# IVANHOEMINES NEW HORIZONS





# Forward-looking statements & Qualified Person

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# Ivanhoe at a glance

# **Investment Highlights**



Exposure to three disruptive world-class projects in



Exposure to significant growth in reserves and resources in some of the world's largest, highest grade deposits



Well funded with strong financial partners



Our partnership with CITIC and Zijin will allow for the building of a new, large Canadian-based diversified mining company with significant Chinese elements



Experienced management team, with strong track record of creating value through exploration and development

# **Corporate Information**

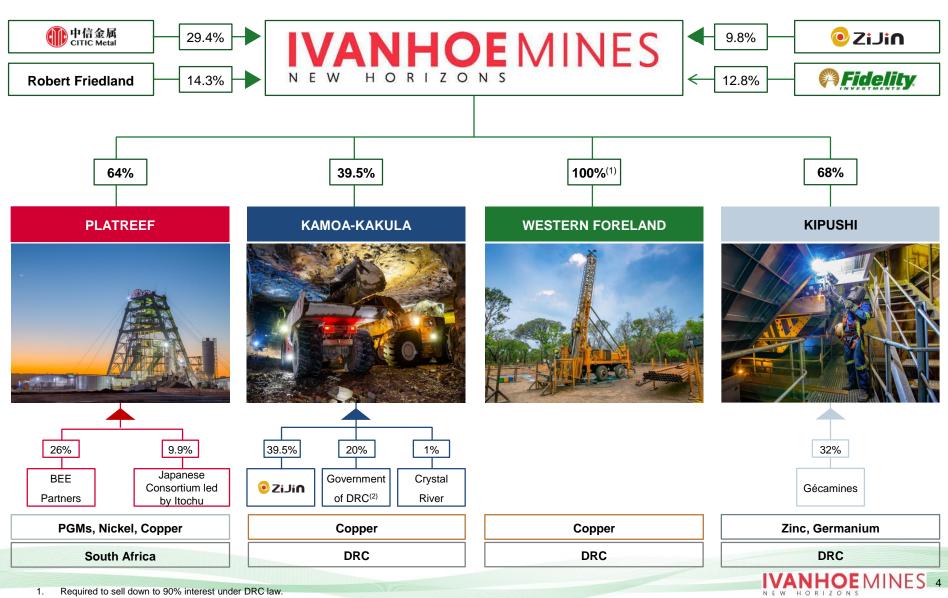
Listings	TSX: IVN OTCQX: IVPAF		
Share Price	US\$2.94 / share <sup>(1)</sup>		
Market Cap	US\$3.5 billion <sup>(1)</sup>		
Shares, Options & RSUs	Common Shares: 1,192 million <sup>(2)</sup> Options and other: 24 million <sup>(2)</sup>		
Cash Position	US\$852 million <sup>(3)</sup>		
	Strategic		
	<b>中信金属</b> CITIC Metal	29.4%	
	Robert Friedland	14.3%	
	⊚ZiJi <b>∩</b>	9.8%	
Major Shareholders	<u>Institutional</u>		
	Fidelity.	<b>BLACKROCK</b> °	
	<b>▲</b> Invesco	ROTHSCHILD	
	OppenheimerFunds	Vanguard	

As of September 13, 2019...

As of September 12, 2019.

Cash & cash equivalents as of August 16, 2019.

# Ivanhoe corporate structure



Required to sell down to 90% interest under DRC law.

<sup>5%</sup> free carry, 15% carry.

# Platreef: The world's largest undeveloped precious metal deposit



### Large, High-Grade Deposit

- 346Mt M&I Resources at 3.77 g/t 3PE+Au, and 506Mt Inferred Resources at 3.24g/t 3PE+Au, with significant base metal endowment: >0.3% Ni and >0.15% Cu on average
- Significant exploration upside; deposit open along strike and down dip for several kms



# One of World's Largest Primary PGM Mines

- Initial 4Mtpa operation, with metal production of 476Koz of 3PE+Au, would rank Platreef among the world's largest primary PGM mines
- At 12Mtpa Platreef would be the largest primary PGM mine globally
- Significant exploration upside



### Phased Approach to Manage Capital

- Start-up mine minimises initial capital requirement and without the need to pre-commit to smelting & refining capacity
- Subsequent expansions to 8Mtpa, and then 12Mtpa, largely funded by initial operation



### Low Cash Costs

- Near the bottom of the global cash cost curve
- High concentrations of copper and nickel contribute to cash cost of \$326/oz 3PE+Au<sup>(1)</sup>, and \$351/oz 3PE+Au including sustaining capital



### Highly Mechanized and Safe Mining

- Platreef's average thickness of 19m is amenable to the use of highly productive mining methods, such as long-hole stoping
- Mechanized mining methods conducive to safe working conditions
- The future of South African PGM mining will be on the Northern Limb

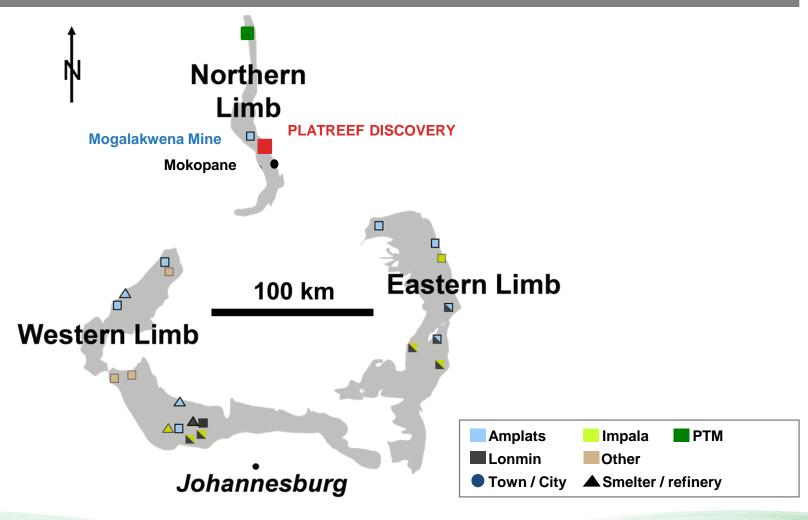


### Strong and Stable Partners

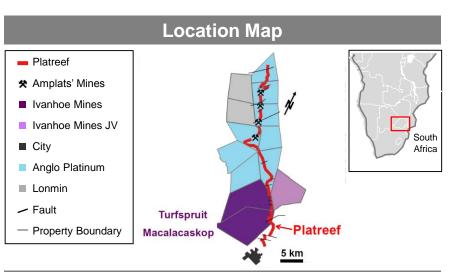
- Industry leading B-BBEE structure established: 20% to benefit 20 local communities (of ~150,000 people), 3% to HDSA employees and 3% to 187 local entrepreneurs
- Strong Japanese corporate (Itochu and JGC) and government (JOGMEC) support, who invested \$280M for an 8% stake in 2011

# **Bushveld Complex**

### The Bushveld Complex produces ~70% of global platinum



# **Platreef: Asset overview**



# Ownership Structure Ivanhoe Mines Japanese Consortium(1) 10% Ivanplats Holdings SARL (Luxem.) Platreef Project

### **Mineral Reserves and Resources** Tonnage and Grades Μt 3PE+Au (g/t) Cu (%) Ni (%) **Probable Mineral Reserves** Total 125 4.40 0.17 0.34 Indicated Mineral Resources (inclusive of Reserves) 3.0 g/t cut-off (3PE+Au) 204 4.70 0.18 0.35 2.0 g/t cut-off (3PE+Au) 346 3.77 0.16 0.32 Inferred Mineral Resources

4.29

3.24

0.17

0.16

0.35

0.31

225

506

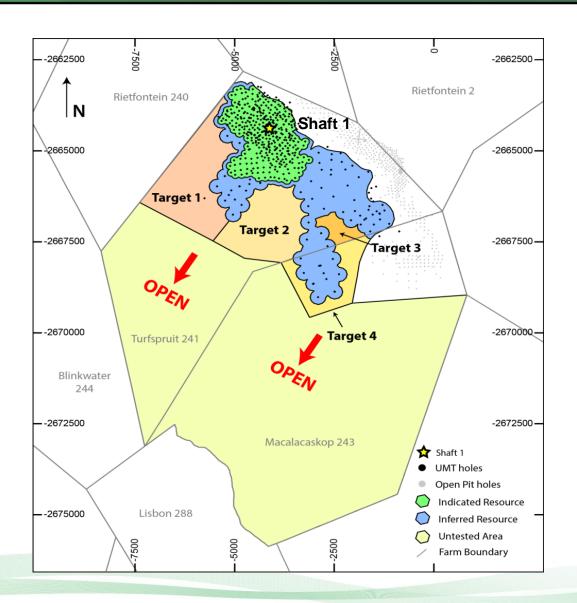
Contained Metal							
Cut-off Grade (3PE+Au)	3PE+Au (Moz)	Cu (Mlb)	Ni (MIb)				
Probable Mineral Reserves							
Total	17.6	457	932				
Indicated Mineral Resources (inclusive of Reserves)							
3.0 g/t cut-off (3PE+Au)	30.9	800	1,597				
2.0 g/t cut-off (3PE+Au)	41.9	1,226	2,438				
Inferred Mineral Resources							
3.0 g/t cut-off (3PE+Au)	31.0	865	1,736				
2.0 g/t cut-off (3PE+Au)	52.8	1,775	3,440				

Located on the Northern Limb of the Bushveld Complex, Platreef is a large, high-grade deposit amenable to safe, low-cost, mechanized mining

3.0 g/t cut-off (3PE+Au)

2.0 g/t cut-off (3PE+Au)

# Potential to significantly add to Platreef's resources



Open to expansion to the south and west, beyond the area of the current **Indicated Resources (in** green) and Inferred Resources (in blue).

Four target areas contain an estimated 245 - 410 million tonnes.

Approximately 48km<sup>2</sup> of unexplored ground beyond these exploration target areas.

# **Underground development at Platreef**



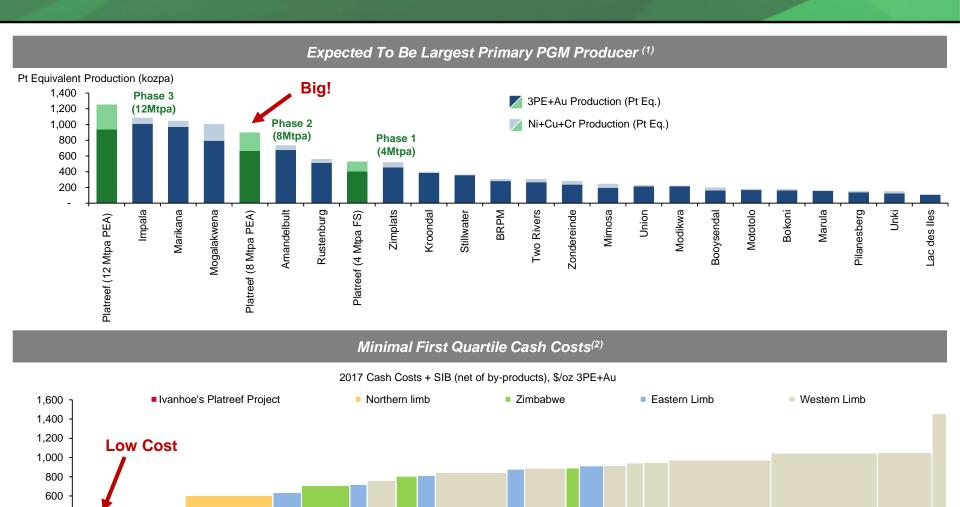
750-metre and 850-metre stations on Shaft 1 will provide underground access to the high-grade "Flatreef" orebody



Members of Platreef's underground mining team using a "cactus grab" mucker to excavate rock from the bottom of Shaft 1

This type of underground mining is very different than almost all other South African mines.

# Platreef positioned to become a leading PGM producer



Production (koz 3PE+Au)

Source: Company filings, Wood Mackenzie.

400 200



2. SFA (Oxford). Data for Platreef Project is based on reported DFS and PEA parameters, and is not representative of SFA's view.



# Platreef: Strong returns and very long life

# **Highly Significant Production Scale**

### **Minimal First Quartile Cash Costs**

# Preliminary Economic Assessment(1)

### 14.9% IRR

### **US\$2.2 billion After-Tax NPV**

- \$1.85 billion peak funding capex
- 12 Mt per year steady material treated
- 3.87 g/t feed grade (3PE+Au)
- 413 ktpa concentrate produced (83 g/t)
  - 1,109 kozpa metal produced (3PE+Au)
- \$371 /oz cash cost<sup>(3)</sup> (3PE+Au)
  - \$465 / oz cash cost + sust. capex

# Feasibility Study<sup>(2)</sup>

### 14.2% IRR

# **US\$916 million After-Tax NPV**

- \$1.5 billion peak funding capex
- 4 Mt per year steady state material treated
- 4.40 g/t feed grade (3PE+Au)
- 174 ktpa concentrate produced (85 g/t)
  - 476 kozpa metal produced (3PE+Au)
- \$326 /oz cash cost<sup>(3)</sup> (3PE+Au)
  - \$351/ oz cash cost + sust. capex

"The opening up of the Northern Limb may be the most significant change in the economics of any commodity since the introduction of bulk mining techniques of the USA's copper porphyries in the 1920s."

- Bernstein Research (Feb 2015)



Notes: Life-of-mine averages shown.

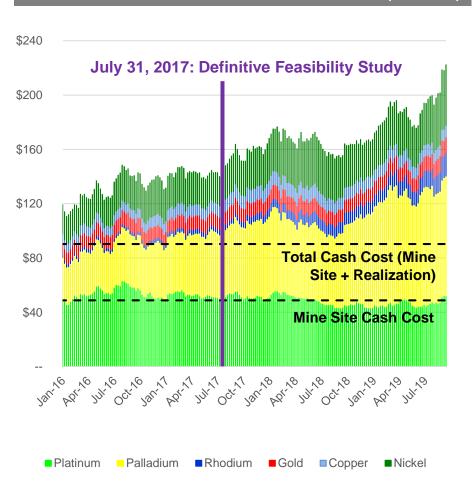
Metal price assumptions used for the PEA economic analysis: US\$1,700/oz Pt, US\$820/oz Pd, US\$1,300/oz Au, US\$1,700/oz Rh, US\$8.35/lb Ni, US\$3.00/lb Cu.

<sup>2.</sup> Metal price assumptions used for the FS economic analysis: US\$1,250/oz Pt, US\$825/oz Pd, US\$1,300/oz Au, US\$1,000/oz Rh, US\$7.60/lb Ni, US\$3.00/lb Cu.

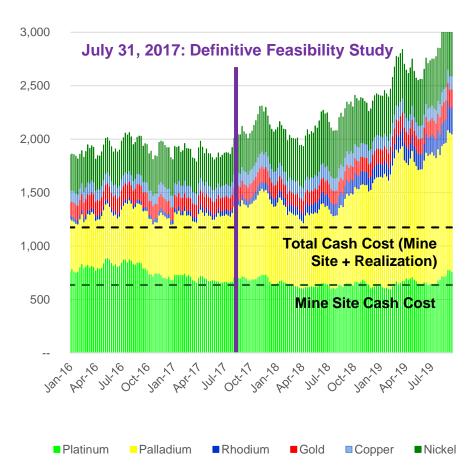
<sup>3.</sup> Life of mine average cash cost after nickel and copper credits (before credits: \$854 and \$751 per oz 3PE+Au for PEA and FS respectively).

# Platreef in-situ value of reserves

### Platreef Revenue Per Tonne of Probable Reserves (US\$/t ore)



### Platreef Revenue Per Tonne of Probable Reserves (ZAR/t ore)



# Kamoa-Kakula: World's largest high-grade copper discovery



### Unrivalled Resource Base

- World's largest, high-grade undeveloped copper deposits with 36.6 Mt (Ind.) + 5.6 Mt (Inf.) of contained Cu<sup>(1)</sup>
- Mineral <u>reserves</u> of 6.6 Mt of contained Cu at an average grade of 5.48% Cu<sup>(2)</sup>
- Open down dip and along strike excellent exploration potential



# Phased Approach Minimizes Risks and Provides Optionality

- Phased approach to development minimises initial capital requirement
- Cash flow from initial operations to contribute to an expanded operation
- Lowest capital intensity of all copper projects globally<sup>(3)</sup>; current in development



### Low Cash Costs

- Positioned to be among the world's lowest-cost copper mines
- Expected to rank in the lowest quartile of the global cash cost curve



### Viable Power and Infrastructure

- Agreement in place to rehabilitate three hydroelectric power plants; providing sufficient power
- Phased logistics solution initially exporting to Durban (South Africa), and then by rail to the port of Lobito (Angola)



# Construction and Development is Underway

- Development activities underway at Kakula, with twin declines completed to reach the orebody
- Substantially richer, thicker and more consistent mineralization
- 740 ktpa of Kakula + Kamoa + Kakula West peak copper production would establish the project as the second largest copper mine globally



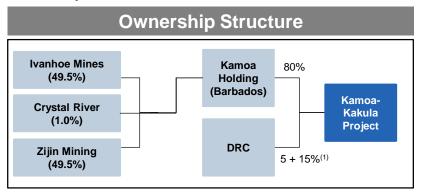
At 1.0% copper cut-off.

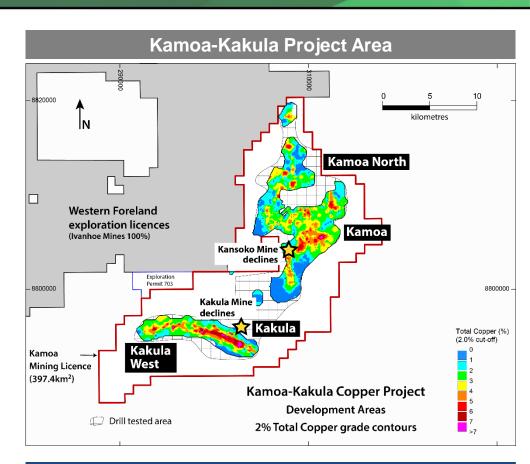
Kakula Mineral Reserves as of February 1, 2019.

# Kamoa-Kakula: Asset overview

Mineral Reserves & Resources					
Category	Mt	Cu %	Cu Bnlb	Cu Mt	
Probable (Kakula) Probable (Kamoa)	120 125	5.48 3.81	14.5 10.5	6.6 4.7	
Total Reserves	245	4.63	25.0	11.3	
Indicated (Kakula) Indicated (Kamoa)	628 759	2.72 2.57	37.6 43.0	17.1 19.5	
M&I Resources*	1,387	2.64	80.6	36.6	
Inferred (Kakula) Inferred (Kamoa)	114 202	1.59 1.85	4.0 8.2	1.8 3.7	
Inferred Resources*	316	1.76	12.2	5.6	

<sup>\* 1%</sup> Cu cut-off grade; M&I Resources are inclusive of Mineral Reserves



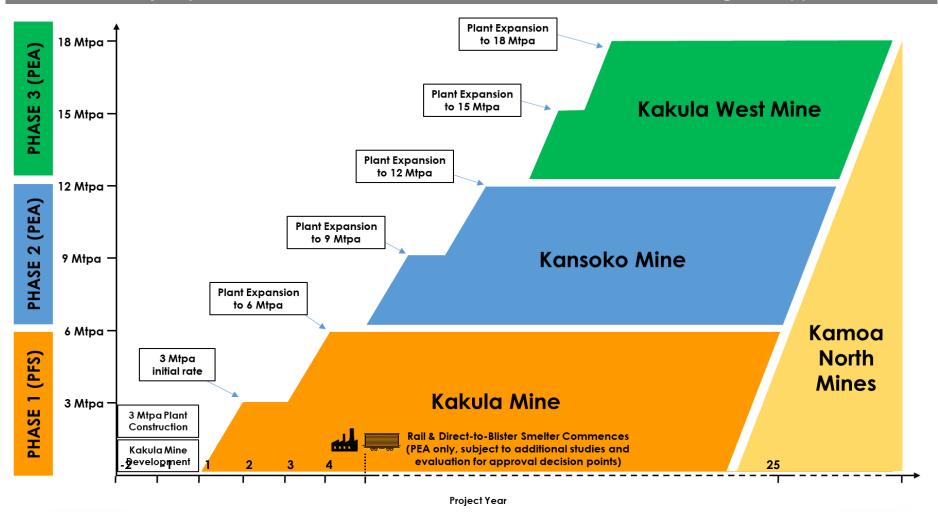


Very large resource with prospective newly discovered ultra high-grade zones, such as Kakula & Kamoa North

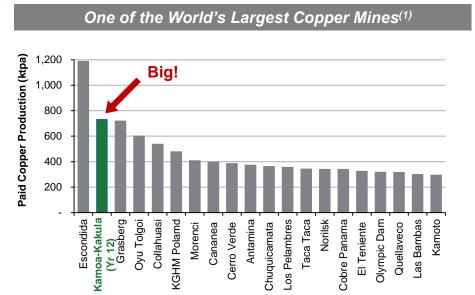


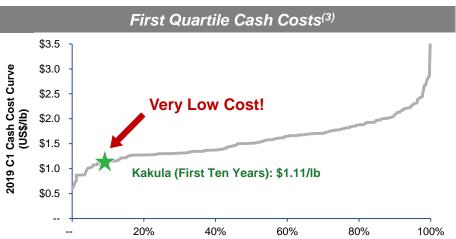
# Kamoa-Kakula Integrated Development Plan

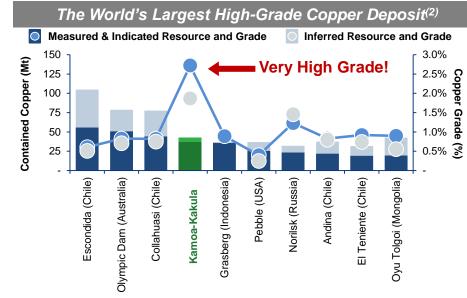
Once Fully Expanded, Kamoa-Kakula Will Become the World's Second Largest Copper Mine

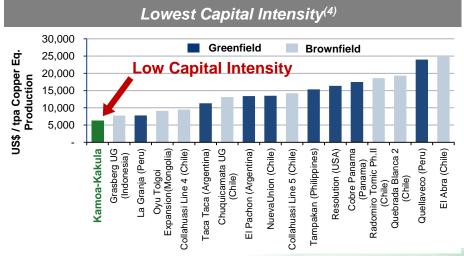


# Kamoa-Kakula: The world's next great copper mine









Source: Company filings, Wood Mackenzie.

- Kamoa-Kakula 2019 PEA production based on projected peak copper production (which occurs in year 12) of the 18 Mtpa alternative development option.
- 2. Selected based on copper contained in Measured & Indicated Mineral Resources, inclusive of Mineral Reserves.
- 3. Represents Wood Mackenzie C1 pro-rata cash costs. Kakula is based on the average total cash cost during the first 10 years as detailed in the Kakula 2019 PFS.
  - Recently approved, probable and possible projects with nominal copper production capacity in excess of 200 kt/a. Kamoa-Kakula Project based on a Kakula 6 Mtpa mine, with initial and expansion capital of \$1,856M and 10 year average copper production (291 ktpa), as detailed in the Kakula 2019 PFS.



# Kamoa-Kakula: Outstanding financial returns

Large Resource

**Very High Grade** 

**Low Cost** 

**Low Capital Intensity** 

### Phase 1<sup>(1)</sup>

### 47% IRR

# **US\$5.4 billion After-Tax NPV**

- \$1.1 billion peak funding capex
- 6 Mt per year steady state production
- 6.4% Cu feed grade
- 391 ktpa Cu concentrate produced
  - 224 ktpa Cu metal produced
  - Peak production: 360 ktpa (yr4)
- \$1.11 /lb total cash cost

### Phase 2,3(2)

### 41% IRR

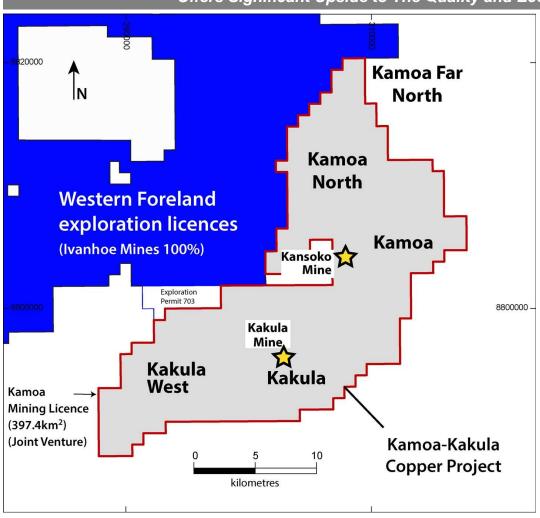
### **US\$10.0** billion After-Tax NPV

- \$1.1 billion peak funding capex
- 18 Mt per year steady state production
  - Kakula, Kamoa and Kakula West (6+6+6Mt)
- 5.7% Cu feed grade
- 1,055 ktpa Cu concentrate produced
  - 472 ktpa Cu metal produced
  - Peak production: 740 ktpa (yr12)
- \$0.93 /lb total cash cost



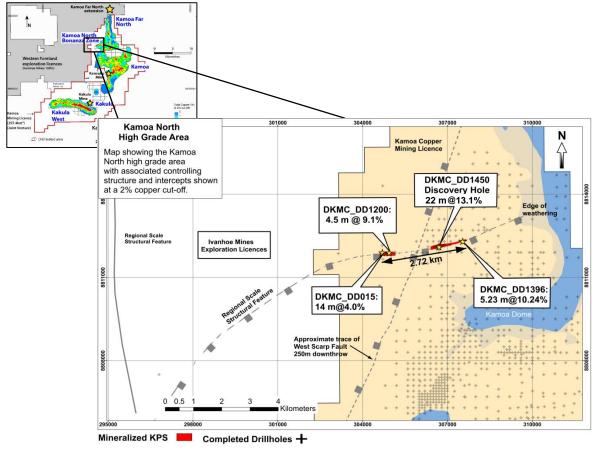
# **Exploration & Western Foreland**

# Offers Significant Upside to The Quality and Economics of Our Copper Assets



- Significant exploration potential remains on both our Kamoa-Kakula joint venture, and 100%<sup>(1)</sup> owned Western Foreland ground
- Significant potential for mineralization continuing from JV ground to Western Foreland ground
- New resource discovered on Western Foreland
- Recent new discovery of Kamoa Pyrite Siltstone (KPS) has delivered further ultra high-grade results, and promises continued future success

# **Exploration & Western Foreland**



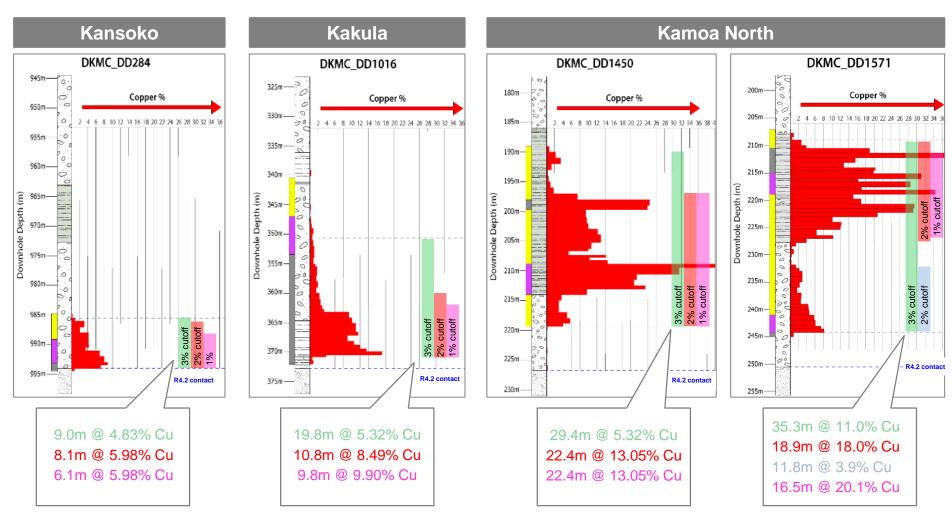
Significant recent drilling intercepts (at the 3%, 2% and 1% copper cut-off) from **Kamoa North Bonanza Zone** 

- DD1450 intersected 22.3 meters of 13.05% copper
- DD1486 intersected 16.70 metres of 15.84% copper
- DD1494 intersected 13.15 metres of 9.88% copper
- DD1497 intersected 13.60 metres of 18.48% copper
- DD1498 intersected 16.48 metres of 10.94% copper
- DD1499 intersected 16.93 metres of 11.31% copper
- DD1504 intersected 21.25 metres of 13.32% copper
- DD1571 intersected 18.86 meters of 18.0% copper (Niton analysis)

Exploration results have been excellent and the exploration process remains in its early stages



# We are finding more bonanza-grade ore as our knowledge of the deposit increases



For reference, the world's largest mine, Escondida, has an LOM grade of 0.5% copper

# **Environment for Return Toward Peak Cycle Valuations**



Peak Cycle

Nickel (\$/lb)

Today



Today

Peak Cycle

Copper (\$/lb)

# Ivanhoe Mines value proposition



Three large world-class mines, that are highlighted by low costs and low capital intensity – all three mines will be best of class!



Strong experienced management team with an unrivalled track record of success, poised to grow Ivanhoe into the next world-class mining company



Strong financial and strategic support from key Chinese partners

Strong shareholder register of global institutional investors



Strong balance sheet with no debt



Valuation and cycle suggest good timing to buy mining stocks

# Year-to-date price change (Jan 1 to Sep 13, 2019)

Ivanhoe Mines (IVN:TSX)	+63.71%
Rhodium (Rd spot)	+103.25%
Nickel (Ni LME 3mth)	+68.28%
Palladium (Pd NYM)	+39.63%
Platinum (Pt spot)	+19.29%
Gold (Au Spot)	+16.05%
Silver (Ag Spot)	+12.76%
Copper (Cu CMX)	+1.98%

