted through the implementation of a youth climate change action and tree-planting campaign at a local school.

Equipping of the mine's permanent training academy is continuing, with the official launch being planned for later this year. Classrooms and offices at the training academy have been installed and the training and e-learning program has been instituted. A cadetship program, providing learnership opportunities to 49 local students was launched, offering a national certificate in health and safety, as well as mining competencies, such as utility vehicle operations from the Murray & Roberts Training Academy. The cadetship program seeks to enhance gender diversity, with 54% of the students being female.



Local economic development projects will contribute to community water-source development through the Mogalakwena Municipality boreholes program. Other projects, which will be conducted in partnership with other parties, include the refurbishment and equipping of a health clinic in Tshamahansi Village. In recognition of World Aids Day, a community health intervention to promote awareness and support, was implemented at the Tshamahansi clinic. The enterprise and supplier development commitments comprise of expanding the existing kiosk and laundry facilities and adding expanded change house facilities to be managed by a community partner in the future. A five-year integrated business accelerator and funding project assists community members to obtain help with development and supplier readiness.

**Chart: Spot price of palladium (US\$/oz) over the past 12 months.**

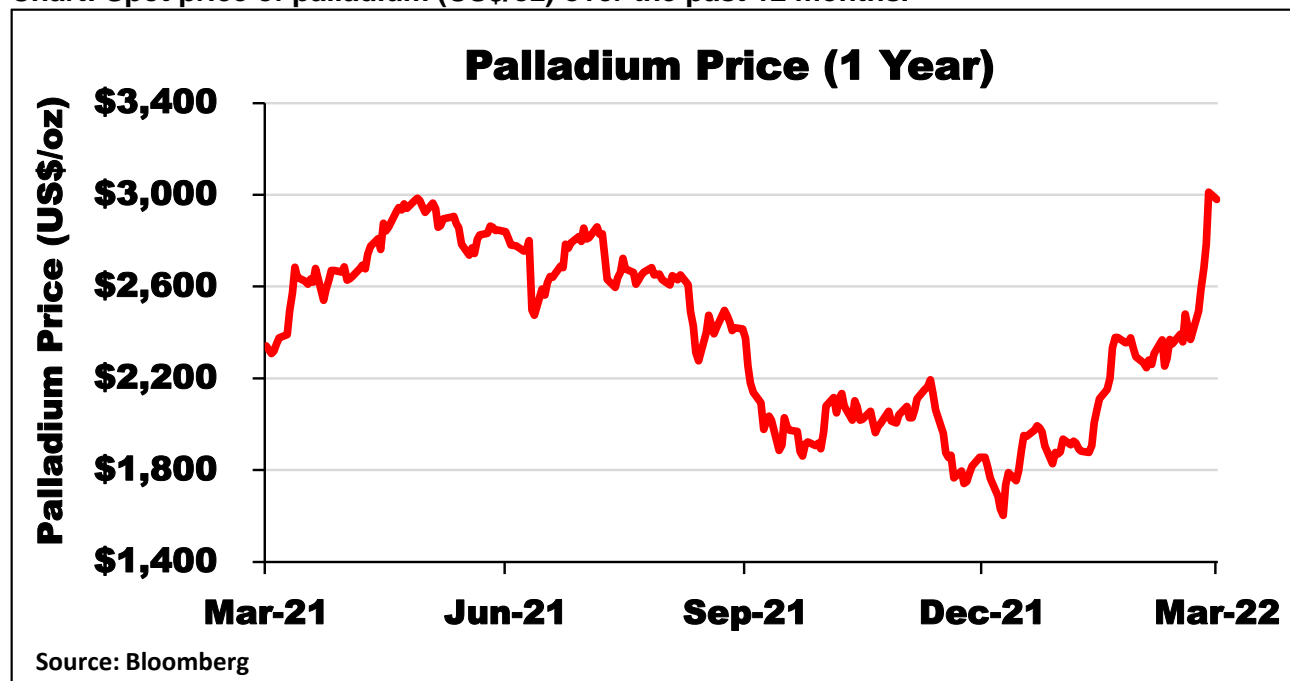


Chart: Spot price of rhodium (US\$/oz) over the past 12 months.

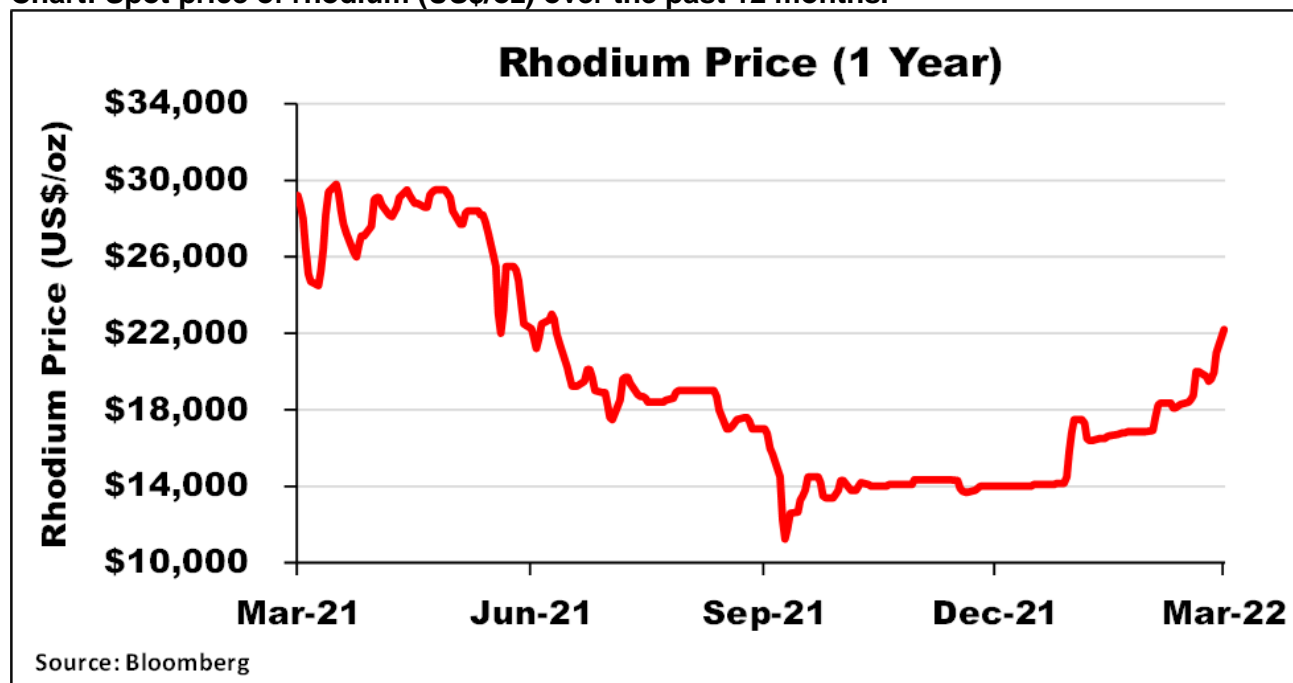


Chart: Spot price of nickel (US\$/lb) over the past 12 months.

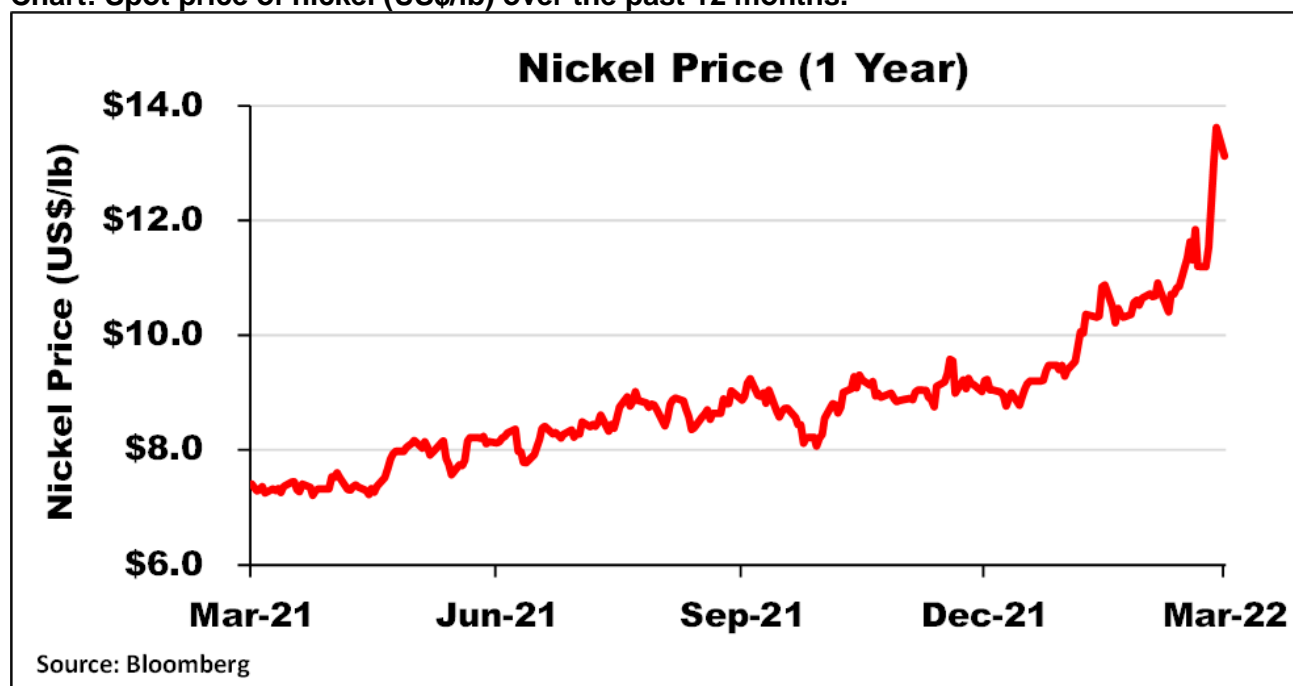


Chart: Spot price of platinum (US\$/oz) over the past 12 months.

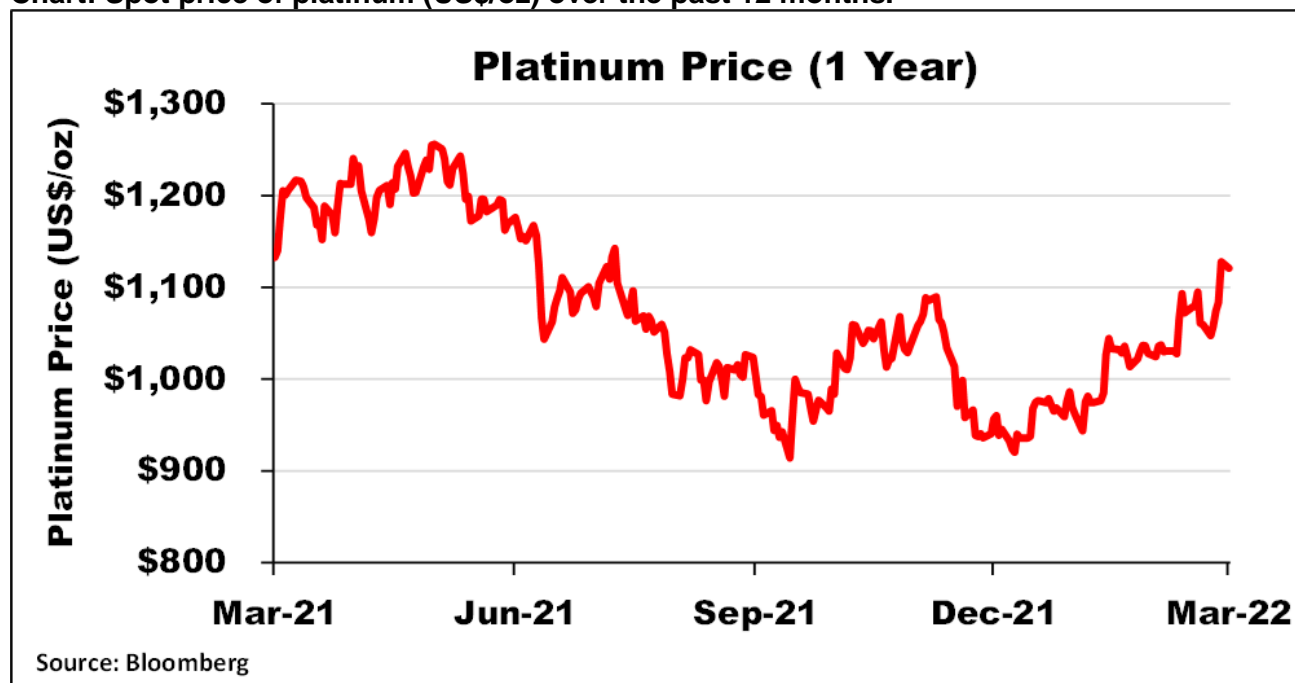


Chart: Spot price of gold (US\$/oz) over the past 12 months.





## KIPUSHI PROJECT

The Kipushi copper-zinc-germanium-silver-lead mine in the DRC is adjacent to the town of Kipushi and approximately 30 kilometres southwest of Lubumbashi. It is located on the Central African Copperbelt, approximately 250 kilometres southeast of the Kamoa-Kakula Mining Complex and less than one kilometre from the Zambian border. Ivanhoe acquired its 68% interest in the Kipushi Project in November 2011, through Kipushi Holding that is 100%-owned by Ivanhoe Mines. The balance of 32% in the Kipushi Project is held by the state-owned mining company, Gécamines.

Kipushi Holding and Gécamines have signed a new agreement to return the ultra-high-grade Kipushi Mine back to commercial production. Kipushi will be the world's highest-grade major zinc mine, with an average grade of 36.4% zinc over the first five years of production.

**Photo: (L-R) Olivier Binyingo (Ivanhoe Mines Vice President, Public Affairs DRC), Marna Cloete (Ivanhoe Mines President), Alphonse Kaputo Kalubi (Chairman of Gécamines), and Louis Watum (General Manager, Kipushi Corporation) discussing the Kipushi partnership during a recent visit to the Kamoa-Kakula mining complex.**



The new agreement sets out the commercial terms that will form the basis of a new Kipushi joint-venture agreement, establishing a robust framework for the mutually beneficial operation of the Kipushi Mine for years to come, and is subject to execution of definitive documentation.

Highlights of the new agreement include:

- Kipushi Holding will transfer 6% of the share capital and voting rights in the Kipushi Project to Gécamines, after which Kipushi Holding and Gécamines will hold 62% and 38%, respectively.
- From January 25, 2027, 5% of the share capital and voting rights in the Kipushi Project shall be transferred from Kipushi Holding to Gécamines, after which Kipushi Holding and Gécamines will hold 57% and 43%, respectively.
- In the event that, after the 6% and 5% transfers, part of the Kipushi Project's share capital is required to be transferred to the State or to any third party pursuant to an applicable legal or regulatory provision, Gécamines shall transfer the number of the Kipushi Project shares required, and Kipushi Holding shall retain 57% ownership in the Kipushi Project.
- Once a minimum of the current proven and probable reserves and up to 12 million tonnes has been mined and processed, an additional 37% of the share capital and voting rights in the Kipushi Project shall be transferred from Kipushi Holding to Gécamines, after which Kipushi Holding and Gécamines will hold 20% and 80%, respectively.
- A new supervisory board and executive committee will be established with appropriate shareholder representation.

- New initiatives will be implemented, focusing on the development of Congolese employees, including individual development, the identification of future leaders, succession planning and the promotion of gender equality across the workforce.
- A framework for tendering for the offtake of zinc concentrates produced by the Kipushi Mine has been established, which includes Gécamines' participation.
- Kipushi Holding will continue to fund the Kipushi Project with the shareholder loan and/or procure financing from third parties for the development of the project. The interest on the shareholder loan will be 6%, which will be applicable from January 1, 2022, on the existing balance and any further advances. Under the terms of the current shareholder loan agreement, the shareholder loan carries interest of LIBOR plus 4%, which is applicable to 80% of the advanced amounts with the remaining 20% interest-free. As of December 31, 2021, the balance of the shareholder loan owing to Kipushi Holding, including accrued interest, was approximately \$528 million.

### ***Health and safety at Kipushi***

At the end of December 2021, the Kipushi Project reached a total of 3,983,319 work hours free of lost-time injuries. It has been more than two and a half years since the last lost-time injury occurred at the project.

Since temporarily suspending mine development operations due to the COVID-19 pandemic, the project maintained a reduced workforce to safely and cost-effectively maintain infrastructure and pumping systems and to execute planned projects.

The Kipushi Project has built a new potable water station to provide a free daily supply of water to the municipality of Kipushi. This daily supply to the Kipushi municipality community members includes power supply, disinfectant chemicals, routine maintenance, security and emergency repair of leaks to the primary reticulation to the benefit of an estimated 100,000 people, excluding those from rural areas. Approximately 1,000 cubic metres of potable water is pumped hourly and continuously to consumers on a daily basis.

50 boreholes of potable water are planned to be drilled around the Kipushi district over five years, to reach areas not served by current distribution. To date, 12 solar-powered potable water wells have been drilled and currently are operating throughout the district.

The Kipushi Project continues to support educational initiatives through renovations at the Mungoti School, and the granting of bursaries and scholarships to students from Kipushi. Over the past year, approximately 100 students have been supported through the bursary program. The sewing training centre project established by the Kipushi Project continued producing cloth face masks, donating approximately 2,000 masks a month to host communities. The Kipushi Project also is broadcasting daily COVID-19 awareness messages on a local community radio station, as well as through a motorized caravan.

The pilot of the Sustainable Livelihoods Program, which commenced in 2020 with a poultry farming initiative established for the benefit of a consortium of local women, continued successfully, with plans for expansion around the Kipushi district in 2022. An annual tree-planting initiative was implemented to raise awareness and make a positive impact in respect of climate change mitigation.

### ***Kipushi feasibility study issued, heralding the planned re-start of the historic mine, with a two-year development timeline and exceptional economic results***

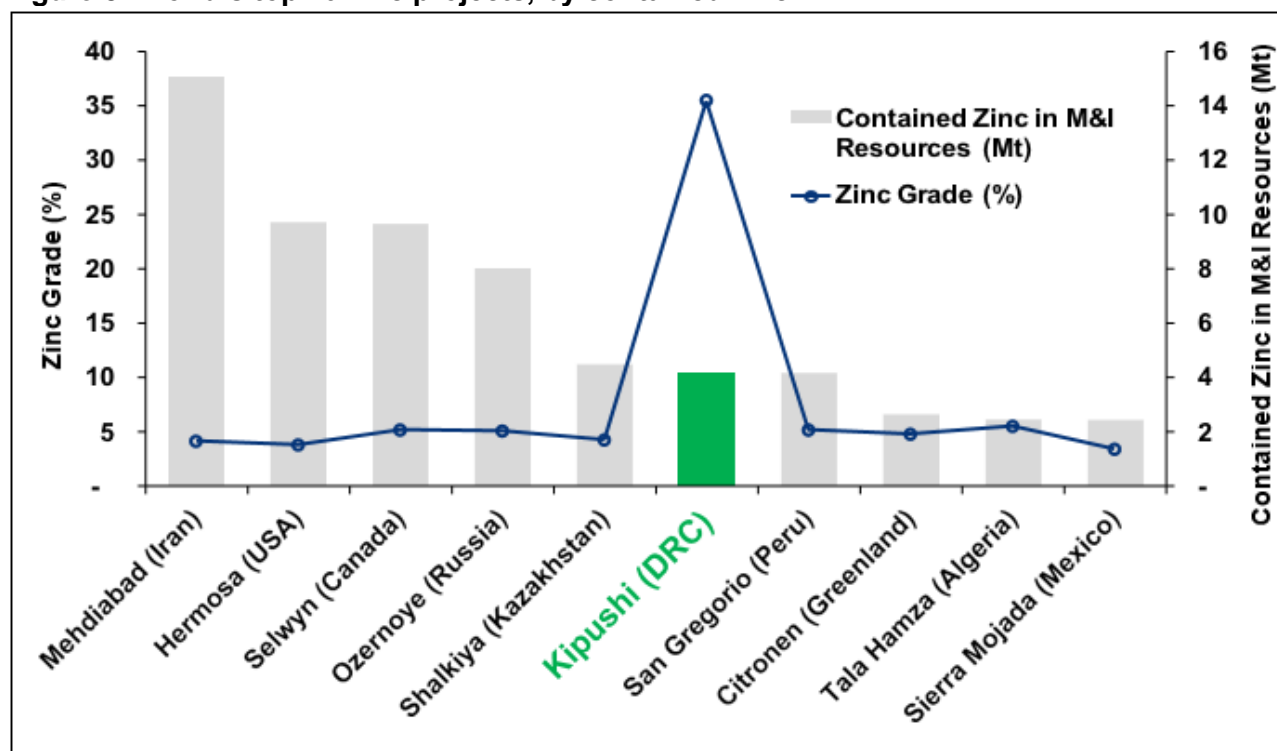
On February 14, 2022, Ivanhoe Mines announced the positive findings of an independent, feasibility study for the planned resumption of commercial production at Kipushi.

The Kipushi 2022 feasibility study builds on the results of the pre-feasibility study published by Ivanhoe Mines in January 2018. The redevelopment of Kipushi is based on a two-year construction timeline, which utilizes the significant existing surface and underground infrastructure to allow for

substantially lower capital costs than comparable development projects. The estimated pre-production capital cost, including contingency, is \$382 million.

The 2022 feasibility study focuses on the mining of Kipushi's zinc-rich Big Zinc and Southern Zinc zones, with an estimated 11.8 million tonnes of Measured and Indicated Mineral Resources grading 35.3% zinc. Kipushi's exceptional zinc grade is more than twice that of the world's next-highest-grade zinc project, according to Wood Mackenzie, a leading, international industry research and consulting group (see Figure 3).

**Figure 3: World's top 10 zinc projects, by contained zinc.**



Source: Wood Mackenzie, January 2022. Note: All tonnes and metal grades of individual metals used in the equivalency calculation of the above-mentioned projects (except for Kipushi) are based on public disclosure and have been compiled by Wood Mackenzie. All metal grades have been converted by Wood Mackenzie to a zinc equivalent grade at Wood Mackenzie's respective long-term price assumptions.

The 2022 feasibility study envisages the recommencement of underground mining operations, and the construction of a new concentrator facility on surface with annual processing capacity of 800,000 tonnes of ore, producing on average 240,000 tonnes of zinc contained in concentrate.

Highlights of the 2022 feasibility study results for the Kipushi Mine include:

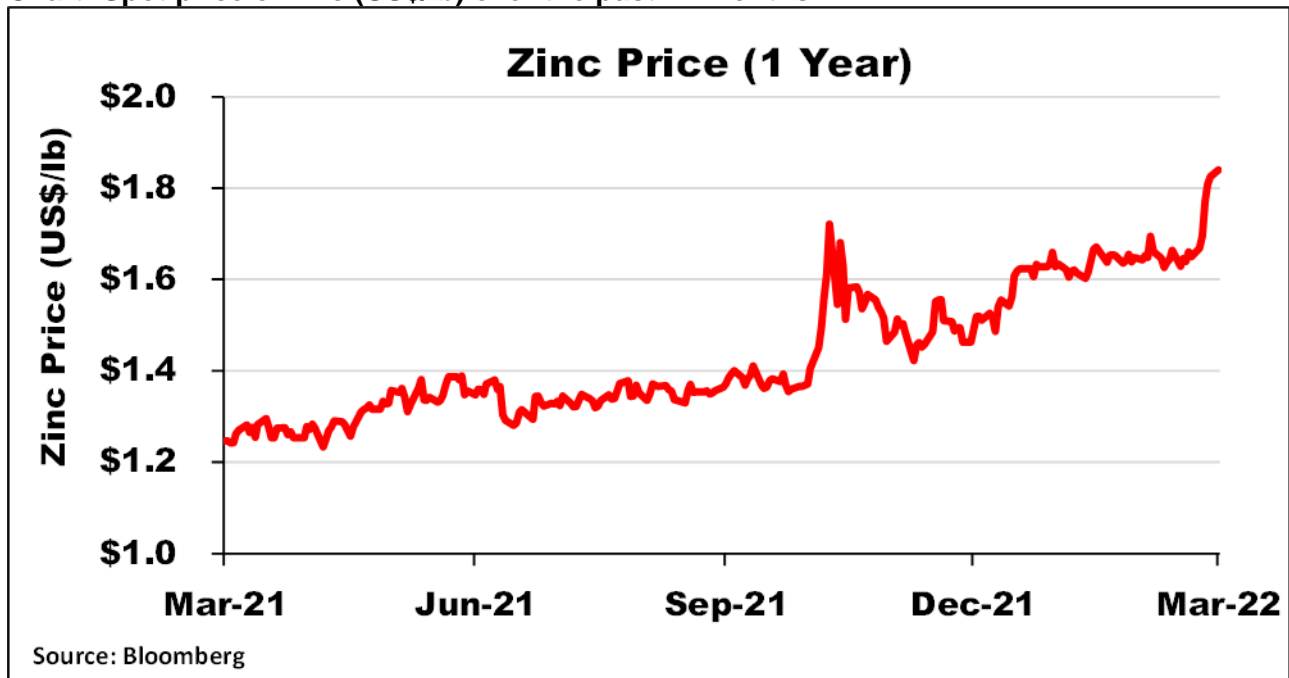
- The 2022 feasibility study evaluates the development of an 800-ktpa underground mine and concentrator, with an increased resource base compared to the pre-feasibility study, extending the mine life to 14 years.
- Existing surface and underground infrastructure allows for significantly lower capital costs than comparable development projects, with the principal development activity being the construction of a conventional concentrator facility and new supporting infrastructure on surface in a two-year timeline.
- Pre-production capital costs, including contingency, estimated at \$382 million.
- Life-of-mine average zinc production of 240,000 tonnes per annum, with a zinc grade of 32%, is expected to rank Kipushi among the world's major zinc mines (Figure 3), once in production, with the highest grade by some margin.
- Life-of-mine average C1 cash cost of \$0.65/lb of zinc is expected to rank Kipushi, once in production, in the second quartile of the cash cost curve for zinc producers globally.



- At a long-term zinc price of \$1.20/lb, the after-tax net present value (NPV) at an 8% real discount rate is \$941 million, with an after-tax real internal rate of return (IRR) of 40.9% and project payback period of 2.3 years.
- The sensitivity analysis at current zinc prices of approximately \$1.84/lb (March 7, 2022), results in an after-tax NPV8% of \$3.0 billion with an after-tax real IRR of 86%.

The Kipushi 2022 feasibility study was independently prepared on a 100%-project basis by OreWin Pty. Ltd., MSA Group (Pty.) Ltd., SRK Consulting (Pty) Ltd. and METC Engineering.

**Chart: Spot price of zinc (US\$/lb) over the past 12 months.**



### ***Project development and infrastructure***

Although development and rehabilitation activities in 2021, as well as in 2020, were limited, significant progress has been made in recent years to modernize the Kipushi Mine's underground infrastructure as part of preparations for the mine to resume commercial production, including upgrading a series of vertical mine shafts to various depths, with associated headframes, as well as underground mine excavations and infrastructure. A series of crosscuts and ventilation infrastructure still is in working condition and has been cleared of old materials and equipment to facilitate modern, mechanized mining. The underground infrastructure also includes a series of high-capacity pumps to manage the mine's water levels, which now are easily maintained at the bottom of the mine.

Shaft 5 is eight metres in diameter and 1,240 metres deep and has been upgraded and re-commissioned. The main personnel and material winder has been upgraded and modernized to meet international industry standards and safety criteria. The Shaft 5 rock-hoisting winder also is fully operational, with new rock skips, new head- and tail-ropes, and attachments installed. The two newly manufactured rock conveyances (skips) and the supporting frames (bridles) have been installed in the shaft to facilitate the hoisting of rock from the main ore and waste storage silos feeding rock on the 1,200-metre level.

Since temporarily suspending mine development operations, priority engineering tasks still continued, including new winder installations as a second means of egress on the cascade side, and repairs, as well as replacement of main critical pump columns in Shaft 5 to ensure reliable and continued pumping of water from the mine.

**Photo: Patrick Mwanza Wa Kabongo operating the modern, new hoist at Kipushi's main production shaft (Shaft 5).**

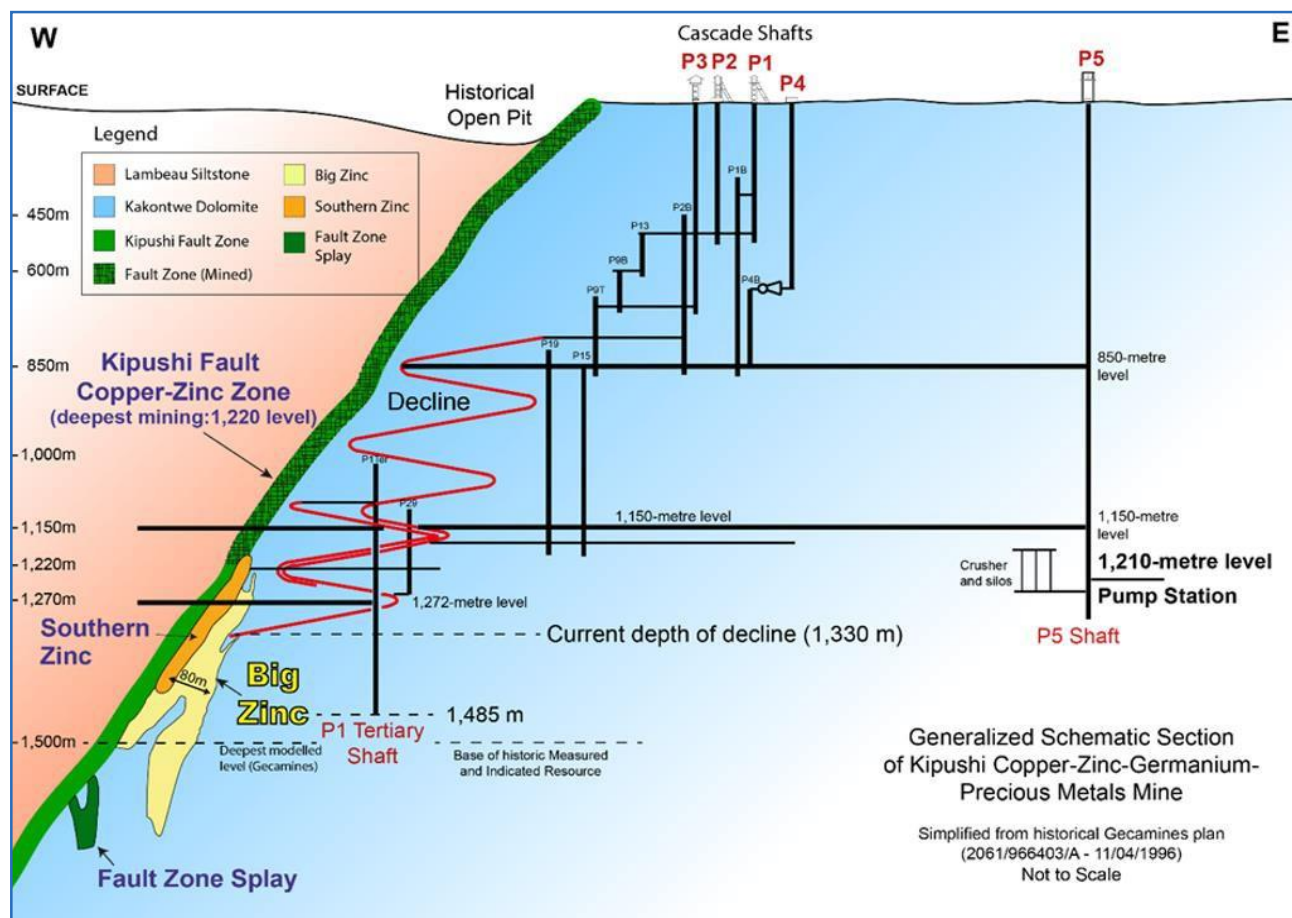


***Recently upgraded underground mine with easy access to stopes allows for rapid production ramp-up***

Mining at Kipushi historically has been carried out from the surface to a depth of approximately 1,220 metres. Shaft 5 (P5) is planned to be the main production shaft with a maximum hoisting capacity of 1.8 Mtpa and provides the primary access to the lower levels of the mine, including the Big Zinc Zone, through the 1,150-metre haulage level.

Mining will be performed using highly productive, mechanized methods and cemented rock fill will be utilized to fill open stopes. Material generated underground will be trucked to the base of the P5 shaft, crushed and hoisted to surface. Personnel and equipment access also are via the P5 shaft. The Big Zinc Zone will be accessed via the existing decline, without significant new development required. As the existing decline already is below the first planned stoping level, it is relatively quick to develop the first zinc stopes for the ramp up of mine production.

**Figure 4: Schematic section of Kipushi Mine. Shaft 5 (P5) is planned to be the main production shaft with a maximum hoisting capacity of 1.8 Mtpa.**



## WESTERN FORELAND EXPLORATION PROJECT

Ivanhoe's DRC exploration group is targeting Kamo-a-Kakula-style copper mineralization through a regional exploration and drilling program on its Western Foreland exploration licences, located to the north, south and west of the Kamo-a-Kakula Mining Complex. Ivanhoe's Western Foreland Exploration Project consists of 17 licences that cover a combined area of approximately 2,550 square kilometres.

Exploration models that successfully led to the discoveries of Kakula, Kakula West, and the Kamo-a North Bonanza Zone on the Kamo-a-Kakula joint-venture mining licence are being applied to the extensive Western Foreland land package by the same team of exploration geologists responsible for the previous discoveries.

Exploration drilling in Q4 2021 was focused on wide-scale regional dip sections along the axis of the Western Foreland permits at approximately 10km intervals. The drilling was designed to provide detailed stratigraphic and structural information ahead of processing and interpreting the geophysical surveys. The drill holes currently are being surveyed with downhole geophysical tools to provide density, conductivity and velocity information.

Surface soil and stream-sediment sampling focused on the southwest permits. 18 stream samples and 462 soil samples were collected during Q4 2021. The mapping of the southwest permits continued, with interpretation ongoing.



Construction of the access spine road across the western permits now has reached a total length of 69 kilometres. Container-based bridges were installed along the entire length of the road to provide all season access to the full extent of the southwest foreland. Some additional wet season access roads were completed to allow additional drilling during the wet season.

Geophysical airborne surveys such as magnetics, gravity and electromagnetics recommenced in Q4 2021. This new geophysical data will enhance the target delineation program for drill testing and soil sampling, as well as provide a better understanding of the structural domains of the area. Magnetics and gravity were completed by the end of the year with the electromagnetic survey and additional gravity survey 46% completed by the end of the year. Ground gravity survey work commenced during Q4 2021 and will be used in conjunction with the airborne gravity to provide increased definition where required.

Ivanhoe's 2022 Western Foreland exploration expenditure is provisionally planned at \$25 million. The main component of this expenditure is exploration drilling, with more than 50,000 metres of shallow (depth of less than 150 metres), air core, reverse circulation and diamond drilling focussed on defining sub-outcrop positions and obtaining bed-rock samples under the Kalahari sand cover. In addition, up to 45,000 metres of deeper regional drilling covering the entire 2,550-square-kilometre land package also is provisionally planned, some of which is dependent upon exploration success.

**Photo: South Africa-based New Resolution Geophysics conducting an airborne electro-magnetic survey over Ivanhoe's Western Foreland exploration licences in February 2022. The electro-magnetic survey is the last of three geophysical surveys to be completed over the Western Foreland licences, providing geologists with ultra-high resolution data for the 2022 drilling campaign.**



## SELECTED ANNUAL FINANCIAL INFORMATION

This selected financial information is in accordance with IFRS as presented in the annual consolidated financial statements. Ivanhoe had no operating revenue in any financial reporting period. All operating revenue from commercial production at the Kamoa-Kakula Mining Complex is recognized within the Kamoa Holding joint venture. Ivanhoe did not declare or pay any dividend or distribution in any financial reporting period.

	For the year ended December 31,		
	2021	2020	2019
	\$'000	\$'000	\$'000
Share of profit (loss) from joint venture	105,742	(26,799)	(24,821)
Deferred tax (recovery) expense	75,041	(249)	(292)
Loss on fair valuation of embedded derivative liability	(93,700)	–	–
Exploration and project evaluation expenditure	(52,171)	(44,724)	(11,619)
General administrative expenditure	(38,473)	(33,321)	(16,464)
Share-based payments	(20,002)	(16,931)	(10,322)
(Loss) gain on fair valuation of financial asset	(266)	270	(784)
Finance income	102,290	80,755	72,395
Finance costs	(32,891)	(1,703)	(299)
Profit (loss) attributable to:			
Owners of the Company	55,242	(19,877)	(19,223)
Non-controlling interests	(9,930)	(18,715)	7,827
Total comprehensive profit (loss) attributable to:			
Owners of the Company	29,790	(26,076)	27,211
Non-controlling interest	(12,648)	(19,410)	(7,022)
Basic profit (loss) per share	0.05	(0.02)	0.02
Diluted profit (loss) per share	0.05	(0.02)	0.02
Total assets	3,218,206	2,417,091	2,444,722
Non-current liabilities	809,253	57,581	49,716

## DISCUSSION OF RESULTS OF OPERATIONS

### *Review of the year ended December 31, 2021 vs. December 31, 2020*

The Company recorded total comprehensive income of \$17.1 million for the year ended December 31, 2021, compared to a total comprehensive loss of \$45.5 million for the year ended December 31, 2020. The main contributor to the profit for 2021 was the company's share of the profit from the Kamoa Holding joint venture.

The Kamoa-Kakula Mining Complex reached commercial production on July 1, 2021 and sold 94,655 tonnes of payable copper in 2021 realizing revenue of \$831.1 million for the Kamoa Holding joint venture. The Company recognized income in aggregate of \$199.6 million from the joint venture in 2021, which can be summarized as follows:

	Year ended December 31,	
	2021	2020
	\$'000	\$'000
Company's share of profit (loss) from joint venture	105,742	(26,799)
Interest on loan to joint venture	93,892	70,357
<b>Company's income recognized from joint venture</b>	<b>199,634</b>	<b>43,558</b>

The Company's share of profit from the Kamoa Holding joint venture was \$105.7 million for the year ended December 31, 2021, compared to a loss of \$26.8 million for the same period in 2020, the breakdown of which is summarized in the following table:

	Year ended December 31,	
	2021	2020
	\$'000	\$'000
Revenue from contract receivables	813,902	—
Remeasurement of contract receivables	17,218	—
<b>Revenue</b>	<b>831,120</b>	<b>—</b>
Cost of sales	(229,516)	—
<b>Gross profit</b>	<b>601,604</b>	<b>—</b>
General and administrative costs	(46,626)	—
Exploration expenses	—	(3,450)
<b>Profit (loss) from operations</b>	<b>554,978</b>	<b>(3,450)</b>
Finance costs	(150,637)	(79,838)
Finance income and other	3,044	5,091
<b>Profit (loss) before taxes</b>	<b>407,385</b>	<b>(78,197)</b>
Current tax expense	(8,289)	(6)
Deferred tax (expense) recovery	(126,026)	16,407
<b>Profit (loss) after taxes</b>	<b>273,070</b>	<b>(61,796)</b>
Non-controlling interest of Kamoa Holding	(59,449)	7,657
Profit (loss) for the period attributable to joint venture partners	213,621	(54,139)
<b>Company's share of profit (loss) from joint venture (49.5%)</b>	<b>105,742</b>	<b>(26,799)</b>

Of the \$150.6 million finance costs recognized in the Kamoa Holding joint venture for 2021, \$133.8 million (2020: \$79.8 million) relates to shareholder loans where each shareholder is required to fund Kamoa Holding in an amount equivalent to its proportionate shareholding interest. Of the remaining finance costs, \$13.5 million relates to the \$300 million advance payment facility and provisional payment facility available under Kamoa-Kakula's offtake agreements, while \$3.3 million relates to the equipment financing facilities.

Exploration and project evaluation expenditure amounted to \$52.2 million for the year ended December 31, 2021 and was \$7.5 million more than for the same period in 2020 (\$44.7 million). Exploration and project evaluation expenditure related to exploration at Ivanhoe's Western Foreland exploration licences and amounts spent at the Kipushi Project which was on reduced activities and incurred limited cost of a capital nature during 2021 and 2020.



The main classes of expenditure at the Kipushi Project for the year ended December 31, 2021, and for the same period in 2020 are set out in the following table:

	<b>Year ended December 31,</b>	
	<b>2021</b>	<b>2020</b>
	<b>\$'000</b>	<b>\$'000</b>
<b>Kipushi Project</b>		
Salaries and benefits	10,767	15,900
Other expenditure	10,113	9,199
Depreciation	7,325	6,815
Electricity	3,561	3,091
Studies and contracting work	885	1,233
Other additions to property, plant and equipment	1,262	2,665
Total project expenditure	33,913	38,903
<i>Exclude:</i>		
Other additions to property, plant and equipment	(1,262)	(2,665)
Exploration and project evaluation expenditure in the profit (loss) from operating activities	32,651	36,238

Finance income amounted to \$102.3 million for the year ended December 31, 2021, and \$80.8 million for the same period in 2020. Included in finance income is the interest earned on loans to the Kamoia Holding joint venture to fund operations that amounted to \$93.9 million for 2021, and \$70.4 million for 2020. Interest increased as the accumulated loan balance increased.

As explained in the accounting for the convertible notes section on page 36, the Company recognized a loss on fair valuation of the embedded derivative financial liability of \$93.7 million for 2021.

With the completion of the stream financing facilities in December 2021, which will fund a large portion of the Platreef Project's Phase 1 capital costs, and supported by the excellent results of the Platreef 2022 FS, it is now deemed probable that future taxable profit will be available from the Platreef Project, against which the unused tax losses and unused tax credits can be utilized. As a result, the Company recognized the previously unrecognized deferred tax asset in December 2021, resulting in a deferred tax recovery (income) of \$75.0 million.

The total comprehensive income for 2021, included an exchange loss on translation of foreign operations of \$28.2 million, resulting from the weakening of the South African Rand by 9% from December 31, 2020, to December 31, 2021, compared to an exchange loss on translation of foreign operations recognized for the same period in 2020 of \$6.9 million.

#### *Financial position as at December 31, 2021 vs. December 31, 2020*

The Company's total assets increased by \$801.1 million, from \$2,417.1 million as at December 31, 2020, to \$3,218.2 million as at December 31, 2021. The main reason for the increase in total assets was the receipt of the net proceeds from the convertible senior notes that closed on March 17, 2021. The net proceeds from the convertible notes, after deducting the expenses of the offering that related to the host liability of \$10.5 million, was \$564.5 million.

Cash and cash equivalents increased by \$345.4 million, from \$262.8 million as at December 31, 2020, to \$608.2 million as at December 31, 2021 due to the receipt of the convertible note proceeds, as well as the first draw down of the stream facilities in aggregate of \$75 million. The Company utilized \$7.1 million of its cash resources in its operations and advanced loans of \$152.7 million to the Kamoia Holding joint venture during the twelve months ended December 31, 2021.

The Company's total liabilities increased by \$760.6 million to \$841.2 million as at December 31, 2021, from \$80.6 million as at December 31, 2020, with the increase mainly due to the private placement

offering of \$575.0 million of 2.50% convertible senior notes described on page 36, as well as the deferred revenue recognized on the stream facility of \$69.6 million after transaction costs. The deferred revenue represents the prepayment for the future sale of refined gold and palladium and platinum to be delivered by the Platreef Project in the future and will be amortized as ounces are delivered to the Stream Purchasers.

The net increase in property, plant and equipment amounted to \$17.6 million, with additions of \$52.7 million to project development and other property, plant and equipment. Of this total, \$49.2 million pertained to development costs and other acquisitions of property, plant and equipment at the Platreef Project.

The main components of the additions to property, plant and equipment – including capitalized development costs – at the Platreef Project for the year ended December 31, 2021, and for the same period in 2020, are set out in the following table:

	<b>Year ended December 31,</b>	
	<b>2021</b>	<b>2020</b>
	<b>\$'000</b>	<b>\$'000</b>
<b>Platreef Project</b>		
Salaries and benefits	11,349	6,096
Shaft 1 changeover and construction	10,750	19,415
Studies and contracting work	10,244	1,381
Administrative and other expenditure	5,943	3,511
Shaft 2 construction works	5,364	34
Site costs	3,379	977
Social and environmental	1,607	723
Infrastructure	–	13
Total development costs	48,636	32,150
Other additions to property, plant and equipment	543	5,511
Total additions to property, plant and equipment for Platreef	49,179	37,661

Costs incurred at the Platreef Project are deemed necessary to bring the project to commercial production and are therefore capitalized as property, plant and equipment.

The Company's investment in the Kamoa Holding joint venture increased by \$352.3 million from \$1,289.5 million as at December 31, 2020, to \$1,641.8 million as at December 31, 2021. The Company's portion of the Kamoa Holding joint venture cash calls amounted to \$152.7 million for the year ended December 31, 2021, while the Company's share of profit from the joint venture amounted to \$105.7 million.

The Company's investment in the Kamoa Holding joint venture can be broken down as follows:

	<b>December 31, 2021</b>	<b>December 31, 2020</b>
	<b>\$'000</b>	<b>\$'000</b>
Company's share of net assets of the joint venture	256,260	150,520
Loan advanced to joint venture	1,385,535	1,138,992
Total investment in joint venture	1,641,795	1,289,512

Prior to commencing commercial production in July 2021, the Kamoa Holding joint venture principally used loans advanced to it by its shareholders to advance the Kamoa-Kakula Project through investing in development costs and other property, plant and equipment. This can be evidenced by the movement in the Company's share of net assets in the Kamoa Holding joint venture which can be broken down as follows:

	December 31, 2021		December 31, 2020	
	100%	49.5%	100%	49.5%
	\$'000	\$'000	\$'000	\$'000
<b>Assets</b>				
Property, plant and equipment	2,000,818	990,405	1,316,708	651,770
Mineral property	802,021	397,000	802,021	397,000
Trade receivables	198,513	98,264	–	–
Long term loan receivable	197,122	97,575	155,815	77,128
Non-current inventory	190,154	94,126	109,516	54,210
Prepaid expenses	127,328	63,027	114,784	56,818
Indirect taxes receivable	152,099	75,289	91,862	45,472
Consumable stores	94,459	46,757	32,883	16,277
Cash and cash equivalents	22,031	10,905	138,805	68,708
Right-of-use asset	21,161	10,475	24,689	12,221
Current inventory	20,978	10,384	–	–
Deferred tax asset	17,904	8,862	143,891	71,226
Non-current deposits	1 689	836	1,689	836
<b>Liabilities</b>				
Shareholder loans	(2,798,282)	(1,385,149)	(2,300,271)	(1,138,634)
Trade and other payables	(219,475)	(108,640)	(131,167)	(64,927)
Equipment finance facility	(72,296)	(35,787)	(57,556)	(28,490)
Rehabilitation provision	(35,742)	(17,692)	(19,916)	(9,858)
Lease liability	(23,287)	(11,527)	(26,318)	(13,027)
Other provisions	(15,681)	(7,762)	(2,365)	(1,171)
Income taxes payable	(8,265)	(4,091)	–	–
Advance payment facility	(5,117)	(2,533)	–	–
Non-controlling interest	(150,436)	(74,465)	(90,987)	(45,039)
<b>Net assets of the joint venture</b>	<b>517,696</b>	<b>256,260</b>	<b>304,083</b>	<b>150,520</b>

Going forward, all Phase 1 operating costs and the majority of Phase 2 and Phase 3 capital expenditures are expected to be funded from copper sales and facilities in place at Kamoa-Kakula. Cash generated in excess of operational and expansion requirements is expected to be utilized to commence shareholder loan repayments. Based on current market conditions, it is anticipated that shareholder loan repayments from Kamoa-Kakula will commence in 2022.

The Kamoa Holding joint venture completed the draw-down of EUR 45 million (approximately \$56 million) of the equipment financing and \$9 million of the down-payment facilities in late December 2020. Additional drawdowns on the equipment financing of EUR 22.7 million were made in 2021 bringing the total amount drawn to EUR 67.2 million (approximately \$76.1 million) at December 31, 2021. The equipment finance is secured only by the equipment that is being financed and has an effective interest rate of 8.96%. The down-payment facility is unsecured and has an effective interest rate of 11.58%.



The Kamoa Holding joint venture's net increase in property, plant and equipment from December 31, 2020, to December 31, 2021, amounted to \$684.1 million and can be further broken down as follows:

	<b>Year ended December 31,</b>	
	<b>2021</b>	<b>2020</b>
	<b>\$'000</b>	<b>\$'000</b>
<b>Kamoa Holding joint venture</b>		
Initial capital	344,176	542,472
Expansion capital	329,804	–
Sustaining capital	15,792	–
Total development costs	689,772	542,472
Borrowing costs capitalised	55,812	62,350
Total additions to property, plant and equipment for Kamoa Holding	745,584	604,822
Less depreciation, disposals and foreign exchange translation	(61,474)	(15,105)
<b>Net increase in property, plant and equipment of Kamoa Holding</b>	<b>684,110</b>	<b>589,717</b>

#### *Accounting for the convertible notes closed in March 2021*

The Company closed a private placement offering of \$575.0 million of 2.50% convertible senior notes maturing in 2026 on March 17, 2021. Upon conversion, the convertible notes may be settled, at the Company's election, in cash, common shares or a combination thereof. Due to this election right and conversion feature, the convertible notes have an embedded derivative liability that is measured at fair value with changes in value being recorded in profit or loss, as well as the host loan that is accounted for at amortized cost.

The convertible senior notes are senior unsecured obligations of the Company which will accrue interest payable semi-annually in arrears at a rate of 2.50% per annum and will mature on April 15, 2026, unless earlier repurchased, redeemed or converted. The initial conversion rate of the notes is 134.5682 Class A common shares of the Company per \$1,000 principal amount of notes, or an initial conversion price of approximately \$7.43 (equivalent to approximately C\$9.31) per common share.

Holders of the notes may convert the notes, at their option, in integral multiples of \$1,000 principal amount, or in excess thereof, at any time until the close of business on the business day immediately preceding October 15, 2025, but only under the following circumstances:

- during any calendar quarter commencing after the calendar quarter ending on June 30, 2021 (and only during such calendar quarter), if the last reported sale price of the Company's Class A common shares for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on, and including, the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day; or

- during the five consecutive business day period after any ten consecutive trading day period (the “measurement period”) in which the trading price per \$1,000 principal amount of notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price of the Company’s Class A common shares and the conversion rate on each such trading day; or
- if the Company calls any or all of the notes for redemption in certain circumstances or upon the occurrence of certain corporate events.

On or after October 15, 2025, until the close of business on the second scheduled trading day immediately preceding the maturity date, holders may convert all or any portion of their notes, in multiples of \$1,000 principal amount, at the option of the holder regardless of the foregoing conditions.

The convertible notes will not be redeemable at the Company’s option prior to April 22, 2024, except upon the occurrence of certain tax law changes. On or after April 22, 2024 and on or prior to the 41st scheduled trading day immediately preceding the maturity date, the notes will be redeemable at the Company’s option if the last reported sale price of the Company’s common shares has been at least 130% of the conversion price then in effect for at least 20 trading days (whether or not consecutive) during any 30 consecutive trading day period (including the last trading day of such period) ending on, and including, the trading day immediately preceding the date on which the Company provides notice of redemption at a redemption price equal to 100% of the principal amount of the convertible notes to be redeemed, plus accrued and unpaid interest to, but excluding, the redemption date.

Due to the fact that upon conversion, the notes may be settled, at the Company’s election, in cash, common shares or a combination thereof, the conversion feature is an embedded derivative liability. The effect of this is that the host liability will be accounted for at amortized cost, with an embedded derivative liability being measured at fair value with changes in value being recorded in profit or loss.

The effective interest rate of the host liability was deemed to be 9.39% and the interest recognized on the convertible notes amounted to \$10.2 million in Q4 2021 and \$31.7 million for the year ended December 31, 2021. The carrying value of the host liability was \$437.4 million as at December 31, 2021.

The derivative liability had a fair value of \$150.5 million on closure of the convertible notes offering and increased to \$244.2 million as at December 31, 2021, resulting in a loss on fair valuation of embedded derivative liability of \$93.7 million for 2021 and a loss on fair valuation of embedded derivative liability of \$88.5 million for Q4 2021. The change in the fair value of the embedded derivative liability is largely due to the changes in the closing share price of the Company’s common shares at the different reporting dates.

The following key inputs and assumptions were used in determining the fair value of the embedded derivative liability:

	<b>March 17, 2021</b>	<b>March 31, 2021</b>	<b>June 30, 2021</b>	<b>September 30, 2021</b>	<b>December 31, 2021</b>
<b>Share price</b>	C\$7.00	C\$6.47	C\$8.95	C\$8.10	C\$10.32
<b>Credit spread</b>	630 basis points	610 basis points	487 basis points	435 basis points	356 basis points
<b>Volatility</b>	42%	42%	40%	40%	40%
<b>Borrowing cost</b>	50 basis points	50 basis points	50 basis points	50 basis points	25 basis points
<b>Fair value of derivative liability</b>	\$150.5 million	\$124.9 million	\$210.6 million	\$155.7 million	\$244.2 million

Transaction costs on the convertible notes offering relating to the embedded derivative liability amounted to \$3.7 million and was expensed and included in the profit and loss for 2021.

## SELECTED QUARTERLY FINANCIAL INFORMATION

The following table summarizes selected financial information for the prior eight quarters. Ivanhoe had no operating revenue in any financial reporting period. All revenue from commercial production at the Kamoā-Kakula Mining Complex is recognized within the Kamoā Holding joint venture. Ivanhoe did not declare or pay any dividend or distribution in any financial reporting period.

	Three months ended			
	December 31,	September 30,	June 30,	March 31,
	2021	2021	2021	2021
	\$'000	\$'000	\$'000	\$'000
Share of profit (loss) from joint venture	78,391	41,404	(9,960)	(4,093)
Deferred tax recovery (expense)	74,069	(50)	978	44
Finance income	27,978	26,437	25,095	22,780
(Loss) gain on fair valuation of financial liability	(88,500)	54,900	(85,700)	25,600
Exploration and project evaluation expenditure	(15,800)	(15,677)	(11,972)	(8,722)
General administrative expenditure	(10,658)	(6,731)	(13,165)	(7,919)
Finance costs	(10,539)	(10,451)	(10,110)	(1,791)
Share-based payments	(7,490)	(5,117)	(4,068)	(3,327)
Profit (loss) attributable to:				
Owners of the Company	45,833	89,806	(104,452)	24,055
Non-controlling interests	2,333	(4,456)	(4,161)	(3,646)
Total comprehensive income (loss) attributable to:				
Owners of the Company	29,774	72,470	(92,793)	20,339
Non-controlling interest	632	(6,277)	(2,901)	(4,102)
Basic profit (loss) per share	0.04	0.07	(0.09)	0.02
Diluted profit (loss) per share	0.04	0.07	(0.09)	0.02

	Three months ended			
	December 31,	September 30,	June 30,	March 31,
	2020	2020	2020	2020
		\$'000	\$'000	\$'000
Finance income	21,032	20,241	18,672	20,810
Exploration and project evaluation expenditure	(13,754)	(9,972)	(9,018)	(11,980)
Share of loss from joint venture	(6,151)	(7,323)	(6,597)	(6,728)
General administrative expenditure	(6,973)	(4,868)	(7,464)	(14,016)
Share-based payments	(4,824)	(4,250)	(4,180)	(3,677)
Finance costs	(1,464)	(69)	(70)	(100)
Deferred tax (expense) recovery	(356)	(201)	(98)	406
Profit (loss) attributable to:				
Owners of the Company	(5,463)	(901)	(4,341)	(9,172)
Non-controlling interests	(5,447)	(4,423)	(3,928)	(4,917)
Total comprehensive income (loss) attributable to:				
Owners of the Company	33,170	3,032	3,458	(65,736)
Non-controlling interest	(1,349)	(4,049)	(3,123)	(10,889)
Basic profit (loss) per share	0.00	(0.00)	(0.00)	(0.01)
Diluted profit (loss) per share	0.00	(0.00)	(0.00)	(0.01)



*Review of the three months ended December 31, 2021 vs. December 31, 2020*

The Company recorded a profit for Q4 2021 of \$48.2 million compared to a loss of \$10.9 million for the same period in 2020, with the company's share of the profit from the Kamoa Holding joint venture being a key contributor to the Q4 2021 profit. The total comprehensive income for Q4 2021 was \$30.4 million compared to \$31.8 million for Q4 2020.

The Kamoa-Kakula Mining Complex sold 53,165 tonnes of payable copper in Q4 2021 realizing revenue of \$488.5 million for the Kamoa Holding joint venture. The Company recognized income in aggregate of \$103.9 million from the joint venture in Q4 2021, which can be summarized as follows:

	Three months ended December 31,	
	2021	2020
	\$'000	\$'000
Company's share of profit (loss) from joint venture	78,391	(6,151)
Interest on loan to joint venture	25,520	19,712
<b>Company's income recognized from joint venture</b>	<b>103,911</b>	<b>13,561</b>

The Company's share of profit from the Kamoa Holding joint venture was \$78.4 million in Q4 2021 compared to a loss of \$6.2 million in Q4 2020. The following table summarizes the Company's share of profit (loss) of the joint venture for the three months ended December 31, 2021, and for the same period in 2020:

	Three months ended December 31,	
	2021	2020
	\$'000	\$'000
Revenue from contract receivables	458,880	—
Remeasurement of contract receivables	29,656	—
<b>Revenue</b>	<b>488,536</b>	<b>—</b>
Cost of sales	(130,853)	—
<b>Gross profit</b>	<b>357,683</b>	<b>—</b>
General and administrative costs	(9,926)	—
Exploration expenses	—	3,729
<b>Profit (loss) from operations</b>	<b>347,757</b>	<b>3,729</b>
Finance costs	(55,610)	(21,278)
Finance income and other	(43)	1,247
<b>Profit (loss) before taxes</b>	<b>292,104</b>	<b>(16,302)</b>
Current tax expense	(4,717)	(2)
Deferred tax (expense) recovery	(88,530)	2,644
<b>Profit (loss) after taxes</b>	<b>198,857</b>	<b>(13,660)</b>
Non-controlling interest of Kamoa Holding	(40,490)	1,234
Profit (loss) for the period attributable to joint venture partners	158,367	(12,426)
<b>Company's share of profit (loss) from joint venture (49.5%)</b>	<b>78,391</b>	<b>(6,151)</b>

Of the \$55.6 million finance costs recognized in the Kamoa Holding joint venture for Q4 2021, \$45.7 million (Q4 2020: \$21.3 million) relates to shareholder loans where each shareholder funded Kamoa

Holding in an amount equivalent to its proportionate shareholding interest. Of the remaining finance costs, \$8.0 million relates to the \$300 million advance payment facility and the provisional payment facility available under Kamoa's offtake agreements and \$1.8 million relates to the equipment financing facilities.

As explained in the accounting for the convertible notes section on page 36, the Company recognized a loss on fair valuation of the embedded derivative financial liability of \$88.5 million for Q4 2021. Finance cost increased from \$1.5 million for Q4 2020 to \$10.5 million for the same period in 2021, \$10.2 million of which related to the interest on the convertible notes at the effective interest rate.

With the completion of the stream financing facilities in December 2021, which will fund a large portion of the Platreef Project's Phase 1 capital costs, and supported by the excellent results of the Platreef 2022 FS, it is now deemed probable that future taxable profit will be available from the Platreef Project, against which the unused tax losses and unused tax credits can be utilised. As a result, the Company recognized the previously unrecognized deferred tax asset in Q4 2021, resulting in a deferred tax recovery (income) of \$75.0 million in the period.

Finance income for Q4 2021 amounted to \$28.0 million and was \$7.0 million more than for the same period in 2020 (\$21.0 million). Included in finance income is the interest earned on loans to the Kamoa Holding joint venture to fund operations that amounted to \$25.5 million for Q4 2021, and \$19.7 million for the same period in 2020, and increased as the accumulated loan balance increased.

Exploration and project evaluation expenditure amounted to \$15.8 million in Q4 2021 and \$13.8 million for the same period in 2020. Exploration and project evaluation expenditure related to exploration at Ivanhoe's Western Foreland exploration licences and amounts spent at the Kipushi Project which was on reduced activities and incurred limited cost of a capital nature during these periods. The main classes of expenditure at the Kipushi Project in Q4 2021 and Q4 2020 are set out in the following table:

	<b>Three months ended</b>	
	<b>December 31,</b>	
	<b>2021</b>	<b>2020</b>
	<b>\$'000</b>	<b>\$'000</b>
<b>Kipushi Project</b>		
Other expenditure	3,200	3,375
Salaries and benefits	3,565	5,576
Depreciation	1,802	1,883
Electricity	918	143
Studies and contracting work	481	–
Other additions to property, plant and equipment	923	1,384
Total project expenditure	10,889	12,361
<i>Exclude:</i>		
Other additions to property, plant and equipment	(923)	(1,384)
Exploration and project evaluation expenditure in the profit (loss) from operating activities	9,966	10,977

## **LIQUIDITY AND CAPITAL RESOURCES**

The Company had \$608.2 million in cash and cash equivalents as at December 31, 2021. At this date, the Company had consolidated working capital of approximately \$654.8 million, compared to \$308.0 million as at December 31, 2020.

The Platreef Project entered into a gold, palladium and platinum stream financing in December 2021 that will fund a large portion of the Phase 1 capital costs. The stream facilities are a prepaid forward sale of refined metals, with prepayments totalling \$300 million, available in two tranches with the first

prepayment of \$75 million received in December 2021 following the closing of the transaction and \$225 million to be paid upon satisfaction of certain conditions precedent.

The Company's main objectives for 2022 at the Platreef Project are the continued development of the project towards the completion of its first phase currently scheduled for Q3 2024, as well as the continuation of the construction of the Shaft 2 headframe to allow optionality for possibly bringing Phase 2 forward. At Kipushi, with the finalization of the feasibility study and the development plan agreed, Ivanhoe expects to proceed with the ordering of long-lead equipment and other construction activities once the revised joint venture agreement is signed and financing arrangements are in place. With first production achieved at the Kamoa-Kakula Mining Complex and construction of the Phase 2 concentrator expansion expected to be complete in April 2022, the focus at Kamoa-Kakula will be operational efficiency and de-bottlenecking the Phase 1 and 2 operations, as well as progressing the Phase 3 expansion.

The Company has forecast to spend \$168 million on further development at the Platreef Project; \$80 million on development at the Kipushi Project; and \$35 million on corporate overheads for 2022. Exploration activities at the Western Foreland exploration project in the DRC and other targets will continue in 2022 with an initial budget of \$32 million.

At the Kamoa Holding joint venture, all operating costs and the majority of Phase 2 and Phase 3 capital expenditures are expected to be funded from copper sales and facilities in place at Kamoa.

The planned capital expenditure for 2022 can be broken down as follows:

<b>Capital expenditure</b>	<b>2022</b>
	<b>\$'000</b>
<b>Platreef Project</b>	
Initial capital (Phase 1)	142,953
Expansion capital (Phase 2)	25,209
	<b>168,162</b>
<b>Kipushi Project</b>	
Initial capital	79,621
	<b>79,621</b>
<b>Kamoa-Kakula Mining Complex <sup>(1)</sup></b>	
Phase 2 and other expansion capital	469,216
Phase 3 and smelter early works <sup>(2)</sup>	222,213
Sustaining capital	83,406
	<b>774,834</b>

Notes: <sup>(1)</sup> Amounts in the above table for the Kamoa-Kakula Mining Complex are on a 100%-project basis. <sup>(2)</sup> The amount for phase 3 and smelter early works are initial budgets only and will be augmented on completion of the updated pre-feasibility study expected in Q3 2022.

On March 17, 2021, the Company closed a private placement offering of \$575 million of 2.50% convertible senior notes maturing in 2026. The convertible senior notes are senior unsecured obligations of the Company which will accrue interest payable semi-annually in arrears at a rate of 2.50% per annum and will mature on April 15, 2026, unless earlier repurchased, redeemed or converted. The notes will be convertible at the option of holders, prior to the close of business on the business day immediately preceding October 15, 2025, only under certain circumstances and during certain periods, and thereafter, at any time until the close of business on the second scheduled trading day immediately preceding the maturity date. Upon conversion, the notes may be settled, at the Company's election, in cash, common shares or a combination thereof. The carrying value of the host liability was \$437.4 million and the fair value of the embedded derivative liability was \$244.2 million as at December 31, 2021.

The Company has a mortgage bond outstanding on its offices in London, United Kingdom, of £3.2 million (\$4.4 million). The bond is fully repayable on August 28, 2025, secured by the property and incurs interest at a rate of GBP 1 month LIBOR plus 1.9% payable monthly in arrears. Only interest will be payable until maturity.

In 2013, the Company became party to a loan payable to ITC Platinum Development Limited, which had a carrying value of \$34.0 million as at December 31, 2021, and a contractual amount due of \$35.1 million. The loan is repayable once the Platreef Project has residual cashflow, which is defined in the loan agreement as gross revenue generated by the Platreef Project, less all operating costs attributable thereto, including all mining development and operating costs. The loan attracts interest of USD 3 month LIBOR plus 2% calculated monthly in arrears. Interest is not compounded. The difference of \$1.1 million between the contractual amount due and the carrying value of the loan is the benefit derived from the low-interest loan.

The Company has an implied commitment in terms of spending on work programs submitted to regulatory bodies to maintain the good standing of exploration and exploitation permits at its mineral properties. The following table sets forth the Company's long-term obligations:

<b>Contractual obligations as at December 31, 2021</b>	<b>Payments Due By Period</b>				
	<b>Total</b>	<b>Less than 1 year</b>	<b>1-3 years</b>	<b>4-5 years</b>	<b>After 5 years</b>
	<b>\$'000</b>	<b>\$'000</b>	<b>\$'000</b>	<b>\$'000</b>	<b>\$'000</b>
Convertible notes	578,033	3,033	-	575,000	-
Debt	39,462	-	-	4,351	35,111
Lease commitments	1,121	175	946	-	-
<b>Total contractual obligations</b>	<b>618,616</b>	<b>3,208</b>	<b>946</b>	<b>579,351</b>	<b>35,111</b>

Debt in the above table represents the mortgage bond owing to Citibank and loan payable to ITC Platinum Development Limited, as described above.

The Company is required to fund its Kamoā Holding joint venture in an amount equivalent to its proportionate shareholding interest.

## **NON-GAAP FINANCIAL PERFORMANCE MEASURES**

### *Kamoā-Kakula's C1 cash costs and C1 cash costs per pound*

C1 cash costs and C1 cash costs per pound are non-GAAP financial measures. These are disclosed to enable investors to better understand the performance of the Kamoā-Kakula Mining Complex in comparison to other copper producers who present results on a similar basis.

C1 cash costs are prepared on a basis consistent with the industry standard definitions by Wood Mackenzie cost guidelines but are not measures recognized under IFRS. In calculating the C1 cash cost, the costs are measured on the same basis as the Company's share of profit from the Kamoā Holding joint venture that is contained in the financial statements. C1 cash costs are used by management to evaluate operating performance and include all direct mining, processing, and general and administrative costs. Smelter charges and freight deductions on sales to final port of destination, which are recognized as a component of sales revenues, are added to C1 cash cost to arrive at an approximate cost of finished metal. C1 cash costs and C1 cash costs per pound, exclude royalties and production taxes and non-routine charges as they are not direct production costs.

*Reconciliation of Kamoā-Kakula's cost of sales to C1 cash costs, including on a per pound basis:*



	Kamoa-Kakula Three months ended December 31, 2021 \$'000	Kamoa-Kakula Year ended December 31, 2021 \$'000
<b>Cost of sales</b>	<b>130,853</b>	<b>229,516</b>
Logistics, treatment and refining charges	48,054	85,969
General and administrative expenditure	9,926	44,191
Royalties and production taxes	(32,545)	(57,682)
Depreciation	(11,443)	(35,504)
Movement in finished goods inventory	3,685	3,971
General and administrative expenditure of other group entities	281	(130)
<b>C1 cash costs</b>	<b>148,811</b>	<b>270,331</b>
Cost of sales per pound of payable copper sold (\$ per lb)	1.12	1.10
C1 cash costs per pound of payable copper produced (\$ per lb)	1.28	1.32

All figures above are on a 100% basis.

#### EBITDA

EBITDA is a non-GAAP financial measure, which excludes income tax, finance costs, finance income and depreciation from net profit.

Ivanhoe believes that Kamoa-Kakula's EBITDA is a valuable indicator of the Kamoa-Kakula Mining Complex's ability to generate liquidity by producing operating cash flow to fund its working capital needs, service debt obligations, fund capital expenditures and distribute cash to its shareholders. EBITDA also is frequently used by investors and analysts for valuation purposes. EBITDA is intended to provide additional information to investors and analysts and does not have any standardized definition under IFRS and should not be considered in isolation or as a substitute for measures of performance prepared in accordance with IFRS. EBITDA excludes the impact of cash costs of financing activities and taxes, and the effects of changes in operating working capital balances, and therefore are not necessarily indicative of operating profit or cash flow from operations as determined under IFRS. Other companies may calculate EBITDA differently.

#### Reconciliation of profit and loss to EBITDA:

	Three months ended December 31,		Year ended December 31,	
	2021	2020	2021	2020
	\$'000	\$'000	\$'000	\$'000
Profit (loss) after taxes	198,857	(13,660)	273,070	(61,796)
Finance costs	55,610	21,278	150,637	79,838
Finance income	(1,538)	(1,151)	(5,129)	(5,141)
Current and deferred tax expense	93,247	(2,642)	134,315	(16,401)
Depreciation	11,443	-	35,518	-
<b>EBITDA</b>	<b>357,619</b>	<b>3,825</b>	<b>588,411</b>	<b>(3,500)</b>

All figures above are for the Kamoa Holding joint venture on a 100% basis.

## OFF-BALANCE SHEET ARRANGEMENTS

The Company had no off-balance sheet arrangements for the periods under review.

## TRANSACTIONS WITH RELATED PARTIES

The following tables summarize related party income earned and expenses incurred by the Company, primarily on a cost-recovery basis, with companies related by way of directors or significant shareholders in common. The tables summarize the transactions with related parties and the types of income earned and expenditures incurred with such parties. Amounts in brackets denote income.

	Year ended December 31,	
	2021	2020
	\$'000	\$'000
Kamoa Holding Limited (a)	93,892	70,357
High Power Exploration Inc. (b)	5,169	4,206
Kamoa Services (Pty) Ltd (c)	3,943	–
Kamoa Copper SA (d)	2,098	8,701
Ivanhoe Mines Energy DRC Sarl (e)	152	361
Ivanhoe Capital Aviation Ltd (f)	(4,483)	(3,652)
Global Mining Management Corporation (g)	(571)	(2,418)
Ivanhoe Capital Services Ltd. (h)	(479)	(418)
CITIC Metal Africa Investments Limited (i)	(308)	(226)
Ivanhoe Capital Pte Ltd (j)	(19)	(114)
GMM Tech Holdings Inc. (k)	–	(453)
Global Mining Services Ltd. (l)	–	(446)
HCF International Advisers Limited (m)	–	(333)
Ivanhoe Capital Corporation (UK) Limited (n)	–	(2)
	99,394	75,563
Finance income	99,047	74,357
Cost recovery and management fee	6,193	9,062
Travel	(4,517)	(3,644)
Salaries and benefits	(537)	(2,770)
Directors fees	(308)	(226)
Consulting	(272)	(778)
Office and administration	(212)	(287)
Maintenance of aircraft	–	(151)
	99,394	75,563

The above noted transactions were in the normal course of operations and were measured at the exchange amount, which is the amount of consideration established and agreed to by the related parties.

- (a) Kamoa Holding Limited (“Kamoa Holding”) is a company registered in Barbados. The Company has an effective 49.5% ownership in Kamoa Holding. The Company earns interest on the loans advanced to Kamoa Holding.
- (b) High Power Exploration Inc. (“HPX”) is a private company incorporated under the laws of Delaware, USA. The Company’s Executive Co-Chairman is the Chief Executive Officer and

Chairman of HPX and holds an indirect equity interest in HPX. The Company extended a secured loan of \$50 million to HPX in April 2019. Following the signing of an amendment to the loan facility agreement on June 16, 2021, the scheduled maturity date of the loan was extended to April 25, 2022. In addition, the loan facility agreement was amended such that the rate of interest for the period after April 25, 2021 is fixed at 11% per annum compounded monthly.

- (c) Kamoa Services (Pty) Ltd. (“Kamoa Services”) is a company registered in South Africa. On March 31, 2021 the Company sold its 100% interest in Kamoa Services to Kamoa Holding. The Company now has an effective 49.5% ownership in Kamoa Services. The Company provides administration, accounting and other services to Kamoa Services on a cost-recovery basis.
- (d) Kamoa Copper SA (“Kamoa Copper”) is a company incorporated in the DRC. Kamoa Copper is 80% owned by Kamoa Holding Limited, a joint venture of the Company. The Company provides administration, accounting and other services to Kamoa Copper on a cost-recovery basis.
- (e) Ivanhoe Mines Energy DRC Sarl (“Energy”) is a company incorporated in the DRC. Energy is 100% owned by Kamoa Holding Limited, a joint venture of the Company. The Company provides administration, accounting and other services to Energy on a cost-recovery basis.
- (f) Ivanhoe Capital Aviation Ltd. (“Aviation”) is a private company owned indirectly by the Executive Co-Chairman of the Company. Aviation operates an aircraft for which the Company contributes toward the running costs.
- (g) Global Mining Management Corporation (“Global”) is a private company based in Vancouver, Canada. The Company and the Executive Co-Chairman of the Company hold an indirect equity interest in Global. Global provides administration, accounting and other services to the Company on a cost-recovery basis.
- (h) Ivanhoe Capital Services Ltd. (“Services”) is a private company owned indirectly by the Executive Co-Chairman of the Company. Services provides salaries administration and other services to the Company in Singapore and Beijing on a cost-recovery basis.
- (i) Citic Metal Africa Investments Limited (“Citic Metal Africa”) is a private company incorporated in Hong Kong. Citic Metal Africa is a shareholder in the Company and nominates two directors who serve of the Company’s Board of Directors.
- (j) Ivanhoe Capital Pte Ltd. (“Capital”) is a private company owned indirectly by the Executive Co-Chairman of the Company. Capital provides administration, accounting and other services in Singapore on a cost-recovery basis.
- (k) GMM Tech Holdings Inc. (“GMM Tech”) is a private company incorporated in British Columbia, Canada and is 100% owned by Global. GMM Tech provides information technology services to the Company on a cost-recovery basis.
- (l) Global Mining Services Ltd. (“GMS”) is a private company incorporated in Delaware and is 100% owned by Global. GMS provides administration and other services to the Company on a cost-recovery basis.
- (m) HCF International Advisers (“HCF”) is a corporate finance adviser specializing in the provision of advisory services to clients worldwide in the metals, mining, steel and related industries. Guy de Selliers, a director of Ivanhoe is the President and co-founder of HCF, which provides financial advisory services to the Company.

- (n) Ivanhoe Capital Corporation (UK) Ltd. ("ICC") is a private company owned indirectly by the Executive Co-Chairman of the Company. ICC provides administration, accounting and other services in the United Kingdom on a cost-recovery basis.

As at December 31, 2021, trade and other payables included \$0.1 million (December 31, 2020: \$1.1 million) with regards to amounts due to parties related by way of director, officers or shareholder in common. These amounts are unsecured and non-interest bearing.

Amounts included in other receivables due from parties related by way of director, officers or shareholder in common as at December 31, 2021, 2021 amounted to \$6.1 million (December 31, 2020: \$4.0 million).

## **CRITICAL ACCOUNTING ESTIMATES**

The Company's significant accounting policies are presented in Note 2 to the consolidated financial statements for the year ended December 31, 2021. The preparation of the consolidated financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the end of the reporting period presented and reported amounts of expenses during said reporting period. Actual outcomes could differ from these estimates. The consolidated financial statements include estimates that, by their nature, are uncertain. Such estimates have a pervasive effect on the consolidated financial statements and may require accounting adjustments based on future occurrences. Revisions to accounting estimates are recognized in the year in which the estimate is revised and future years if the revision affects both current and future years. These estimates are based on historical experience, current and future economic conditions and other factors, including expectations of future events that are believed to be reasonable under the circumstances.

Significant assumptions about the future and other sources of estimation uncertainty at the end of the reporting period, which could result in a material adjustment to the carrying amounts of assets and liabilities in the event that actual results differ from assumptions made, include, but are not limited to, the following:

### *Recoverability of assets*

Property, plant and equipment, including capitalized development costs and finite lived intangible assets are assessed at each reporting period to determine whether there is any indication that those assets have suffered an impairment loss.

In assessing whether an impairment is required, the carrying value of the asset or cash generating unit ("CGU") is compared with its recoverable amount. The recoverable amount is the higher of the CGU's fair value less costs of disposal and value in use. If any such indication exists, the recoverable amount of the asset is estimated in order to determine the extent, if any, of the impairment loss.

The Company assesses whether an impairment is required on loans receivables. A range of cash flow scenarios are considered, taking into account forward looking information which may impact recoverability of loan receivables.

Given the nature of the Company's activities, information on the fair value of an asset is usually difficult to obtain unless negotiations with potential purchasers or similar transactions are taking place. Consequently, the fair value less costs of disposal for each CGU is estimated based on discounted future estimated cash flows that are expected to be generated from the continued use of the CGUs. They are estimated using market consensus based commodity price and exchange assumptions, estimated quantities of recoverable minerals, production levels, operating costs and capital requirements, including any expansion projects, and its eventual disposal, based on the CGU development plans and latest technical reports. These cash flows were discounted using a discount rate that reflected current market assessments of the time value of money and the risks specific to the CGU.



If the recoverable amount of an asset or CGU is estimated to be less than its carrying amount, the carrying amount of the asset or CGU is impaired to its recoverable amount. An impairment loss is recognized immediately in the statement of comprehensive income. The Company has concluded that there is no impairment required to any of its projects.

#### *Provisionally-priced revenue and remeasurement of contract receivables*

Sales in the Kamoā Holding Limited joint venture are provisionally priced at the average market price on the date that the products are delivered to the buyers at the Kamoā-Kakula mine concentrate warehouse or the demarcated holding area at the Lualaba Copper Smelter premises. Revenue from the contract receivables is recognized for all the sales during the period at the average market price for the month in which the sales occurred. Revenue from contract receivables are remeasured with reference to the forward market price at each reporting date and the remeasurement of contract receivables is recognized as revenue in the statement of comprehensive income of the Kamoā Holding Limited joint venture.

#### *Technical feasibility and commercial viability of projects*

All direct costs related to the acquisition of mineral property interests are capitalized by property or project. Exploration costs are charged to operations in the period incurred, until such time as the Company determines that a property is technically feasible and commercially viable, where after development costs are capitalized. In making this determination, the Company considers whether a proposed project is capable of being developed at a sufficient return to justify the capital and managerial resources that must be committed to the project. This determination is made on a property-by-property basis and generally coincides with the finalization of a preliminary economic assessment or pre-feasibility study of the property. Exploration costs include value-added taxes incurred in foreign jurisdictions when recoverability of those taxes is uncertain.

In determining whether an exploration and evaluation property is technically feasible and commercially viable, the Company considers several criteria, including:

- a technical analysis of the basic geology of the project;
- a mine plan for accessing and exploiting the ore body;
- a process flow sheet for processing the ore generated from mining;
- projections as to the capital cost of constructing the project;
- projections as to the cost of operating the project in accordance with the mine plan;
- projections as to revenues from the concentrate or other mineral product to be generated from operations in accordance with the mine plan; and
- an economic analysis of the project based on the projected capital and operating costs and production revenues.

#### *Determination of inputs into lease accounting*

Lease payments should be discounted using the interest rate implicit in the lease unless that rate cannot be readily determined, in which case the lessee's incremental borrowing rate is used, being the rate that the individual lessee would have to pay to borrow the funds necessary to obtain an asset of similar value to the right-of-use asset in a similar economic environment with similar terms, security and conditions. The Company has used the risk-free interest rate adjusted for credit risk specific to the lease.

In determining the lease term, the Company considers all facts and circumstances that create an economic incentive to exercise an extension option, or not exercise a termination option. Extension options (or periods after termination options) are only included in the lease term if the lease is reasonably certain to be extended (or not terminated).

### *Valuation of the embedded derivative liability*

The Company has used key inputs and estimates to determine the fair value of the embedded derivative liability at initial recognition and at period end date.

### *Deferred revenue*

The advance payments received under the stream financing agreements have been accounted for as contract liabilities within the scope of IFRS 15. Under the terms of the agreements, settlement of the contracts will be executed via the delivery of credits to the purchasers. The credits to be delivered are directly linked to the metal contained in concentrate produced at the Platreef mine. The contracts are therefore not financial instruments as the contracts will not be settled in cash or another financial instrument. Performance obligations under the contracts will be satisfied through production at the Platreef mine and revenue will be recognized over the duration of the contracts. As the contracts are long term in nature and a portion of the financing was received at inception of the contracts, it has been determined that the contracts contain a significant financing component under IFRS 15.

### *Deferred tax*

Significant judgment is required in determining whether to recognize the deferred tax asset related to the Platreef Project. This includes the probability that there will be sufficient taxable income in the future against which the deferred tax can be utilized. The Company recognized the previously unrecognized deferred tax asset relating to the Platreef Project in the year ended December 31, 2021. Due to the conclusion of the stream-financing agreements and the announcement of the exceptional results of the independent 2022 Feasibility Study, the Company considers it highly probable that the Platreef Project will have future taxable profits that will be available against which the deductible temporary differences can be utilized.

## **CHANGES IN ACCOUNTING POLICIES INCLUDING INITIAL ADOPTION**

### **Newly adopted accounting standards**

The following standards became effective for annual periods beginning on or after January 1, 2021, with earlier application permitted. The Company adopted these standards in the current period.

- Amendment to IFRS 9, IAS 39 and IFRS 7 – Financial Instruments. These amendments provide certain reliefs in connection with interest rate benchmark reform (IBOR). The reliefs relate to hedge accounting and have the effect that IBOR should not generally cause hedge accounting to terminate. However, any hedge ineffectiveness should continue to be recorded in the income statement.
- Amendment to IFRS 16 – Leases for COVID-19 related rent concessions. The amendment provides lessees with relief in the form of an optional exemption from assessing whether a rent concession related to COVID-19 is a lease modification, provided that the concession meets certain conditions. Lessees can elect to account for qualifying rent concessions in the same way as they would if there were no lease modifications.

### **Accounting standards issued but not yet effective**

- Amendment to IFRS 3 - Business combinations. The amendment updates a reference in IFRS 3 to the Conceptual Framework for Financial reporting without changing the accounting requirements for business combinations. (i)

*The Company has considered the amendment and assessed that it will have no material impact on adoption.*

- Amendment to IFRS 9 – Financial instruments. The amendment clarifies which fees an entity includes when it applies the “10 per cent” test in assessing whether to derecognize a financial liability. (i)

*The Company has considered the amendment and assessed that it will have no material impact on adoption.*

- Amendment to IAS 1 – Presentation of financial statements. The amendments clarify how to classify debt and other liabilities as current or non-current. Another amendment requires companies to disclose their material accounting policy information rather than their significant accounting policies, with additional guidance added to the Standard to explain how an entity can identify material accounting policy information with examples of when accounting policy information is likely to be material. (ii)

*The Company has considered the amendment and assessed that it will have no material impact on adoption.*

- Amendment to IAS 16 - Property, plant and equipment. The amendments prohibit an entity from deducting from the cost of an item of property, plant and equipment any proceeds from selling items produced while bringing that asset to the location and condition necessary for it to be capable of operating in a manner intended by management. Instead an entity recognizes the proceeds from selling such items, and the cost of producing these items, in profit or loss. (i)

*The Company has considered the amendment and assessed that it will have no material impact on adoption.*

- Amendment to IAS 37 – Provisions, Contingent Liabilities and Contingent Assets. The amendments specify which costs should be included in an entity’s assessment of whether a contract will be loss making. (i)

*The Company has considered the amendment and assessed that it will have no material impact on adoption.*

(i) Effective for annual periods beginning on or after January 1, 2022

(ii) Effective for annual periods beginning on or after January 1, 2023

The Company has not yet adopted these new and amended standards.

## FINANCIAL INSTRUMENTS AND OTHER INSTRUMENTS

### Fair value of financial instruments

The Company's financial assets and financial liabilities are categorized as follows:

	Level	December 31, 2021 \$'000	December 31, 2020 \$'000
<b>Financial assets</b>			
<i>Financial assets at fair value through profit or loss</i>			
Investment in listed entities	Level 1	1,144	1,410
Investment in unlisted entity	Level 3	655	655
<i>Amortized cost</i>			
Loan advanced to joint venture	Level 3	1,385,535	1,138,992
Cash and cash equivalents		608,176	262,825
Loans receivable	Level 3	103,478	97,340
Promissory note receivable	Level 3	26,717	23,519
Other receivables		8,611	5,559
<b>Financial liabilities</b>			
<i>Financial liabilities at fair value through profit or loss</i>			
Convertible notes - embedded derivative liability	Level 3	244,200	-
<i>Amortized cost</i>			
Convertible notes - host liability	Level 3	437,414	-
Borrowings	Level 3	38,342	36,197
Trade and other payables		22,769	19,217
Advances payable	Level 3	2,908	2,788

IFRS 13 - "Fair value measurement", requires an explanation about how fair value is determined for assets and liabilities measured in the financial statements at fair value and established a hierarchy into which these assets and liabilities must be grouped based on whether inputs to those valuation techniques are observable or unobservable. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect the Company's assumptions. The two types of inputs create the following fair value hierarchy:

- Level 1: observable inputs such as quoted prices in active markets;
- Level 2: inputs, other than the quoted market prices in active markets, which are observable, either directly and/or indirectly; and
- Level 3: unobservable inputs for the asset or liability in which little or no market data exists, therefore require an entity to develop its own assumptions.



## Finance income

The Company's finance income is summarized as follows:

	<b>Year ended December 31,</b>	
	<b>2021</b>	<b>2020</b>
	<b>\$'000</b>	<b>\$'000</b>
Interest on loan to joint venture	93,892	70,357
Interest on loan receivable - HPX	5,155	4,000
Interest on bank balances	2,256	4,561
Interest on long term loan receivable - Gecamines	984	1,828
Other finance income	3	9
	<b>102,290</b>	<b>80,755</b>

The interest from the loan to the joint venture is interest earned from the Kamoia Holding joint venture on shareholder loans advanced by the Company where each shareholder is required to fund Kamoia Holding in an amount equivalent to its proportionate shareholding interest.

## Financial risk management objectives and policies

The risks associated with the Company's financial instruments and the policies on how to mitigate these risks are set out below. Management manages and monitors these exposures to ensure appropriate measures are implemented in a timely and effective manner.

### *Foreign exchange risk*

The Company incurs certain of its expenses in currencies other than the U.S. dollar. The Company also has foreign currency denominated monetary assets and liabilities. As such, the Company is subject to foreign exchange risk as a result of fluctuations in exchange rates. The Company enters into derivative instruments to manage foreign exchange exposure as deemed appropriate.

The carrying amount of the Company's foreign currency denominated monetary assets and liabilities at the respective statement of financial position dates are as follows:

	<b>December 31, 2021</b>	<b>December 31, 2020</b>
	<b>\$'000</b>	<b>\$'000</b>
<b>Assets</b>		
South African rand	104,110	22,809
Canadian dollar	12,247	25,289
British pounds	4,259	4,116
Australian dollar	917	1,410
<b>Liabilities</b>		
South African rand	(10,635)	(6,338)
British pounds	(3,971)	(3,400)
Canadian dollar	(1,493)	(1,978)
Australian dollar	(283)	(56)

### Foreign currency sensitivity analysis

The following table details the Company's sensitivity to a 5% increase or decrease in the U.S. dollar against the foreign currencies presented. The sensitivity analysis includes only outstanding foreign currency denominated monetary items not denominated in the functional currency of the Company or the relevant subsidiary and adjusts their translation at the end of the period for a 5% change in foreign currency rates. A positive number indicates a decrease in loss for the period where the foreign currencies strengthen against the U.S. dollar. The opposite number will result if the foreign currencies depreciate against the U.S. dollar.

	Year ended December 31,	
	2021	2020
	\$'000	\$'000
Canadian dollar	538	1,166
Australian dollar	32	68
South African rand	(182)	(72)
British pounds	(24)	(3)

### *Credit risk*

Credit risk is the risk of an unexpected loss if a customer or third party to a financial instrument fails to meet its contractual obligations. Credit risk for the Company is primarily associated with the loan to the Kamoa Holding joint venture, promissory note receivable, loans receivable, other receivables and cash and cash equivalents.

The Company reviews the recoverable amount of their financial assets at each statement of financial position date to ensure that adequate impairment losses are made for irrecoverable amounts. The Company has considered the requirement of IFRS 9 to recognize a loss allowance for expected credit losses on financial assets. The general approach was applied to these financial assets, where the 12 month expected credit losses are calculated. The Company did not apply lifetime expected credit losses as there has not been a significant increase in credit risk in 2021.

A significant increase in credit risk would include:

- Existing or forecast adverse changes in business, financial or economic conditions that are expected to cause a significant change in the borrower's ability to meet its debt obligations.
- An actual or expected significant change in the operating results of the borrower.
- Significant increases in credit risk on other financial instruments of the same borrower.
- An actual or expected significant adverse change in the regulatory, economic, or technological environment of the borrower that results in a significant change in the borrower's ability to meet its debt obligations.
- Significant changes in the value of the collateral supporting the obligation or in the quality of third-party guarantees or credit enhancements, which are expected to reduce the borrower's economic incentive to make scheduled contractual payments or to otherwise have an effect on the probability of a default occurring.

The Company assesses whether an impairment is required on loan receivables. A range of cash flow scenarios are considered, taking into account forward looking information which may impact recoverability of loan receivables.

The loan advanced to the joint venture will be repaid as and when there is residual cash flow in Kamoa Holding. Due to the positive results of Kamoa-Kakula's definitive feasibility study and good development and production progress, repayment of the loan is deemed to be highly probable.

The promissory note receivable will be repaid using proceeds from the sale of Crystal River's 1% stake in Kamoa Holding.

The principal amount of the loan receivable from HPX and accrued interest thereon, is convertible in whole, or part, by the Company at its sole discretion into shares of treasury common stock of HPX.

Repayment of the social development loan will be made by offsetting the loan against future royalties and dividends payable to Gécamines which arise from future profits to be earned at Kipushi.

The credit risk on cash and cash equivalents is limited because the cash and cash equivalents are composed of deposits with major banks who have investment grade credit ratings assigned by international credit ratings agencies and have low risk of default.

Other receivables is comprised primarily of administration consulting income from the joint venture and refundable taxes. The credit quality of these financial assets can be assessed by reference to historical information about counterparty default rates and adjusted to reflect current and forward-looking information, as well as macroeconomic factors affecting the ability of the parties to settle the receivables. The historical loss rates are negligible and therefore the expected credit losses relating to other receivables is also negligible.

The Company continues to monitor its credit risk and assess expected credit losses.

#### *Market risk*

Market risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market prices. Market risk comprises three types of risk: interest rate risk, currency risk and other price risk, such as equity price risk. Financial instruments affected by market risk include the convertible notes, loan advanced to the joint venture and borrowings.

The Company will measure the convertible notes embedded derivative liability at fair value at each reporting date, recognizing changes in the fair value in the statement of comprehensive income. This requirement to “mark-to-market” the derivative features could significantly affect the results in the statement of comprehensive income. If the Company’s share price had been C\$1.00 higher than it was on December 31, 2021, the fair value of the embedded derivative liability would have increased by \$44.5 million, which would have resulted in the Company recording a loss on the fair valuation of the financial liability of \$138.2 million for the year ended December 31, 2021, instead of a loss of \$93.7 million.

#### *Interest rate risk*

The Company’s interest rate risk arises mainly from cash and cash equivalents, long term borrowings, the loans receivable and the loan advanced to the joint venture. The Company’s main exposure to interest rate risk arises from the fact that the Company earns and incurs interest on interest rates linked to LIBOR.

If interest rates (including applicable USD LIBOR rates) had been 50 basis points higher or lower and all other variables were held constant, the Company’s profit for the year ended December 31, 2021 would have decreased or increased by \$9.3 million (December 31, 2020: \$6.1 million).

#### *Liquidity risk*

In the management of its liquidity risk, the Company maintains a balance between continuity of funding and flexibility through the use of borrowings. Management closely monitors the liquidity position with the goal of maintaining adequate sources of funding to finance the Company’s projects and operations.

The following table details the Company’s expected remaining contractual maturities for its financial liabilities. The table is based on the undiscounted cash flows of financial liabilities based on the earliest date on which the Company can be required to satisfy the liabilities.

	Less than 1 month	1 to 3 months	3 to 12 months	More than 12 months	Total undiscounted cash flows
	\$'000	\$'000	\$'000	\$'000	\$'000
<b>As at December 31, 2021</b>					
Convertible notes liability	3,033	-	-	575,000	<b>578,033</b>
Non-current borrowings	-	-	-	39,462	<b>39,462</b>
Trade and other payables	20,819	758	1,192	-	<b>22,769</b>
Lease liability	66	114	350	11,440	<b>11,970</b>
<b>As at December 31, 2020</b>					
Non-current borrowings	-	-	-	38,876	<b>38,876</b>
Trade and other payables	15,445	1,327	2,445	-	<b>19,217</b>
Lease liability	30	93	227	11,554	<b>11,904</b>

Trade and other payables in the above table excludes payroll tax, other statutory liabilities and indirect taxes payable.

## DESCRIPTION OF CAPITAL STOCK

As at March 7, 2022, the Company's capital structure consists of an unlimited number of Class A common shares without par value (the "Class A Shares"), an unlimited number of Class B common shares without par value (the "Class B Shares") and an unlimited number of preferred shares without par value. At this date 1,210,582,912 Class A Shares, nil Class B Shares, nil warrants and nil preferred shares were issued and outstanding.

The Company granted 2,095,280 options in 2021 and 911,141 options in 2022 to date. As at March 7, 2022, there were 18,011,171 options outstanding issued in terms of the Equity Incentive Plan exercisable into 18,011,171 Class A Shares.

The Company granted 1,237,427 restricted share units (RSUs) in 2022 to date and 5,478,846 RSUs in 2021 per the Company's restricted share unit plan. As at March 7, 2022, there were 6,806,901 RSUs which may vest into 6,806,901 Class A Shares.

The Company granted 159,363 deferred share units (DSUs) in 2022 to date and 196,073 DSUs in 2021 per the Company's deferred share unit plan. As at March 7, 2022, there were 704,941 DSUs which may settle into 704,941 Class A Shares.

## DISCLOSURE CONTROLS AND PROCEDURES AND INTERNAL CONTROL OVER FINANCIAL REPORTING

Management is responsible for the design and operation of disclosure controls and procedures (DC&P) and internal control over financial reporting (ICFR) in order to provide reasonable assurance that material information related to the Company, including its consolidated subsidiaries, is made known to the Company's certifying officers. The Company's President, in the capacity of Chief Executive Officer (CEO), and Chief Financial Officer (CFO) have each evaluated the design and operating effectiveness of the Company's DC&P and ICFR as of December 31, 2021 and, in accordance with the requirements established under National Instrument 52-109 - Certification of Disclosure in Issuer's Annual and Interim Filings, the President and CFO have concluded that these controls and procedures have been designed and operate to provide reasonable assurance that material information relating to the Company is made known to her by others within the Company and that the information required to be disclosed in reports that are filed or submitted under Canadian



securities legislation are recorded, processed, summarized and reported within the time period specified in those rules.

As at December 31, 2021, management, including the President, in the capacity of CEO, and CFO, have evaluated the effectiveness of the design and operation of the Company's disclosure controls and procedures. Based upon the results of that evaluation, the President and CFO have concluded that as of the end of the period covered by this MD&A, the Company's disclosure controls and procedures were effective.

The Company's President and CFO have used the Committee of Sponsoring Organizations of the Treadway Commission (COSO) framework to evaluate the design and operation of the Company's ICFR as of December 31, 2021 and have concluded that these controls and procedures have been designed and operated effectively to provide reasonable assurance that financial information is recorded, processed, summarized and reported in a timely manner. Management of the Company was required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures. The result of the inherent limitations in all control systems means design and operation of controls cannot provide absolute assurance that all control issues and instances of fraud will be detected.

As at December 31, 2021, management assessed the effectiveness of the Company's internal control over financial reporting and concluded that the Company's internal control over financial reporting was effective.

During the year ended December 31, 2021, there were no changes in the Company's DC&P or ICFR that materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

## **RISK FACTORS**

The Company has summarized its foreign exchange risk, credit risk, interest rate risk and liquidity risk under the "Financial risk management objectives and policies" sub-heading under the "Financial instruments and other instruments" section in this MD&A. Additional risks and uncertainties are discussed in the Company's Annual Information Form filed with Canadian provincial regulatory authorities and available at [www.sedar.com](http://www.sedar.com).

## **DISCLOSURE OF TECHNICAL INFORMATION**

Disclosures of a scientific or technical nature regarding the revised capital expenditure and development scenarios at the Kamoa-Kakula Project in this MD&A have been reviewed and approved by Steve Amos, who is considered, by virtue of his education, experience and professional association, a Qualified Person under the terms of NI 43-101. Mr. Amos is not considered independent under NI 43-101 as he is the Head of the Kamoa Project. Mr. Amos has verified the technical data disclosed in this MD&A.

Other disclosures of a scientific or technical nature in this MD&A have been reviewed and approved by Stephen Torr, who is considered, by virtue of his education, experience and professional association, a Qualified Person under the terms of NI 43-101. Mr. Torr is not considered independent under NI 43-101 as he is the Vice President, Geosciences. Mr. Torr has verified the other technical data disclosed in this MD&A.

Ivanhoe has prepared a current, independent, NI 43-101-compliant technical report for each of the Kipushi Project and the Kamoa-Kakula Project, which are available under the Company's SEDAR profile at [www.sedar.com](http://www.sedar.com):

- The Kamoa-Kakula Integrated Development Plan 2020 dated October 13, 2020, prepared by OreWin Pty Ltd., China Nerin Engineering Co., Ltd., DRA Global, Epoch Resources, Golder

Associates Africa, KGHM Cuprum R&D Centre Ltd., Outotec Oyj, Paterson and Cooke, Stantec Consulting International LLC, SRK Consulting Inc., and Wood plc., covering the Company's Kamoa-Kakula Project; and

- The Kipushi 2022 Feasibility Study dated February 14, 2022, prepared by OreWin Pty Ltd., MSA Group (Pty) Ltd., SRK Consulting (South Africa) (Pty) Ltd, and METC Engineering, covering the company's Kipushi Project.

Ivanhoe also has prepared and filed a technical report for the Platreef Project:

- The Platreef Integrated Development Plan 2020 dated December 6, 2020, prepared by OreWin Pty Ltd., Wood plc (formerly Amec Foster Wheeler), SRK Consulting Inc., Stantec Consulting International LLC, DRA Global, and Golder Associates Africa, covering the company's Platreef Project.

A new current technical report for the Platreef Project including disclosures regarding the Platreef 2022 FS will be filed on SEDAR at [www.sedar.com](http://www.sedar.com) within the time required under NI 43-101.

These technical reports include relevant information regarding the effective dates and the assumptions, parameters and methods of the mineral resource estimates on the Platreef Project, the Kipushi Project and the Kamoa-Kakula Project cited in this MD&A, as well as information regarding data verification, exploration procedures and other matters relevant to the scientific and technical disclosure contained in this MD&A in respect of the Platreef Project, Kipushi Project and Kamoa-Kakula Project.

## **FORWARD-LOOKING STATEMENTS**

Certain statements in this MD&A constitute "forward-looking statements" or "forward-looking information" within the meaning of applicable securities laws. Such statements and information involve known and unknown risks, uncertainties and other factors that may cause the actual results, performance or achievements of the Company, its projects, or industry results, to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements or information. Such statements can be identified by the use of words such as "may", "would", "could", "will", "intend", "expect", "believe", "plan", "anticipate", "estimate", "scheduled", "forecast", "predict" and other similar terminology, or state that certain actions, events or results "may", "could", "would", "might" or "will" be taken, occur or be achieved. These statements reflect the Company's current expectations regarding future events, performance and results and speak only as of the date of this MD&A.

Such statements include without limitation, the timing and results of: (i) statements regarding Kamoa-Kakula's costs expected to trend downward as the Phase 2 concentrator plant is commissioned and the mine's fixed operating costs are spread over increased copper production; (ii) statements regarding Kamoa-Kakula's Phase 2 concentrator plant is on track to begin operations in April 2022, which will see a doubling of Kamoa-Kakula's nameplate milling throughput to 7.6 million tonnes of ore per annum (Mtpa); (iii) statements regarding the expected increase in processing capacity resulting from the planned de-bottlenecking program and the cost thereof; (iv) statements regarding copper production from Kamoa Copper's first two phases are projected to exceed 450,000 tonnes per year by Q2 2023; (v) statements regarding the expectation that the majority of Kamoa-Kakula's expansion capital expenditures on Phase 2 and Phase 3 will be funded from copper sales and facilities in place at Kamoa; (vi) statements that based on current market conditions, it is anticipated that shareholder loan repayments from Kamoa-Kakula will commence in 2022; (vii) statements regarding Ivanhoe's 2022 Western Foreland exploration expenditure is provisionally planned at \$25 million and that the main component of this expenditure is exploration drilling, with more than 50,000 metres of shallow (depth of less than 150 metres), air core, reverse circulation and diamond drilling as well as up to an additional 45,000 metres of deeper regional drilling covering the entire 2,550-square-kilometre land package, some of which is dependent upon exploration success; (viii) statements regarding the planned resumption of commercial production at Kipushi based on a two-year construction timeline; (ix) statements regarding a third, significantly larger concentrator is being

designed for Kamoakakula and is expected to be commissioned in Q4 2022 and is expected to be fed from a combination of the established mine at Kansoko Sud, together with the new mines at Kamoak 1 and Kamoak 2; (x) statements regarding an updated pre-feasibility study, including the Phase 3 expansion, is expected in Q3 2022; (xi) statements regarding relatively minor modifications to the Kamoakakula Phase 1 concentrator that is expected to increase ore throughput from the current design of 475 tonnes per hour to 580 tonnes per hour; (xii) statements regarding Turbine 5 is expected to produce 162 MW of renewable hydropower, providing the Kamoakakula Copper Complex and the planned, associated smelter with abundant, sustainable electricity for future expansions; (xiii) statements regarding Kamoakakula aiming to become the first net-zero carbon emitter among the top-tier copper mines by electrifying its mining fleet with state-of-the-art equipment powered by electric batteries or hydrogen fuel cells and that the mine plans to introduce them into its mining fleet as soon as they become commercially available; (xiv) statements regarding production guidance of between 290,000 and 340,000 tonnes of contained copper in concentrate for 2022 from the Kamoakakula Mining Complex; (xv) statements regarding cash cost guidance of between \$1.20 to \$1.40 per pound for 2022 from the Kamoakakula Mining Complex; (xvi) statements regarding cost of sales per pound of payable copper sold and C1 cash costs per pound of payable copper produced expected to trend downward as the Phase 2 concentrator plant is commissioned and the mine's fixed operating costs are spread over increased copper production; (xvii) statements regarding new independent feasibility study for the Platreef Project and statements confirming the viability of a new phased development pathway to fast-track Platreef into production by Q3 2024; (xviii) statements regarding the senior debt facility for the Platreef Project including that it is anticipated to be used only after the stream facilities are fully drawn; (xix) statements regarding the changeover construction at Platreef Shaft 1 being on schedule for commencement of rock hoisting early in 2022; (xx) statements that Platreef's shaft will be equipped with two cages on top of two 12.5-tonne skips with hoisting capacity of 1 million tonnes per year and that an amended configuration does not require the cage to be interchanged mid-shift, thereby increasing the hoisting time during the initial phase of mining; (xxi) statements regarding Shaft equipping at Platreef being on track to be completed by the end of March 2022; (xxii) statements regarding the first blast on the 950-metre level at Platreef's shaft 1 is anticipated in April 2022; (xxiii) statements regarding Platreef's shaft 2 eight civil lifts to be constructed, including a ventilation plenum and personnel access tunnel, is targeted for completion in May 2022; (xxiv) statements regarding the water requirement at Platreef for the Phase 1 operation is projected to peak at approximately three million litres per day, which will then increase to nine million litres per day once the Phase 2 expansion is complete; (xxv) statements regarding Ivanplats purchasing the treated wastewater from the Masodi Treatment Works at a reduced rate of R5 per thousand litres; (xxvi) statements that arrangements are underway to re-commence the construction works of the Masodi Treatment Works in Q3 2022 and that it will take approximately 18 months; (xxvii) statements regarding implementation of the Platreef Project's second Social and Labour Plan (SLP); (xxviii) statements regarding equipping of the Platreef's permanent training academy is continuing, with the official launch being planned for 2022; (xxix) statements regarding the new agreement signed between Kipushi Holding and Gécamines to return the ultra-high-grade Kipushi Mine back to commercial production; (xxx) statements that Kipushi Holding will continue to fund the Kipushi Project with the shareholder loan and/or procure financing from third parties for the development of the project; (xxxi) statements regarding 50 boreholes of potable water are planned to be drilled around the Kipushi district over five years, to reach areas not served by the current distribution reticulation; and (xxxii) statements regarding the main objectives for 2022, the 2022 budget and the planned capital expenditure for 2022.

As well, all of the results of the feasibility study for the Kakula copper mine, the Kakula-Kansoko 2020 pre-feasibility study and the updated and expanded Kamoakakula Project preliminary economic assessment, the Platreef 2022 feasibility study, the Platreef 2020 preliminary economic assessment, the pre-feasibility study of the Kipushi Project, and the Kipushi 2022 feasibility study, constitute forward-looking statements or information, and include future estimates of internal rates of return, net present value, future production, estimates of cash cost, proposed mining plans and methods, mine life estimates, cash flow forecasts, metal recoveries, estimates of capital and operating costs and the size and timing of phased development of the projects.

Furthermore, with respect to this specific forward-looking information concerning the operation and development of the Kamoakakula, Platreef and Kipushi projects, the Company has based its

assumptions and analysis on certain factors that are inherently uncertain. Uncertainties include: (i) the adequacy of infrastructure; (ii) geological characteristics; (iii) metallurgical characteristics of the mineralization; (iv) the ability to develop adequate processing capacity; (v) the price of copper, nickel, zinc, platinum, palladium, rhodium and gold; (vi) the availability of equipment and facilities necessary to complete development; (vii) the cost of consumables and mining and processing equipment; (viii) unforeseen technological and engineering problems; (ix) accidents or acts of sabotage or terrorism; (x) currency fluctuations; (xi) changes in regulations; (xii) the compliance by joint venture partners with terms of agreements; (xiii) the availability and productivity of skilled labour; (xiv) the regulation of the mining industry by various governmental agencies; (xv) the ability to raise sufficient capital to develop such projects; (xvi) changes in project scope or design; (xvii) recoveries, mining rates and grade; (xviii) political factors; (xviii) water inflow into the mine and its potential effect on mining operations, and (xix) the consistency and availability of electric power.

This MD&A also contains references to estimates of Mineral Resources and Mineral Reserves. The estimation of Mineral Resources is inherently uncertain and involves subjective judgments about many relevant factors. Estimates of Mineral Reserves provide more certainty but still involve similar subjective judgments. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. The accuracy of any such estimates is a function of the quantity and quality of available data, and of the assumptions made and judgments used in engineering and geological interpretation (including estimated future production from the Company's projects, the anticipated tonnages and grades that will be mined and the estimated level of recovery that will be realized), which may prove to be unreliable and depend, to a certain extent, upon the analysis of drilling results and statistical inferences that ultimately may prove to be inaccurate. Mineral Resource or Mineral Reserve estimates may have to be re-estimated based on: (i) fluctuations in copper, nickel, zinc, platinum group elements (PGE), gold or other mineral prices; (ii) results of drilling; (iii) metallurgical testing and other studies; (iv) proposed mining operations, including dilution; (v) the evaluation of mine plans subsequent to the date of any estimates and/or changes in mine plans; (vi) the possible failure to receive required permits, approvals and licences; and (vii) changes in law or regulation.

Forward-looking statements and information involve significant risks and uncertainties, should not be read as guarantees of future performance or results and will not necessarily be accurate indicators of whether or not such results will be achieved. A number of factors could cause actual results to differ materially from the results discussed in the forward-looking statements or information, including, but not limited to, the factors discussed below and under "Risk Factors", and elsewhere in this MD&A, as well as unexpected changes in laws, rules or regulations, or their enforcement by applicable authorities; the failure of parties to contracts with the Company to perform as agreed; social or labour unrest; changes in commodity prices; and the failure of exploration programs or studies to deliver anticipated results or results that would justify and support continued exploration, studies, development or operations.

Although the forward-looking statements contained in this MD&A are based upon what management of the Company believes are reasonable assumptions, the Company cannot assure investors that actual results will be consistent with these forward-looking statements. These forward-looking statements are made as of the date of this MD&A and are expressly qualified in their entirety by this cautionary statement. Subject to applicable securities laws, the Company does not assume any obligation to update or revise the forward-looking statements contained herein to reflect events or circumstances occurring after the date of this MD&A.

The Company's actual results could differ materially from those anticipated in these forward-looking statements as a result of the factors set forth below in the "Risk Factors" section beginning on page 55 and elsewhere in this MD&A.

## **ADDITIONAL INFORMATION**

Additional information regarding the Company, including the Company's Annual Information Form, is available on SEDAR at [www.sedar.com](http://www.sedar.com).