

# IVANHOE MINES

NEW HORIZONS



**Developing 3 of the world's best mines  
to supply vital metals for our urbanizing planet**

# Forward-looking statements & Qualified Person

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Certain statements in presentation constitute "forward-looking statements" or "forward-looking information" within the meaning of applicable securities laws, including, without limitation, the timing and results of: (i) statements regarding the ongoing development and exploration work at the Kamoa-Kakula Project, including drilling, decline development, and feasibility, pre-feasibility and preliminary economic assessment (PEA) studies; (ii) statements regarding the ongoing development work, including shaft sinking, and the feasibility study at the Platreef Project; and (iii) statements regarding ongoing upgrading and development work and the pre-feasibility study at the Kipushi Project. As well, the results of the prefeasibility study and PEA of the Kamoa-Kakula Project, the prefeasibility study of the Platreef Project and the PEA of the Kipushi Project constitute forward-looking 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, and estimates of capital and operating costs.

Such statements involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements of Ivanhoe, its mineral 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 Ivanhoe's current expectations regarding future events, performance and results and speak only as of the date of this presentation.

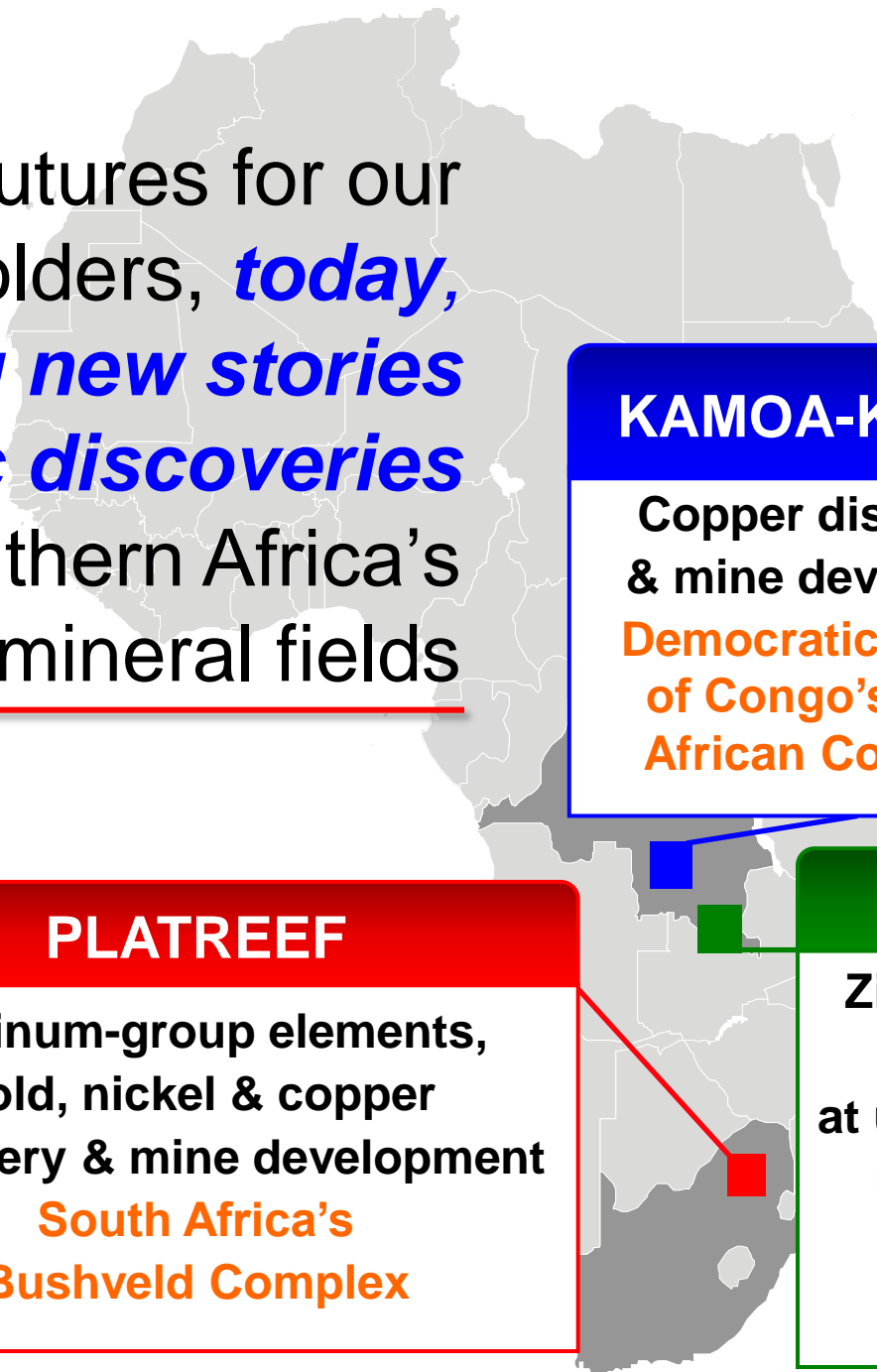
In making such statements, Ivanhoe has made assumptions regarding, among other things: the accuracy of the estimation of mineral resources; that exploration activities and studies will provide results that support anticipated development and extraction activities; that studies of estimated mine life and production rates at the Kamoa-Kakula, Kipushi and Platreef projects will provide results that support anticipated development and extraction activities; that Ivanhoe will be able to obtain additional financing on satisfactory terms; that infrastructure anticipated to be developed or operated by third parties, including electrical generation and transmission capacity, will be developed and/or operated as currently anticipated; that laws, rules and regulations are fairly and impartially observed and enforced; that the market prices for relevant commodities remain at levels that justify development and/or operation; that Ivanhoe will be able to successfully negotiate land access with holders of surface rights; and that war, civil strife and/or insurrection do not impact Ivanhoe's exploration activities or development plans.

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This presentation also contains references to estimates of Mineral Resources. The estimation of Mineral Resources is inherently uncertain and involves subjective judgments about many relevant factors. 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 estimates may have to be re-estimated based on: (i) fluctuations in copper, nickel, 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 (vi) the possible failure to receive required permits, approvals and licences.

Disclosures of a scientific or technical nature in this presentation 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. Ivanhoe has prepared a NI 43-101 compliant technical report for each of the Kamoa-Kakula Project, the Platreef Project and the Kipushi Project, which are available under the company's SEDAR profile at [www.sedar.com](http://www.sedar.com). These technical reports include relevant information regarding the effective date and the assumptions, parameters and methods of the mineral resource estimates on the Kamoa-Kakula Project, Kipushi Project and Platreef Project cited in this presentation, as well as information regarding data verification, exploration procedures and other matters relevant to the scientific and technical disclosure contained in this presentation in respect of the Kamoa-Kakula Project, Platreef Project and Kipushi Project.



Building futures for our stakeholders, *today, and writing new stories of epic discoveries* in Southern Africa's legendary mineral fields

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### KAMOA-KAKULA

Copper discoveries & mine development

Democratic Republic of Congo's Central African Copperbelt

### PLATREEF

Platinum-group elements, gold, nickel & copper discovery & mine development

South Africa's Bushveld Complex

### KIPUSHI

Zinc, copper, silver & germanium at upgraded, historic, high-grade mine

D.R. Congo's Copperbelt



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NEW HORIZONS

# Platreef Discovery & Mine Development

South Africa





**February 26, 2018:**  
Shaft 1 has reached  
a depth of **671 metres  
below surface**,  
nearing the Flatreef  
PGM, nickel and  
copper orebody  
at a depth  
of approximately 780  
metres below surface.

***Development work focused  
on initial production by early 2022.***



# July 31, 2017: Definitive feasibility study issued for Platreef Project

PLATREEF

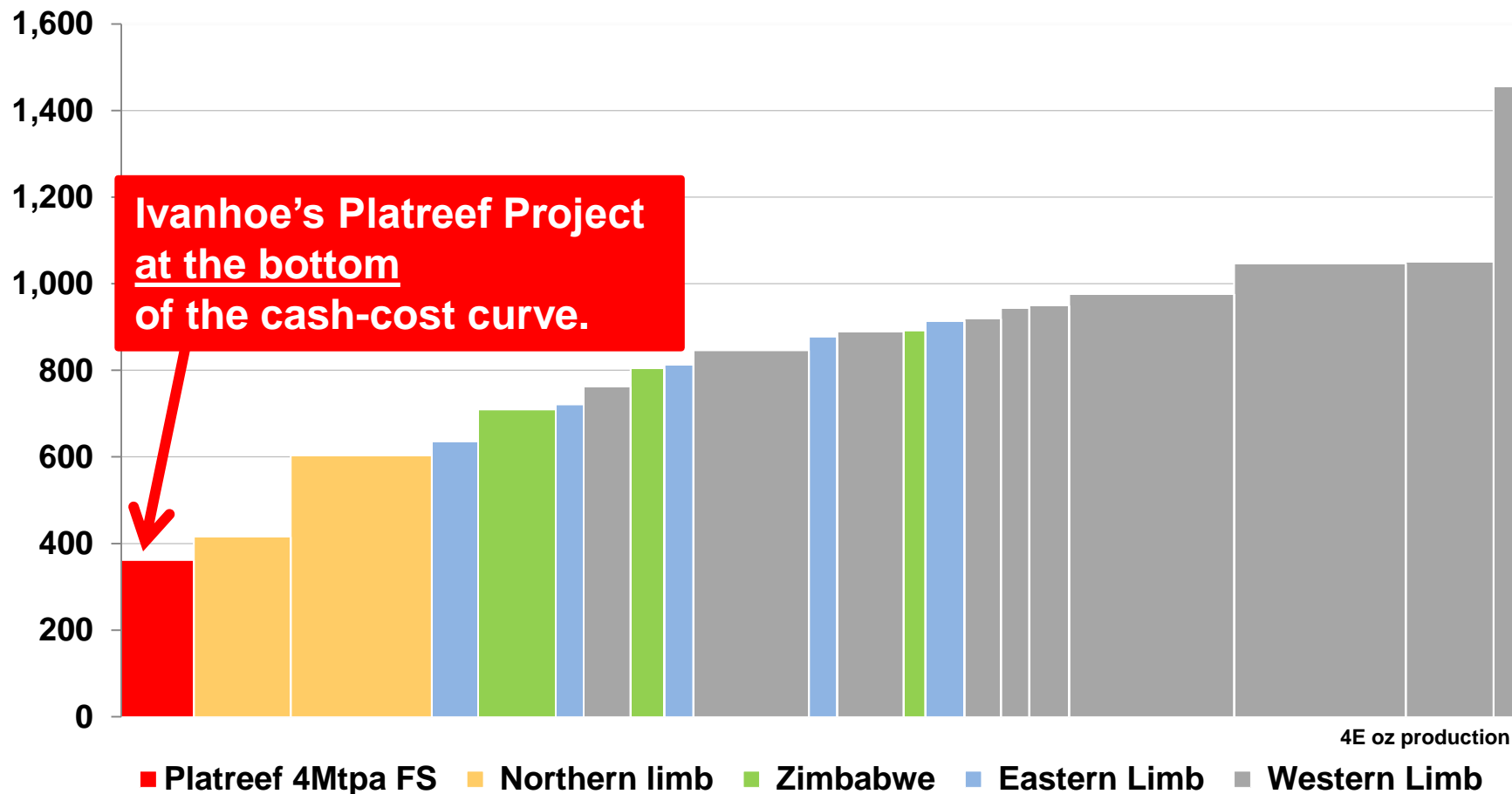
- First phase envisages annual throughput rate of 4Mtpa, producing **476,000 ounces of platinum, palladium, rhodium and gold, plus 33 million pounds of nickel and copper.**
- Projected to be Africa's lowest-cost producer of PGMs, with a cash cost of **US\$351 per ounce** of **3PE+Au.**



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# Platreef's potential US\$351 per 3PE+Au ounce (net of base-metal by-products) at the bottom of the world's cash-cost curve

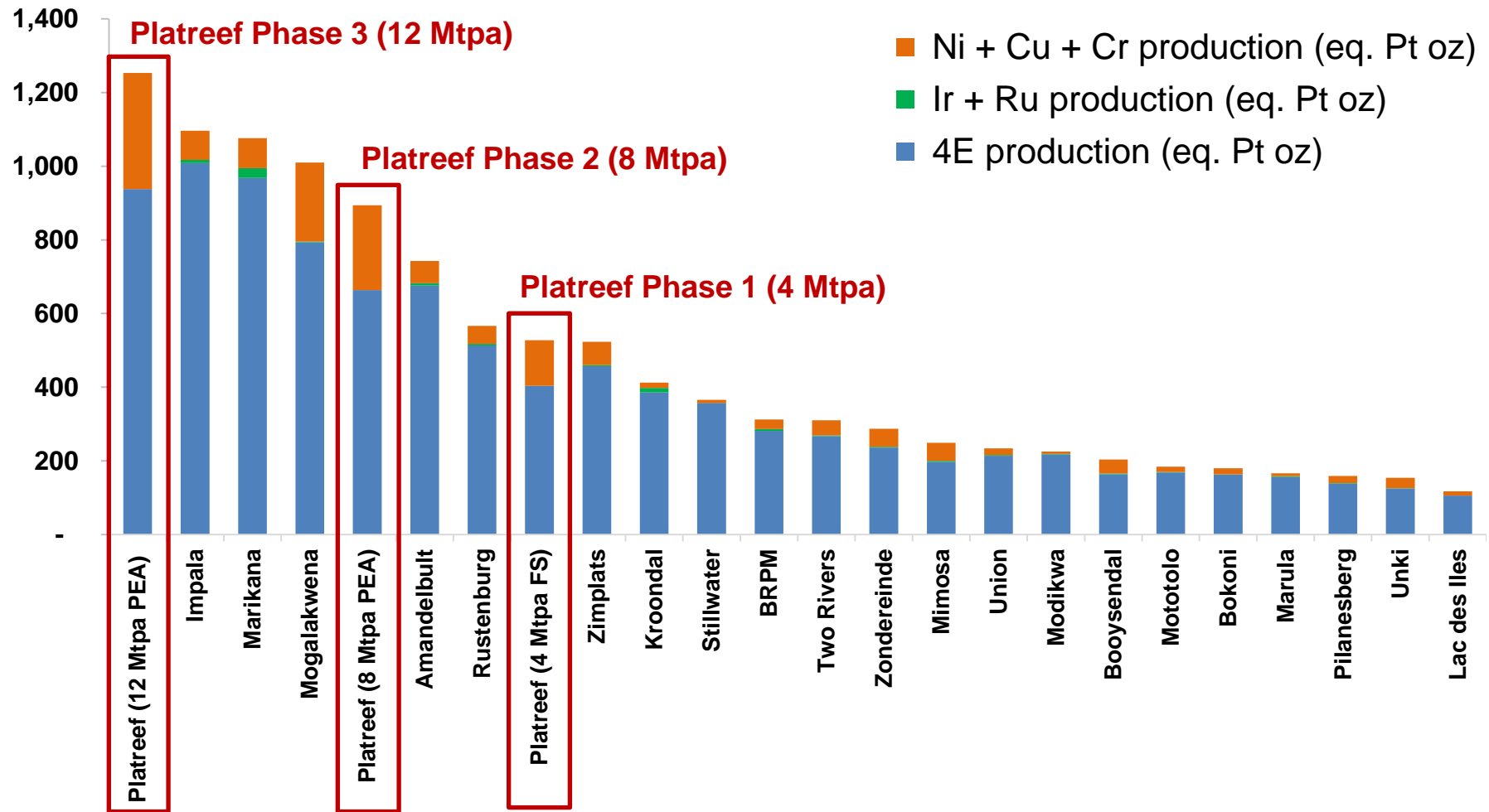
PLATREEF



Source: SFA (Oxford). Data for Platreef Project and Waterberg are based on each project's reported DFS and PFS parameters respectively, and are not representative of SFA's view.

# At 12 million tonnes/year, Platreef will be world's largest platinum-group metals mine

PLATREEF



Source: Production estimates for projects other than Ivanhoe's Platreef Project have been prepared by SFA (Oxford). Production data for the Platreef Project (platinum, palladium, rhodium, gold, nickel and copper) is based on reported DFS and PEA data and is not representative of SFA's view. All metals have been converted by SFA (Oxford) to platinum equivalent ounces at price assumptions of US\$1,076/oz platinum, US\$761/oz palladium, US\$1,235/oz gold, US\$821/oz rhodium, US\$5.07/lb nickel and US\$2.42/lb copper. Note: As the figures are platinum-equivalent ounces of production they will not be equal to 3PE+Au production.



**July 2017 – A site visit by German, Swedish and Canadian government institutions appointed to arrange debt financing for Platreef. Expressions of interest received for approximately US\$900 million of a US\$1 billion finance package.**

**PLATREEF**



**IVANHOE**



**April 2017:** Ivanhoe announces start of surface construction for Shaft 2, which will be Platreef's main production shaft with a hoisting capacity of six million tonnes a year.

Illustration shows two perspectives of Shaft 2's  
← 103-metre-tall concrete headgear and internal permanent hoisting facilities.



## Ivanhoe's Shaft 2

vs.

## Impala's Shaft 16



Purpose

Production shaft

Production shaft

Location

Northern Limb of Bushveld  
Complex

Western Limb of Bushveld  
Complex

Total depth

Approx. 1,100 metres

1,657 metres

Diameter

10 metres

10 metres

Hoisting capacity

6 million tonnes/year

2.7 million tonnes/year

Start of construction

2019

2004

Operation date

2021 est.

November 2014

# Platreef's B-BBEE deal is a top performer in South Africa's platinum sector

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**BEE partner's 26% ownership stake in Platreef Project is one of the broadest empowerment transactions ever done in South African mining.**

- **20%** held by a trust to benefit 20 local host communities, with estimated combined population of 150,000, in the vicinity of Platreef mine.
- **3%** held by a trust for Platreef's historically disadvantaged, non-managerial South African employees.
- **3%** held by a consortium of 187 local entrepreneurial companies and 333 individual shareholders.

**In January 2015, Ivanplats (Ivanhoe's subsidiary) was awarded "platinum sector's top performer" in South African government's black economic empowerment benchmark scorecard.**



# Sinking platform in operation in Shaft 1

PLATREEF



**Shaft 1 is expected to reach its projected, final depth of 980 metres below surface in 2019**

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# Removal of broken rock from shaft-sinking development

PLATREEF



IVANHOE



# The remote-operated cactus grab used to remove broken rock from shaft-sinking development

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# Strong and supportive strategic partners

- ITOCHU Corporation; Japan Oil, Gas and Metals National Corporation; and Japan Gas Corporation acquired 10% for approx. US\$300 million.
- Potential Japanese government-supported project financing and off-take agreements.



Itochu team  
site visit.

# Flatreef mining method: long-hole stoping

## Highly mechanized mining

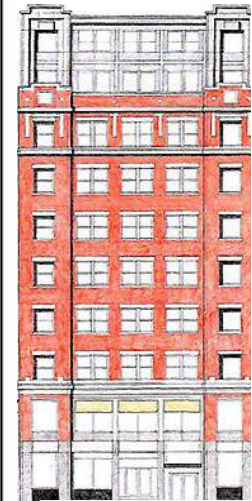


## Safe working conditions

## Blast-hole drifts

# Mucking drifts

**The Flatreef Deposit  
average thickness  
of 24 metres = 8 storeys**



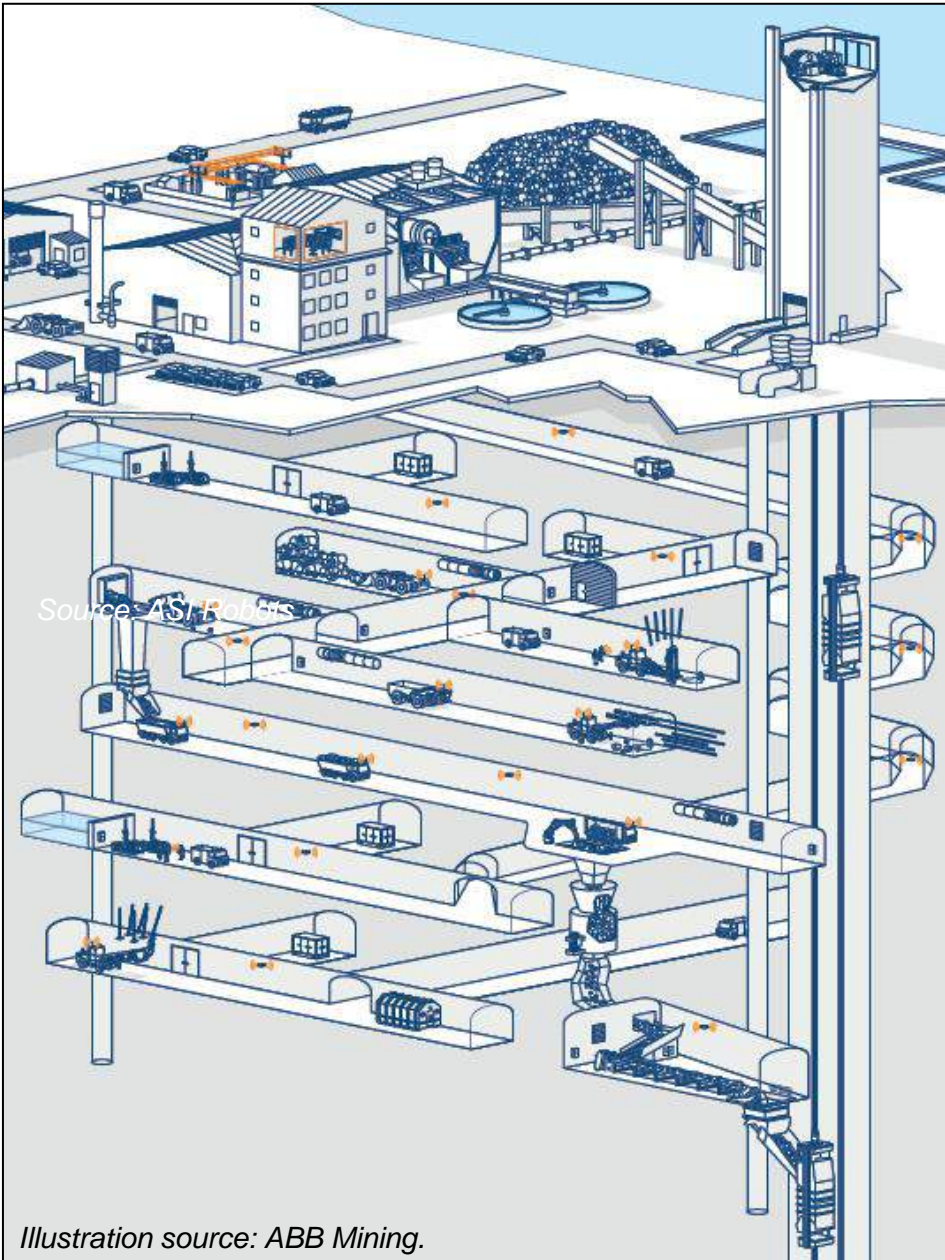
## Highly skilled operators



# The future of underground mining is automation

PLATREEF

**Ivanhoe's Platreef Platinum Project in South Africa is ideally suited for mechanized, autonomous mining.**

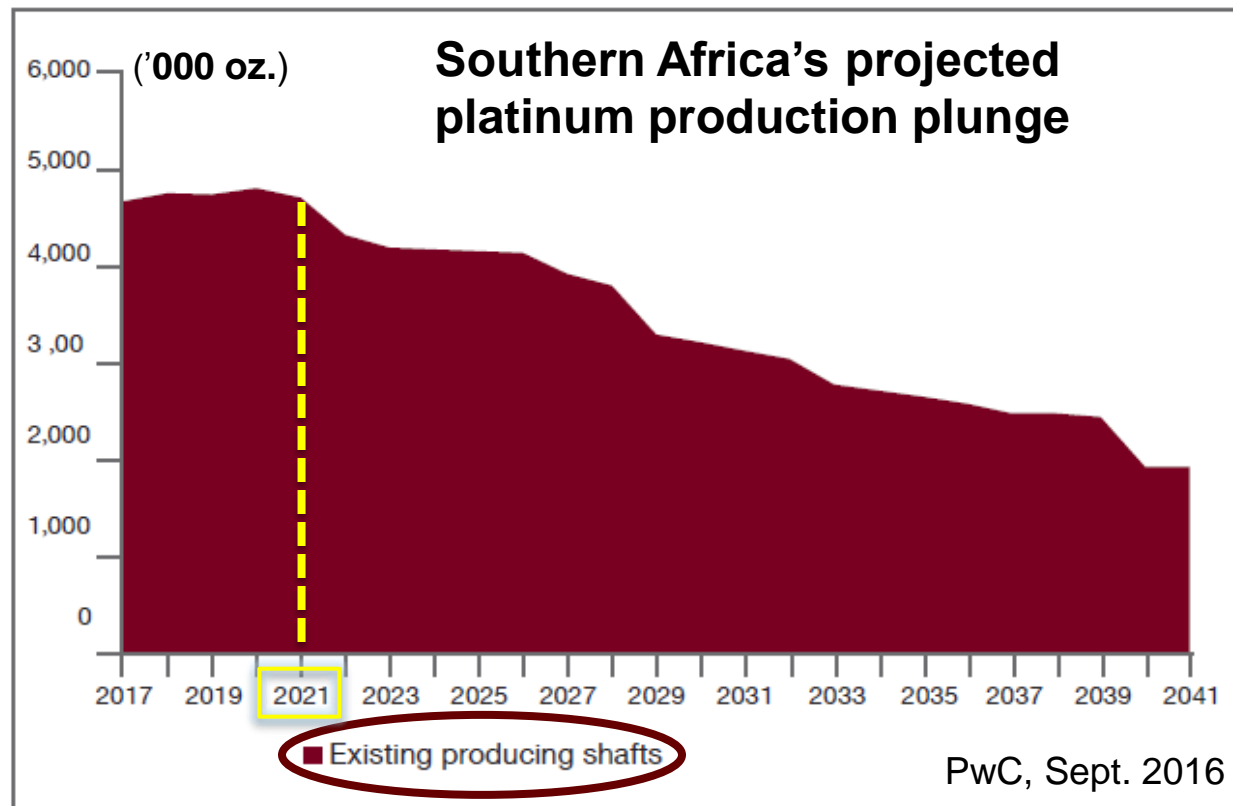


Source: ASI Robots

Illustration source: ABB Mining.

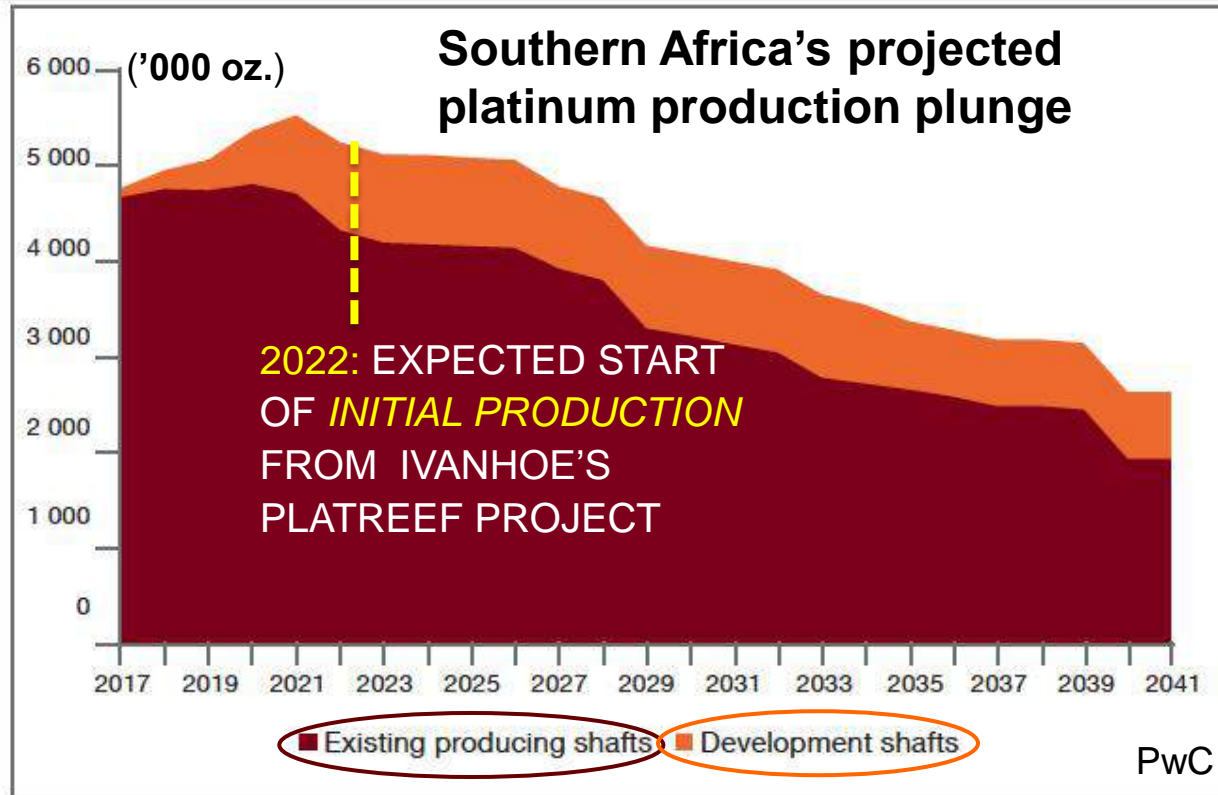
Source: MINEX Forum

# The looming platinum “supply cliff” for Southern Africa’s existing producing mines



- Existing shafts alone will barely maintain current production to 2021.
- Then, closures of mined-out shafts will help trigger a long production decline – and higher prices.
- Filling such a supply-demand gap holds challenges and opportunities.

# Even new production now under development likely to provide only short-lived lift in platinum output



- Ivanhoe's Platreef is among new projects whose ramp-up outputs will slightly lift regional supply until 2021 – when the decline will resume.
- Projected 2021 peak output of 5.5 million ounces, even plus global supply, still will be below the average demand, net of recycling, of the past 3 years.

Source: "Platinum on a knife-edge", PwC, September 2016



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# Kamoa Mine Development & Kakula Discovery

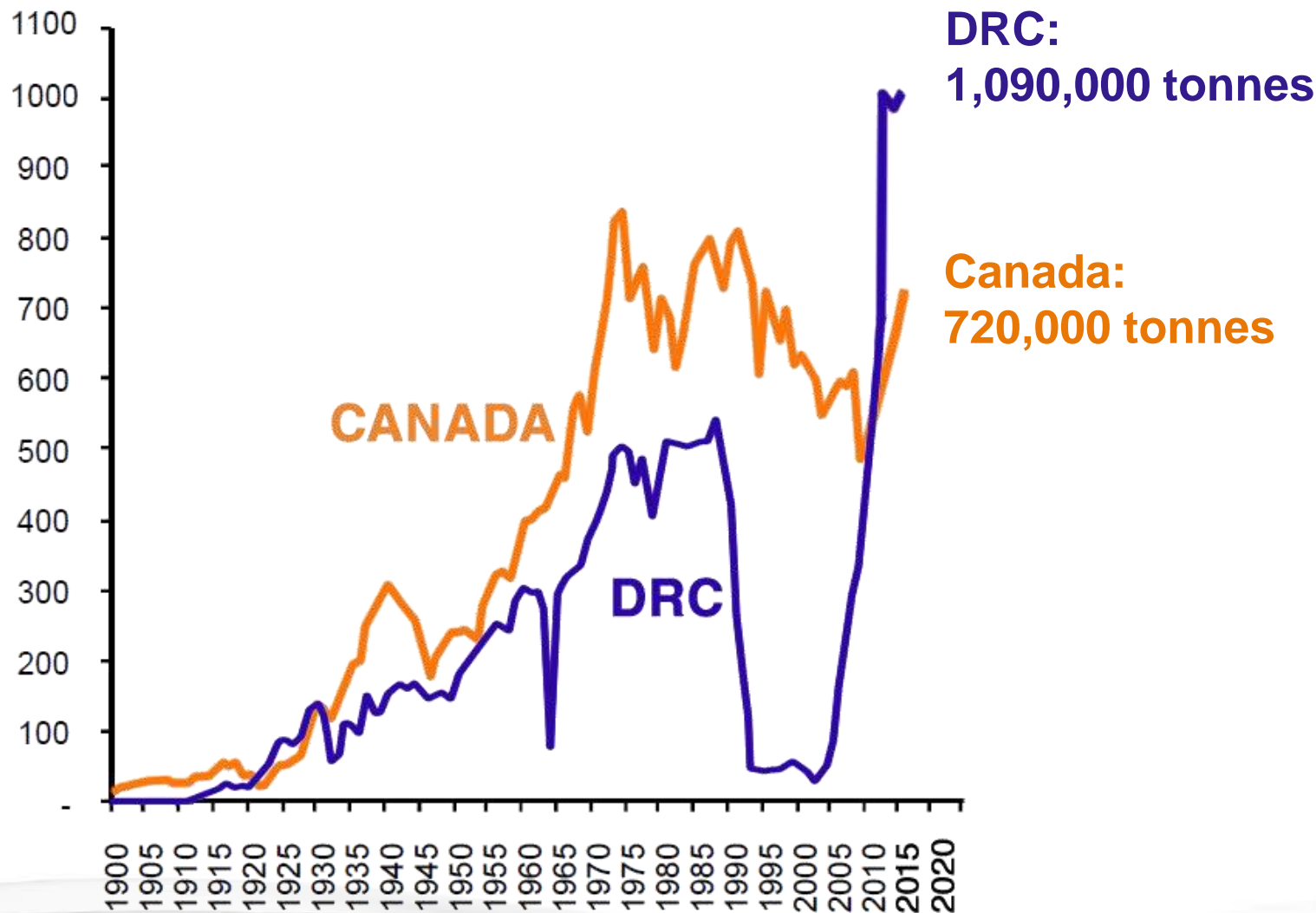
Democratic Republic of Congo



# Congo produces more copper than Canada!

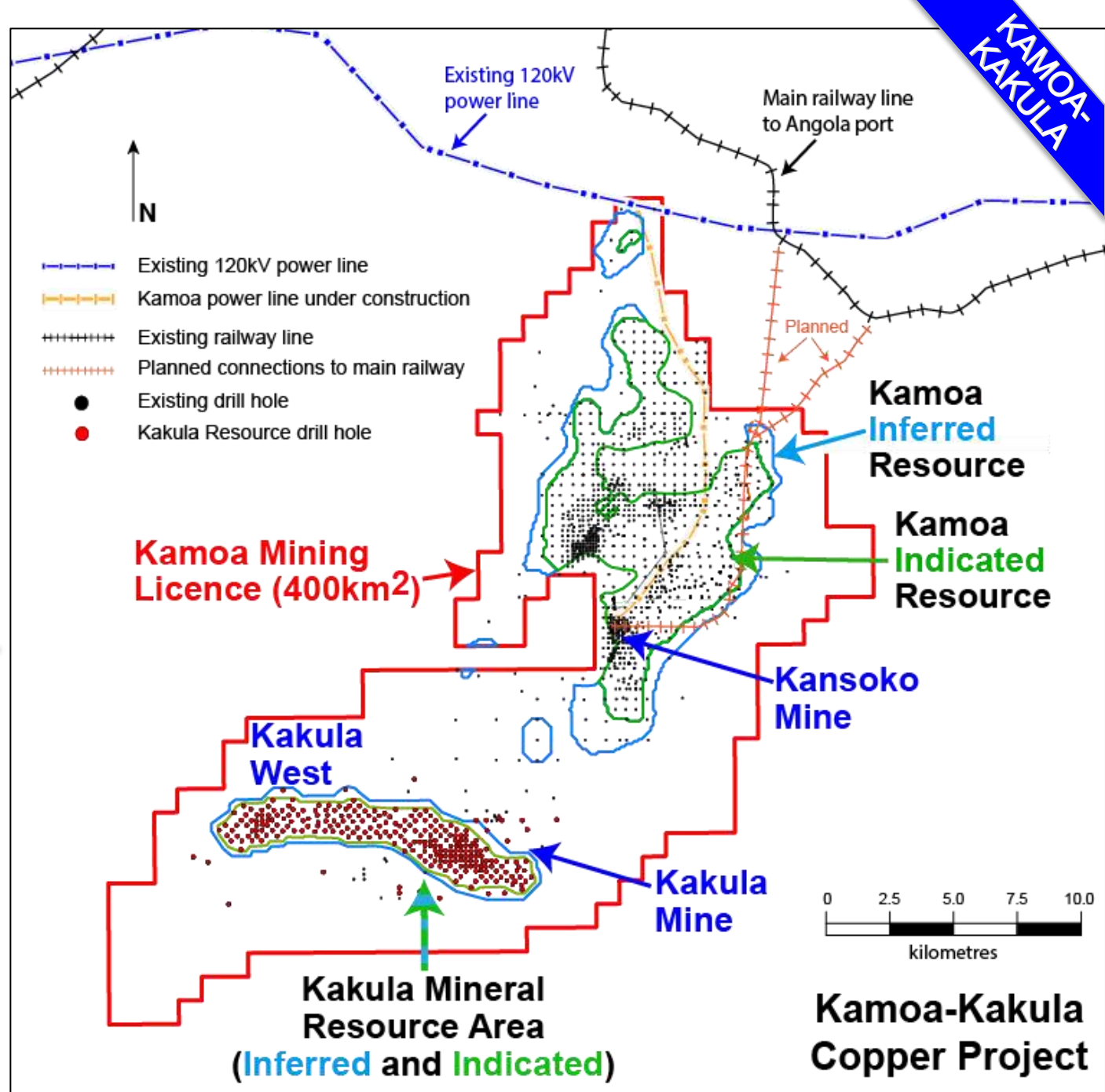
KAMOA-KAKULA

Mined copper  
output (kilotons)





# Kamoa, Kakula and Kakula West Indicated and Inferred Mineral Resource areas, with existing power and rail infrastructure



**February 2018:** A new resource estimate establishes Kamoia-Kakula as the world's *fourth largest copper discovery.*

Copper grades at the two adjacent deposits are the highest, by a wide margin, of the world's top 10 copper deposits

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KAMOA-KAKULA





# Indicated Mineral Resources, Kamoa-Kakula Project, February 2018

KAMOA-KAKULA

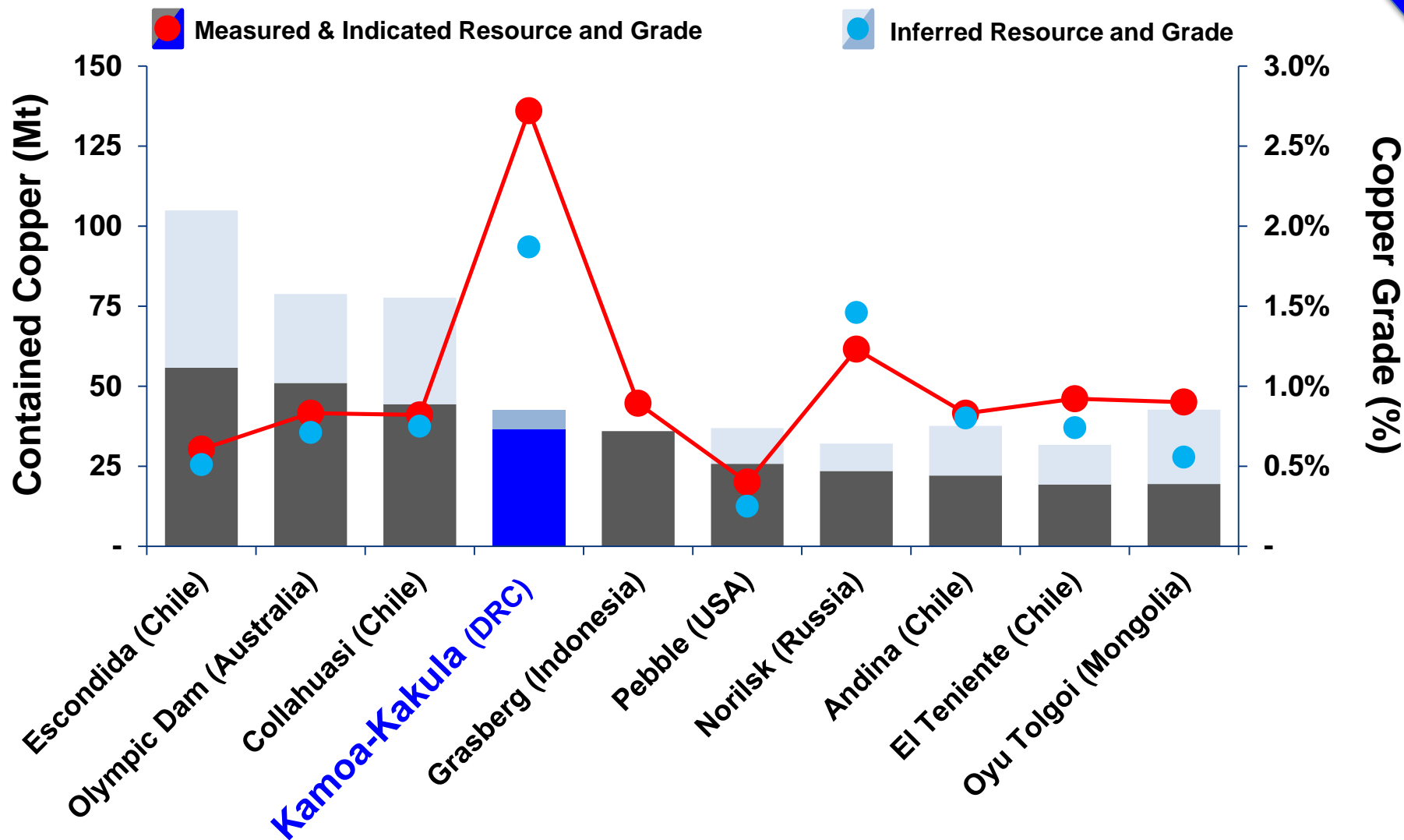
Category	Cut-off Grade (Cu%)	Tonnes (millions)	Area (Sq. km)	Copper Grade	Contained Copper (kTonnes)	Contained Copper (billion lbs)
Indicated	3.0	396	33.2	4.79%	19,000	41.8
Indicated	2.5	535	44.0	4.25%	22,800	50.2
Indicated	2.0	780	53.8	3.63%	28,300	62.4
Indicated	1.5	1030	62.8	3.17%	32,500	71.7
Indicated	1.0	1340	70.1	2.72%	36,600	80.7

## Notes:

Ivanhoe's Mineral Resources Manager, George Gilchrist, Professional Natural Scientist (Pr. Sci. Nat) with the South African Council for Natural Scientific Professions (SACNASP), estimated the Mineral Resources under the supervision of Dr. Harry Parker and Gordon Seibel, both Registered Members of the Society for Mining, Metallurgy and Exploration (SME), who are the Qualified Persons for the Mineral Resource estimate. The effective date of the estimate is February 23, 2018. Mineral Resources are estimated using the 2014 CIM Definition Standards for Mineral Resources and Mineral Reserves. Mineral Resources at Kamoa are inclusive of Mineral Reserves. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. No Mineral Reserves are currently estimated at Kakula. Mineral Resources at Kamoa are reported using a total copper (TCu) cut-off grade of 1% TCu and a minimum vertical thickness of 3 m. There are reasonable prospects for eventual economic extraction under assumptions of a copper price of US\$3.00/lb; employment of underground mechanized room-and-pillar and drift-and-fill mining methods; and that copper concentrates will be produced and sold to a smelter. Mining costs are assumed to be US\$27/t, and concentrator, tailings treatment, and general and administrative costs (G&A) are assumed to be US\$17/t. Metallurgical recovery for Kamoa is estimated to average 84%. At a 1% TCu cut-off grade, assumed net smelter returns for 100% of Mineral Resource blocks will cover concentrator, tailings treatment, and G&A costs. Mineral Resources at Kakula are reported using a TCu cut-off grade of 1% TCu and an approximate minimum thickness of 3 m. There are reasonable prospects for eventual economic extraction under assumptions of a copper price of US\$3.00/lb, employment of underground, mechanized, room-and-pillar and drift-and-fill mining methods, and that copper concentrates will be produced and sold to a smelter. Mining costs are assumed to be US\$42/t and concentrator, tailings treatment, and G&A costs are assumed to be US\$18/t. Metallurgical recovery is assumed to average 85% at the average grade of the Mineral Resource. Ivanhoe is studying reducing mining costs using a controlled convergence room-and-pillar method. At a 1% TCu cut-off grade, assumed net smelter returns for 100% of Mineral Resource blocks will cover concentrator, tailings treatment and G&A costs. Reported Mineral Resources contain no allowances for hangingwall or footwall contact boundary loss and dilution. No mining recovery has been applied. Tonnage and contained-copper tonnes are reported in metric units, contained-copper pounds are reported in imperial units and grades are reported as percentages. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content. Resources stated in Tables 1, 2 and 3 are not additive to this table.

# Among the world's largest copper deposits, Kamo-a-Kakula also has the highest copper grades

KAMOA-KAKULA



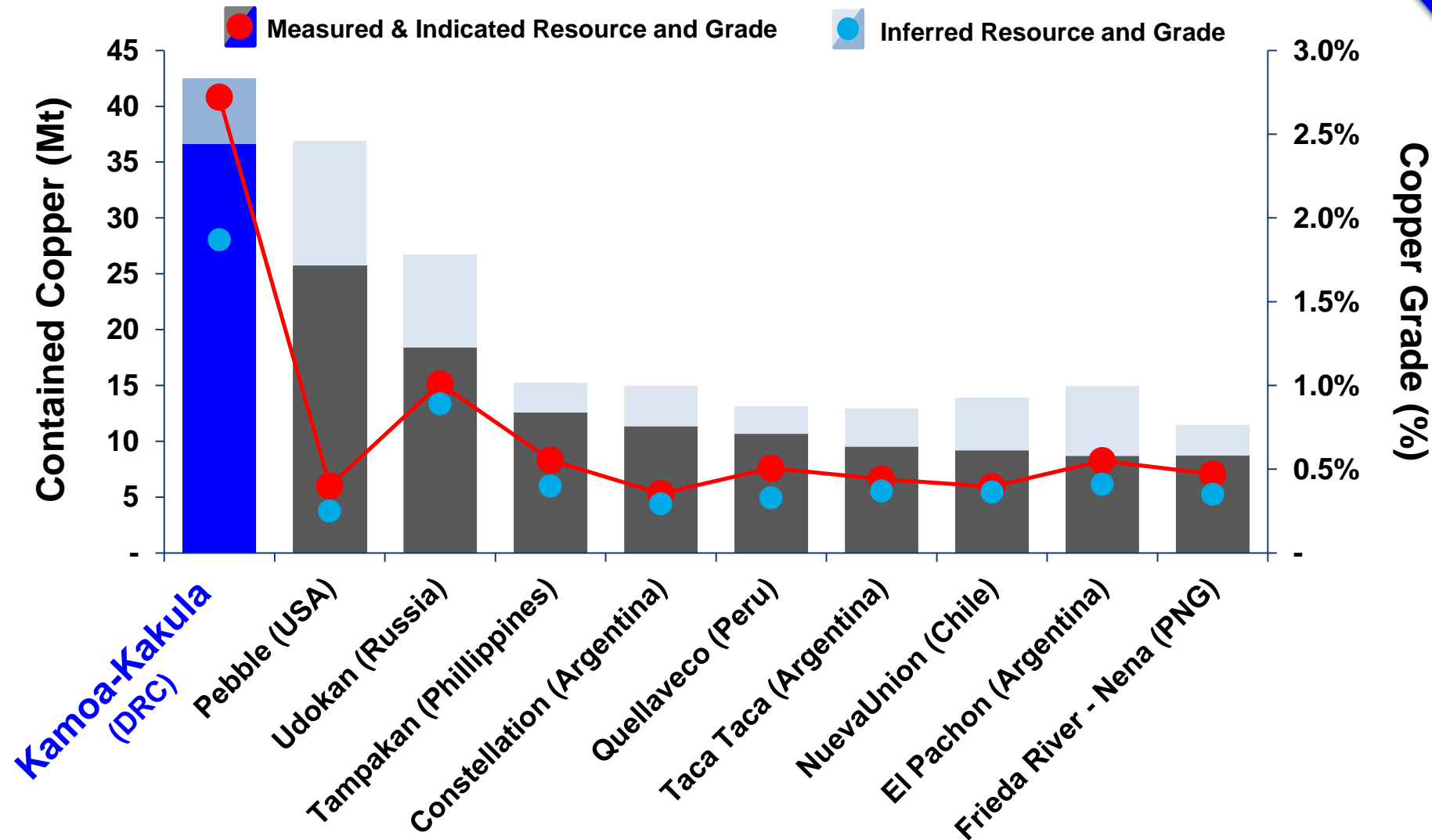
Source: Wood Mackenzie

\*Note: Selected based on contained copper (Measured & Indicated Resources, inclusive of Mineral Reserves, and Inferred Resources), ranked on contained copper in Measured & Indicated Resources



# Kamoa-Kakula is the largest undeveloped copper deposit in the world

KAMOA-KAKULA

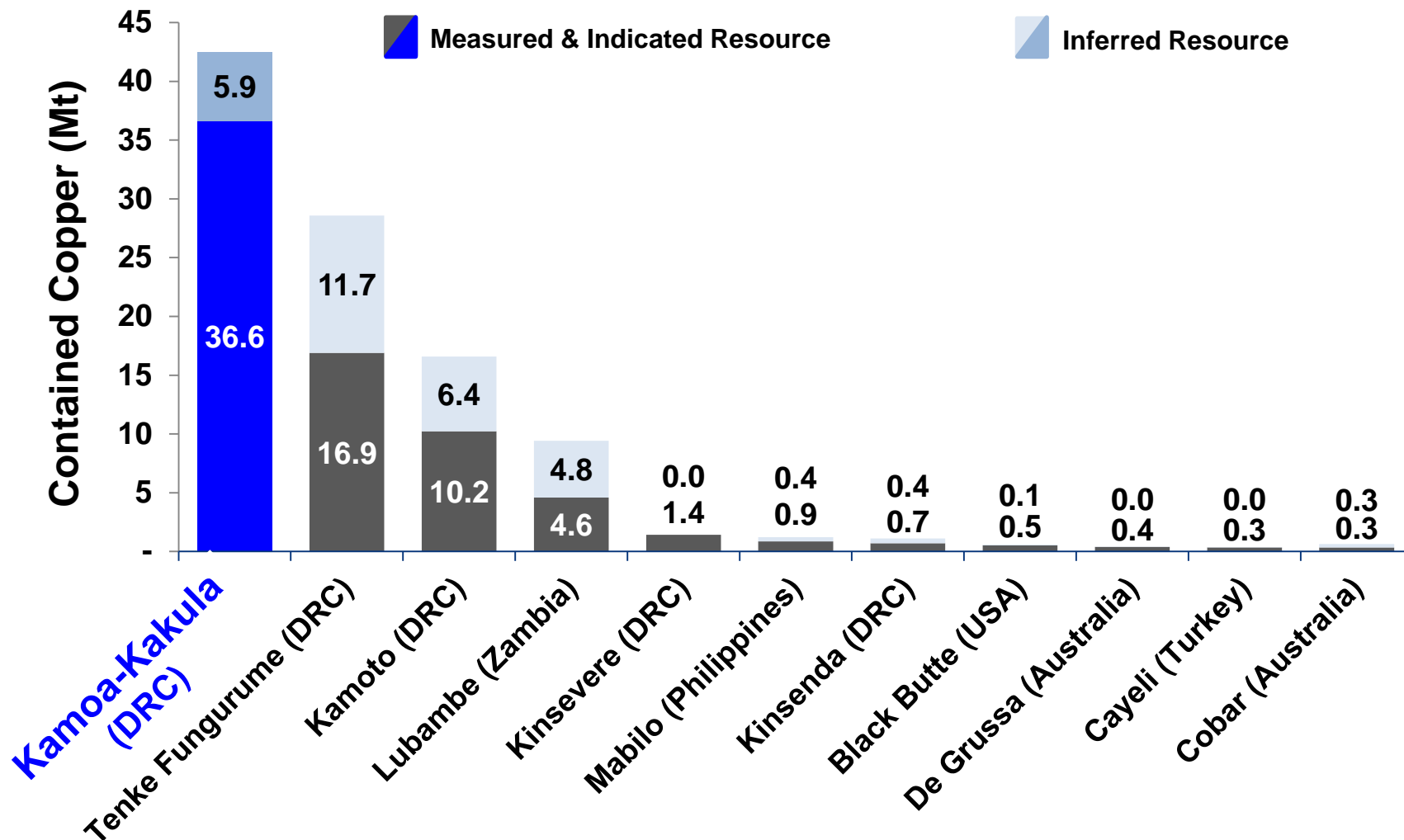


Source: Wood Mackenzie

\*Note: Contained copper in undeveloped deposits (Measured & Indicated Resources, inclusive of Mineral Reserves, and Inferred Resources), ranked on contained copper in Measured & Indicated Resources.

# Kamoa-Kakula is the largest high-grade copper deposit in the world

KAMOA-KAKULA



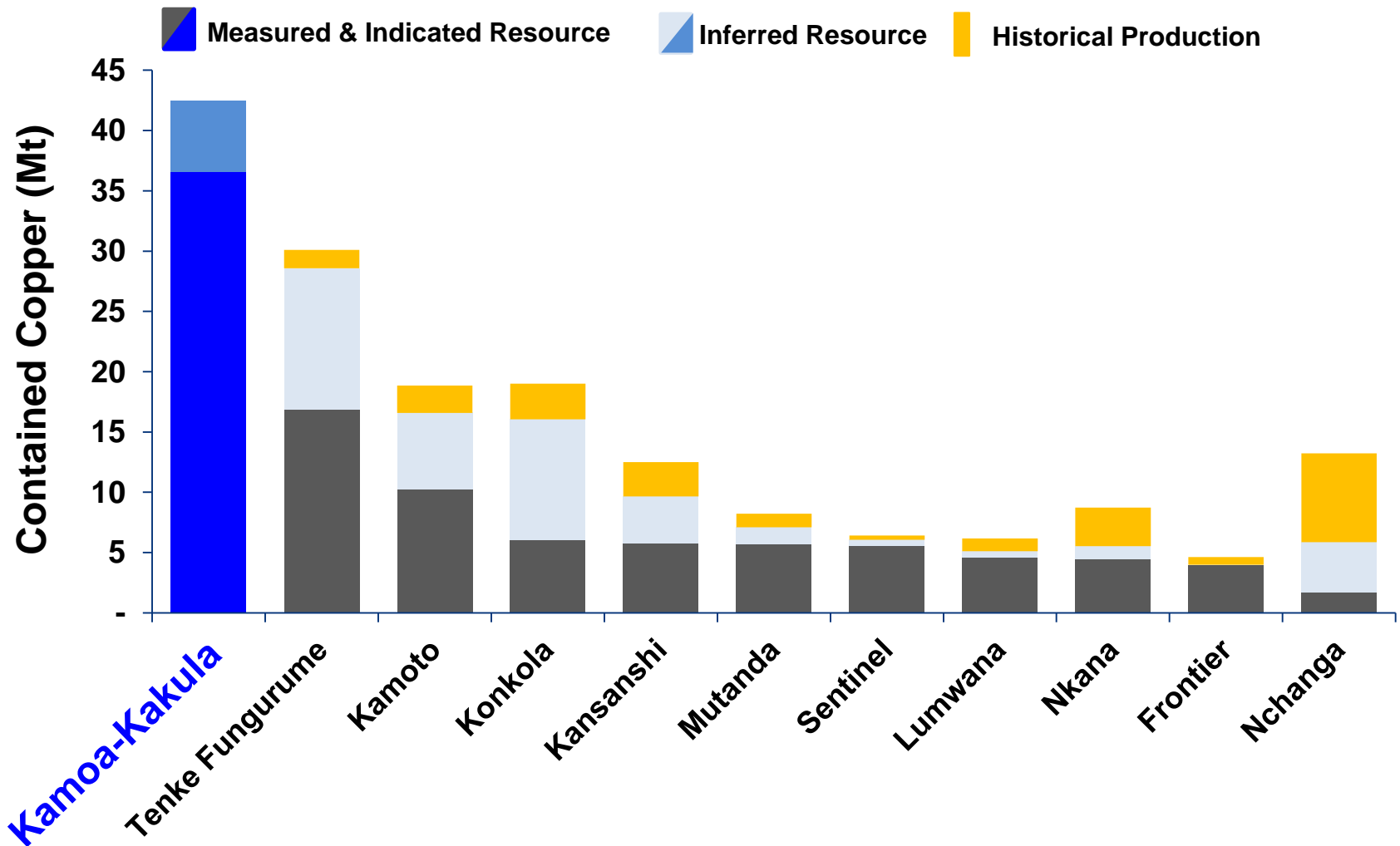
Source: Wood Mackenzie

\*Note: Contained copper in high-grade deposits (Measured & Indicated Resources, inclusive of Mineral Reserves, and Inferred Resources), with grades above 2.5% copper



# Kamoa-Kakula is the largest copper discovery ever made on the African continent

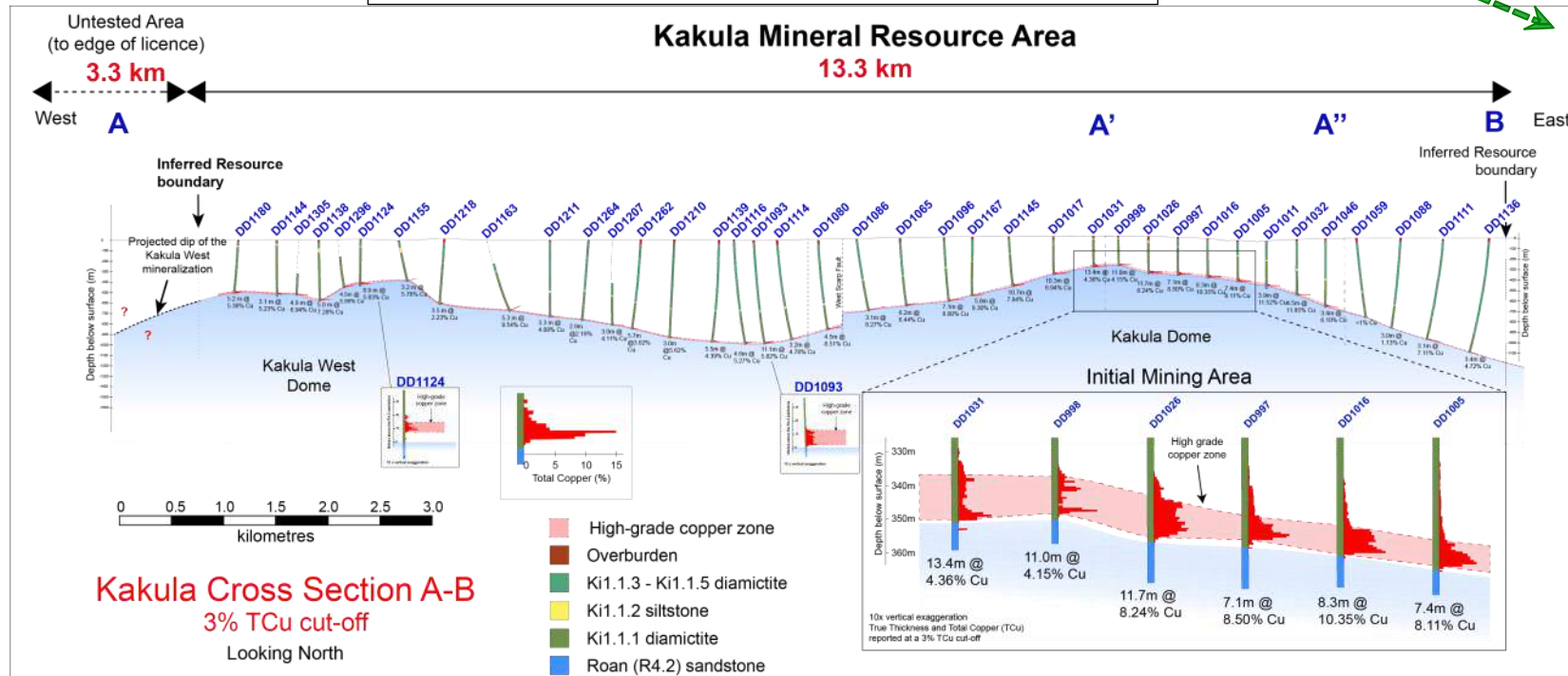
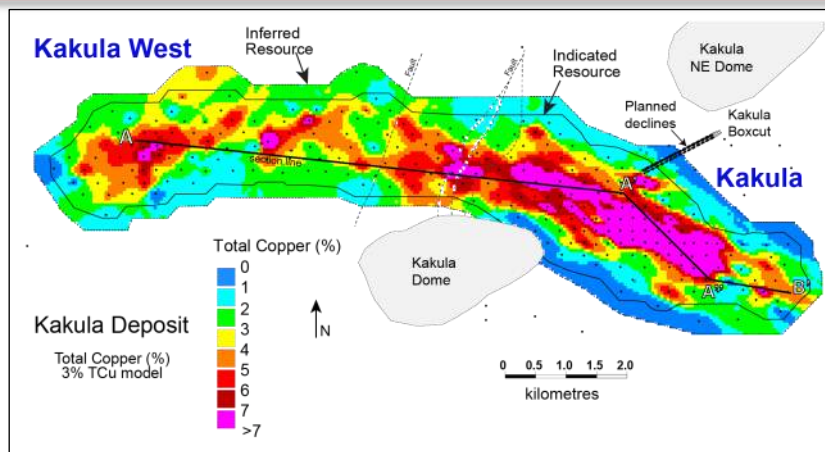
KAMOA-KAKULA



Source: Wood Mackenzie and USGS

# Extent of Kakula / Kakula West Discovery

KAMOA-KAKULA

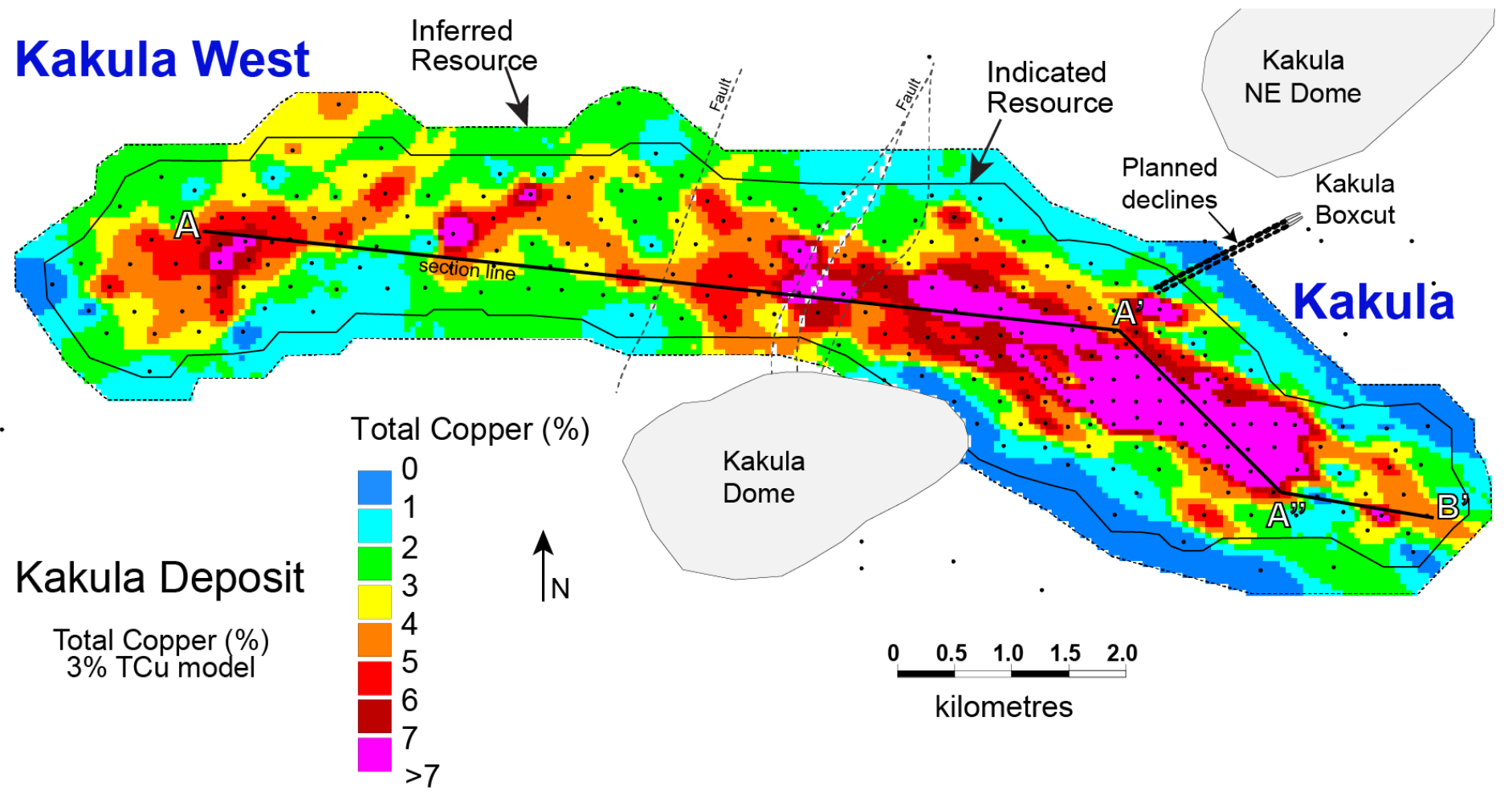


**Kakula West discovery extends known mineralization to more than 13 km, and remains open.**

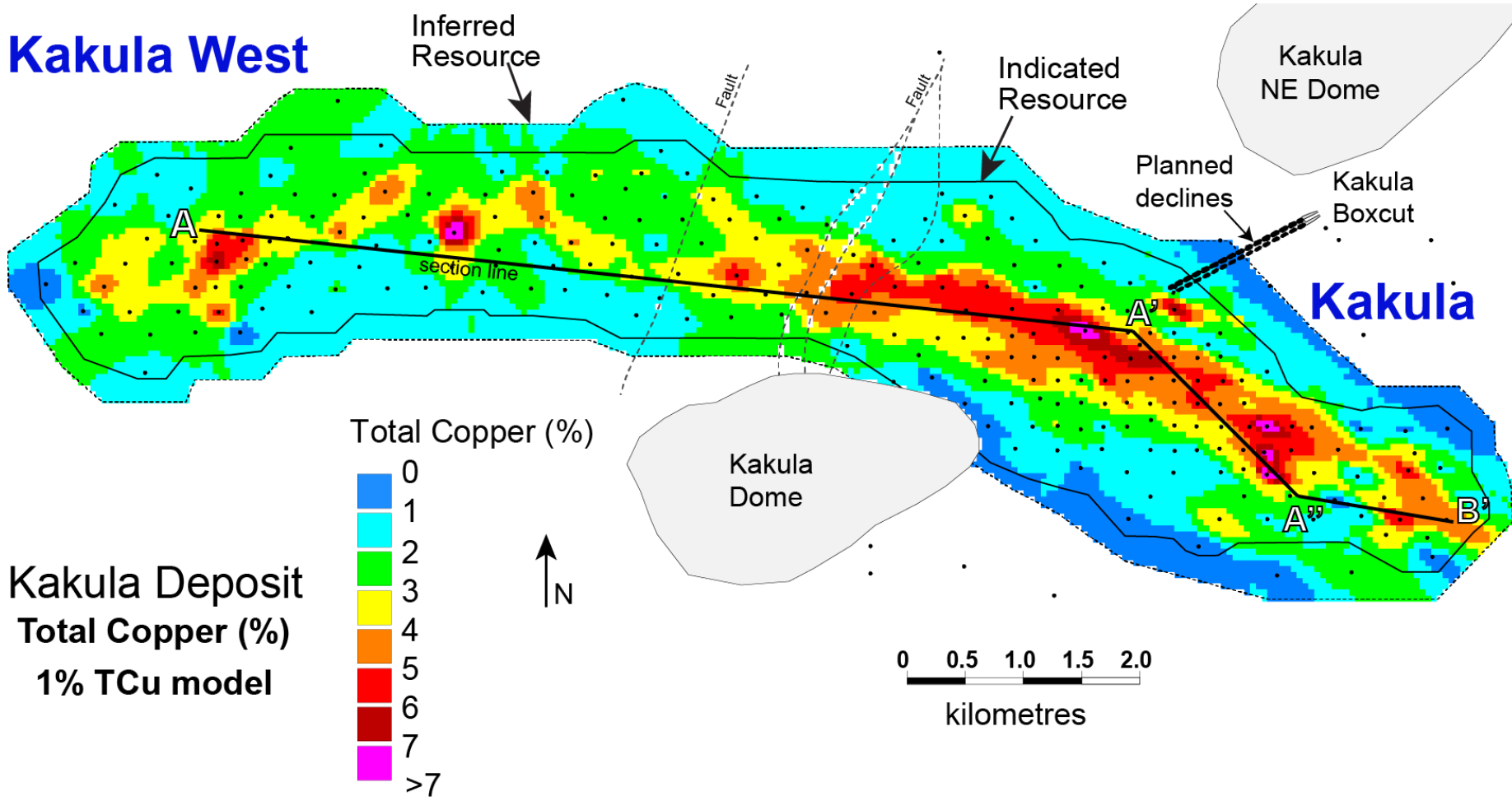
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# Kakula and Kakula West discovery areas showing grades of Indicated and Inferred Mineral Resource blocks at a 3% copper cut-off

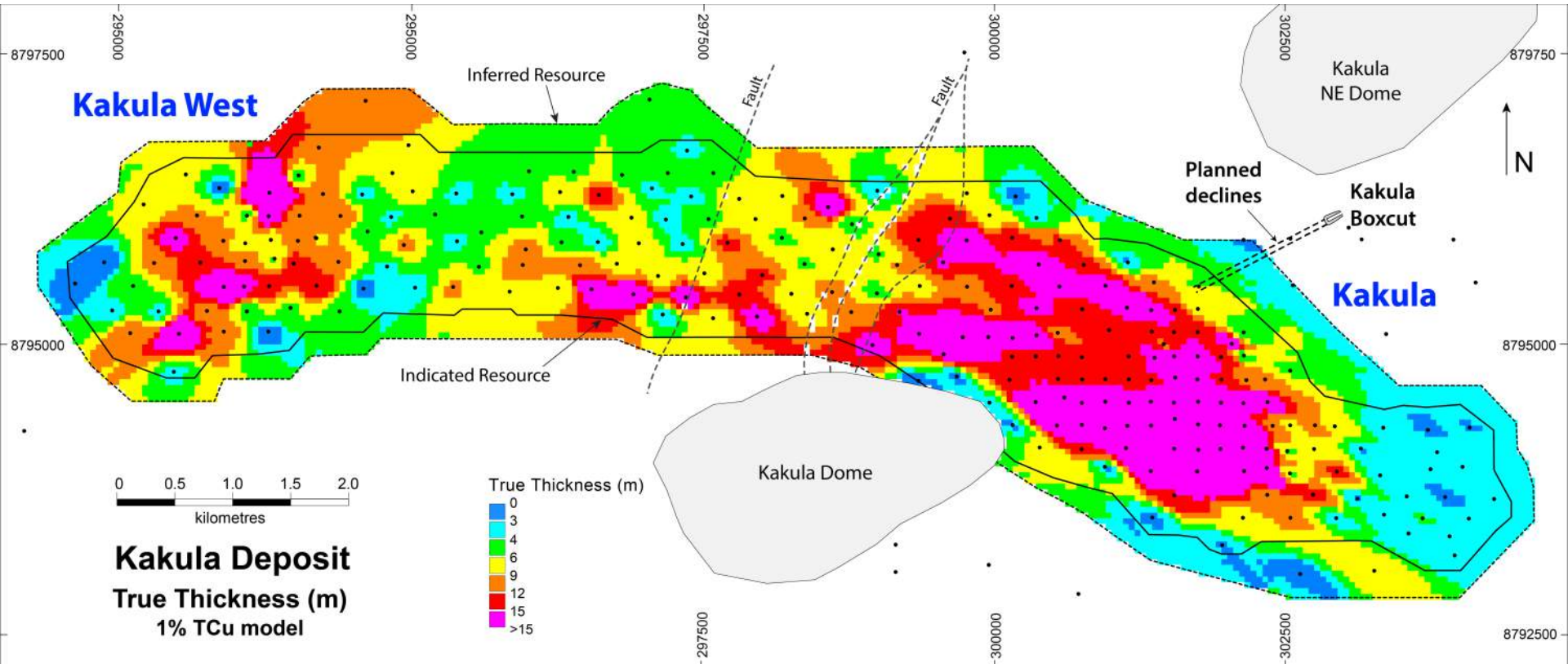


# Kakula and Kakula West discovery areas showing grade of Indicated and Inferred Mineral Resource blocks at a 1% copper cut-off

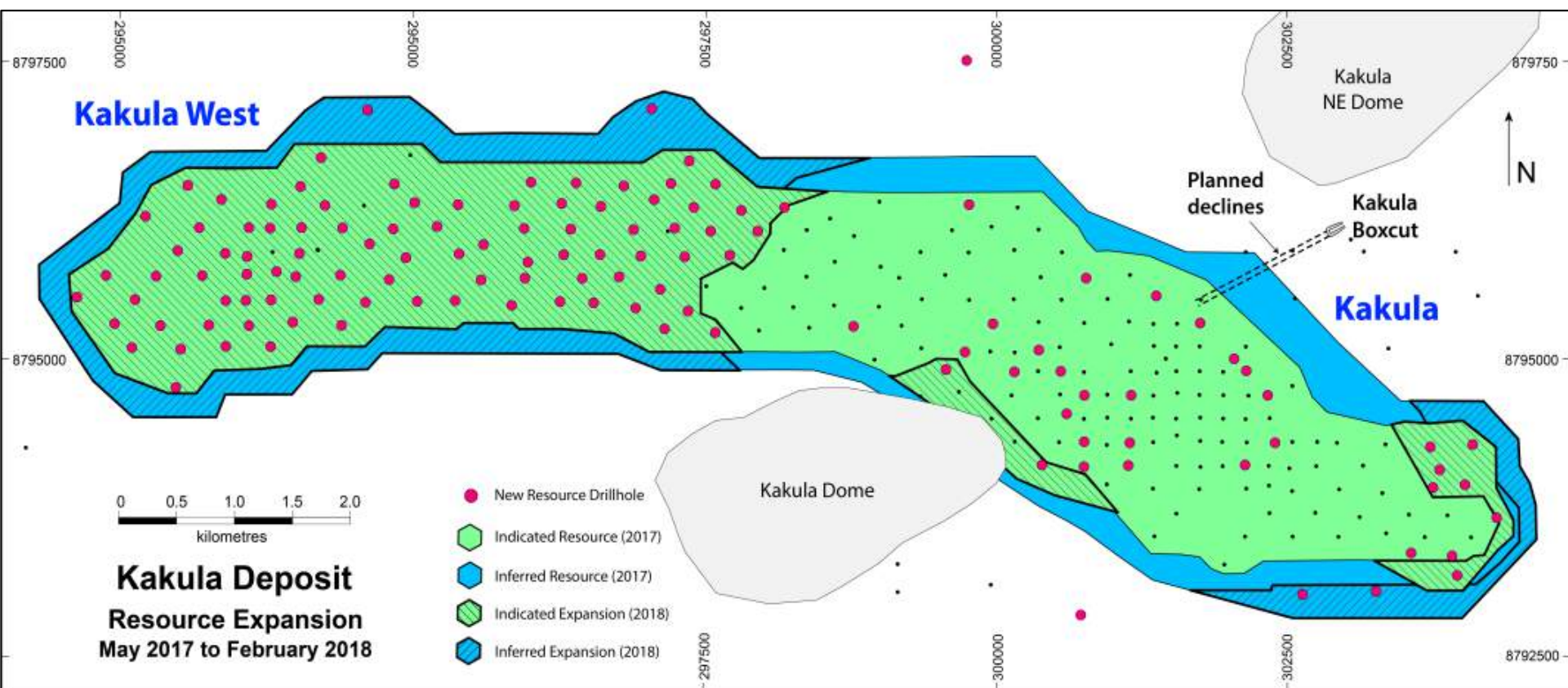




# Kakula and Kakula West discovery areas showing the thickness of Indicated and Inferred Mineral Resource blocks at a 1% copper cut-off



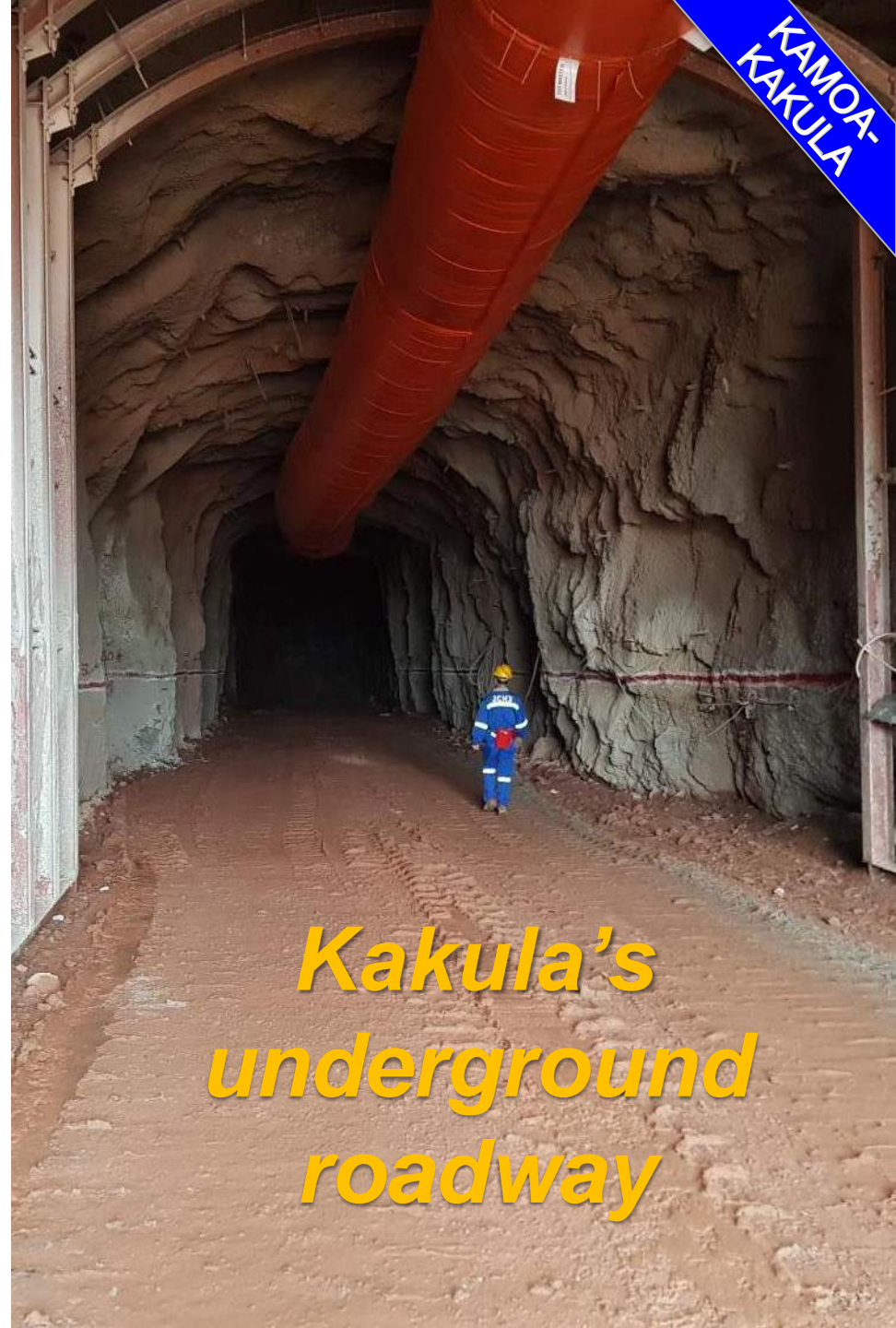
# Kakula and Kakula West discovery areas showing expansion of Indicated and Inferred Mineral Resources since May 2017





**Development options:**  
***Up to three six-million-***  
***tonne-per-year mines!***  
***That's 18 million tonnes***  
***per year!***

1. Kakula Mine – being fast tracked to production with capacity of **6 Mtpa**.
2. Kansoko Mine – development ready, also with capacity of **6 Mtpa**.
3. Kakula West and Kamoa North – potential additional mining areas.



***Kakula's  
underground  
roadway***



Underground development has advanced each of the service and conveyor declines more than **200 metres toward the mineralized zone**

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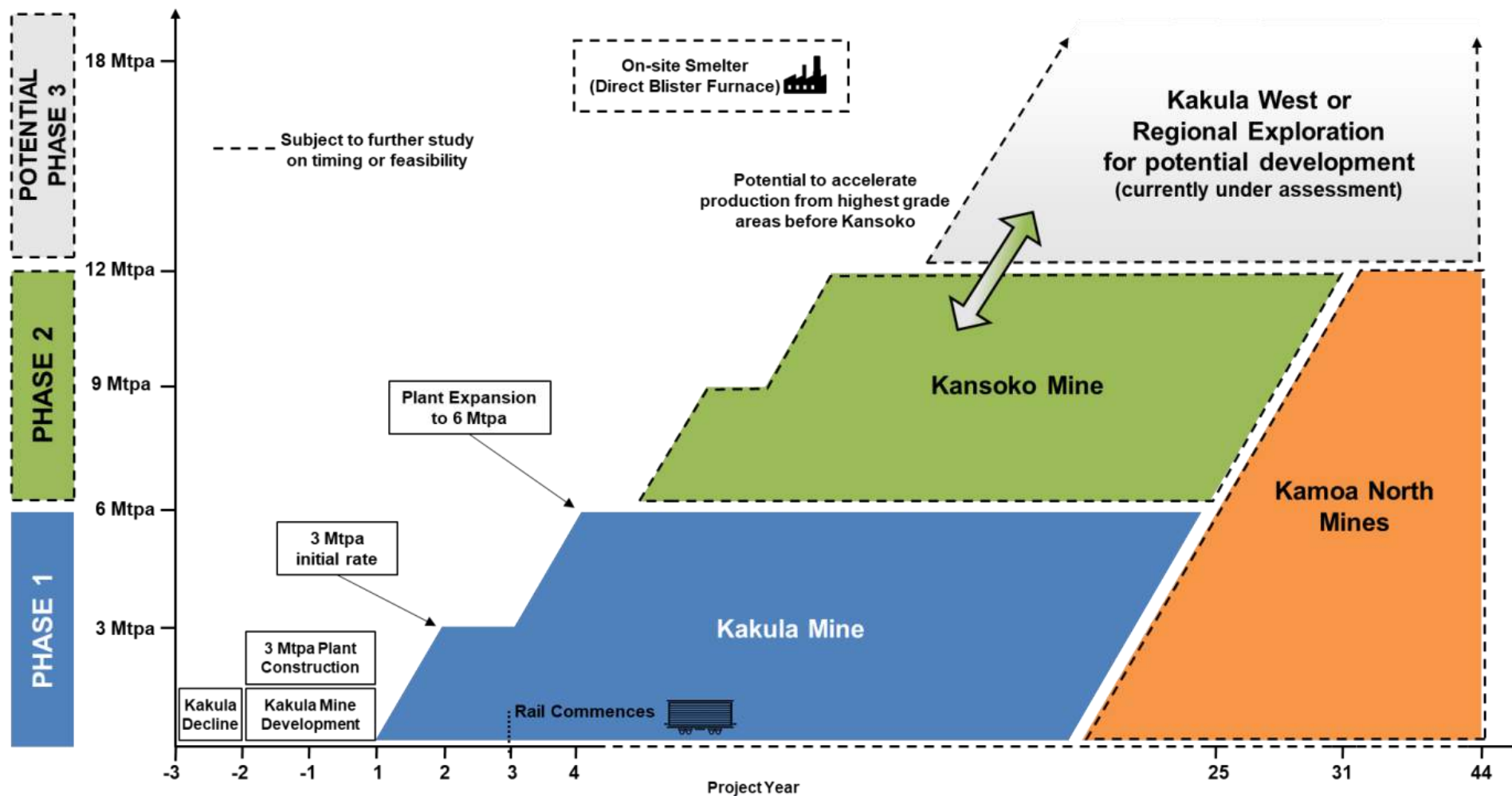
KAMOA-  
KAKULA





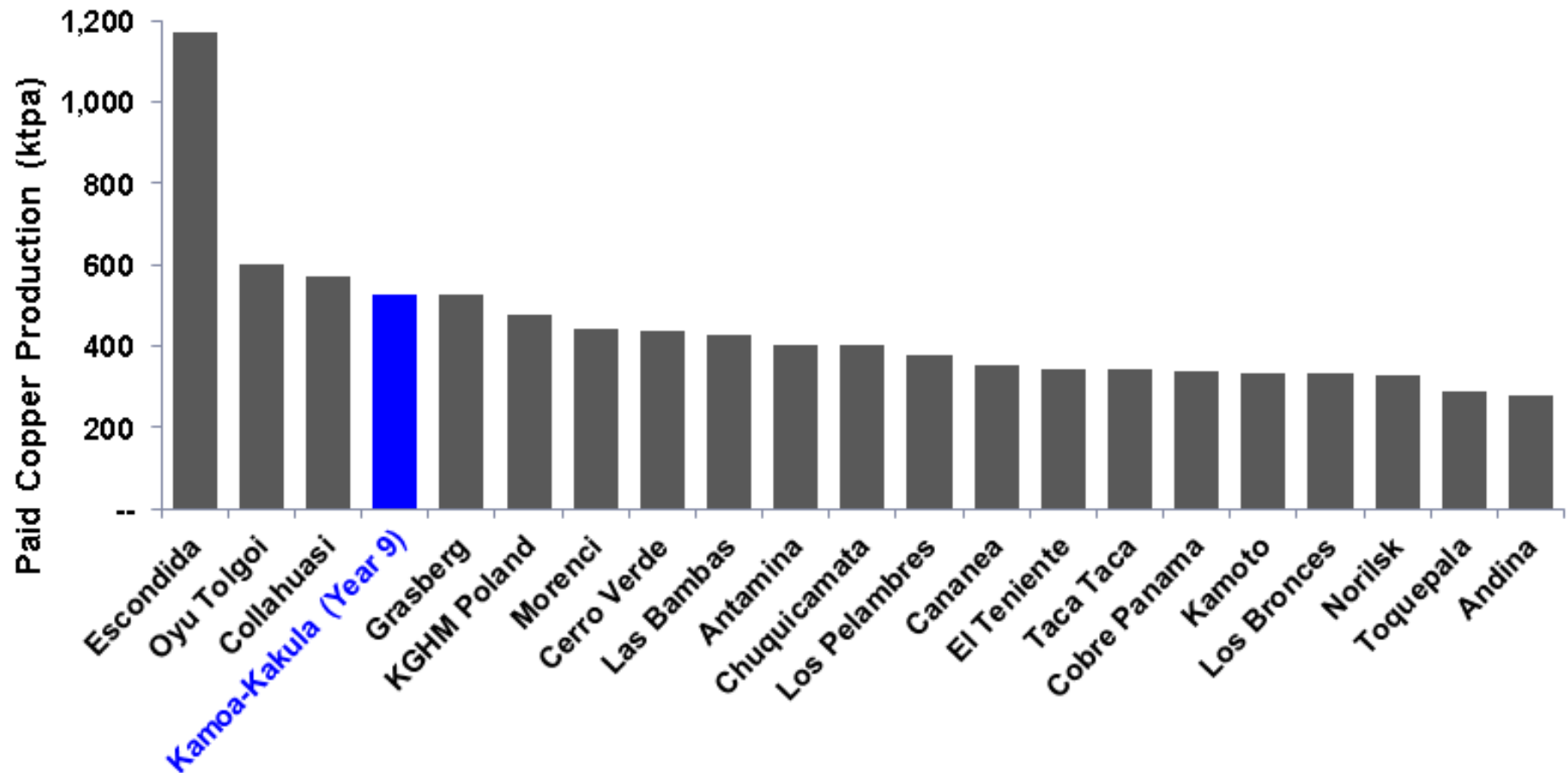
# Kamoa-Kakula PEA long-term development plan

KAMOA-KAKULA



# 2025 Top 20 producing mines by paid copper production

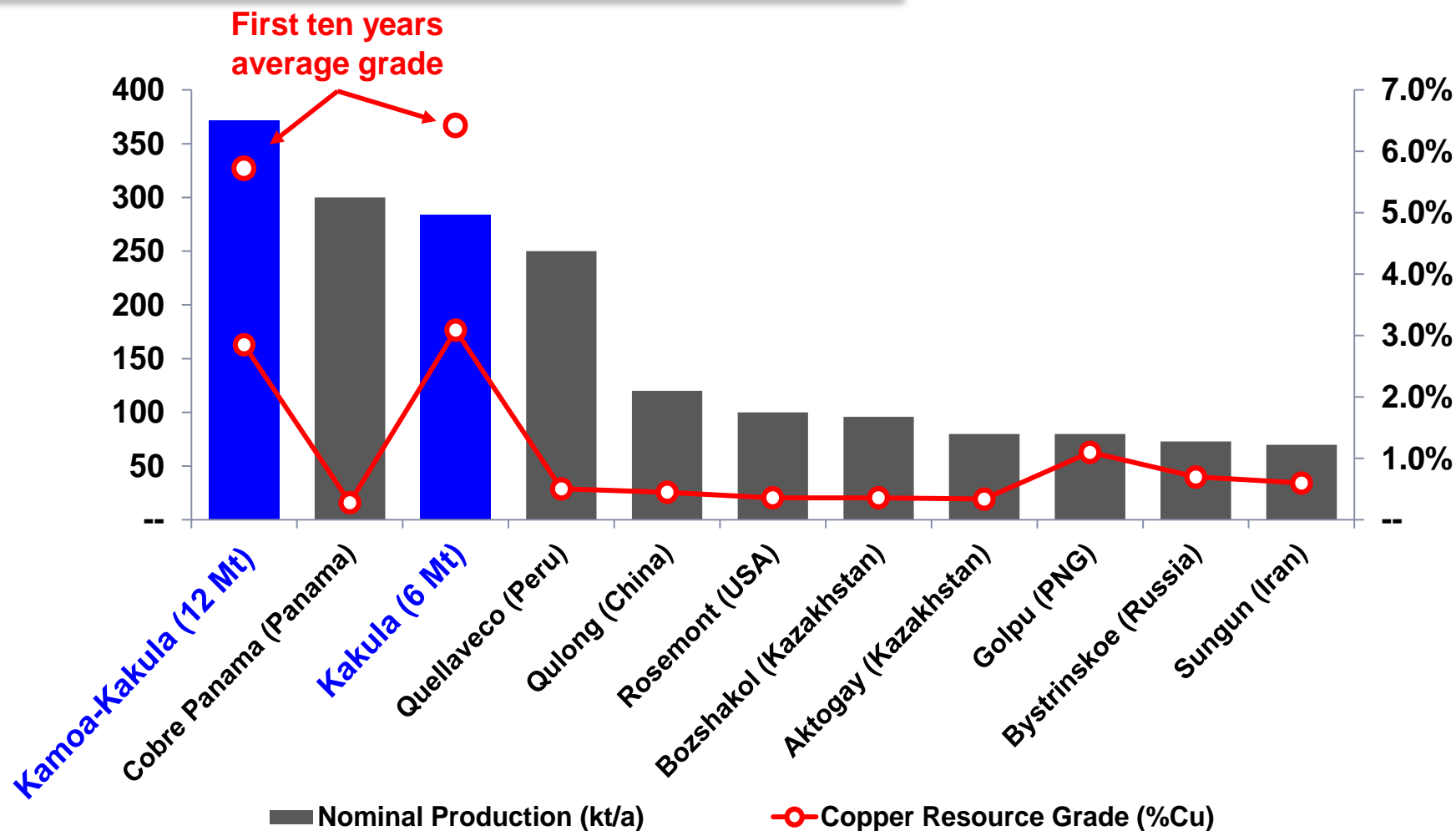
KAMOA-KAKULA



Note: Kamoa-Kakula production based on projected peak copper production (which occurs in year nine) of the 12 Mtpa development plan for the Kamoa-Kakula Project as detailed in the Kakula 2017 PEA. Source: Wood Mackenzie (based on public disclosure, the Kakula 2017 PEA has not been reviewed by Wood Mackenzie).

# Top 10 largest new greenfield projects (Nominal production and head grade)

KAMOA-KAKULA



Note: Top 10 largest new greenfield copper projects defined as the 10 largest greenfield copper projects classified as "base case" or "probable" and ranked by nominal copper production (with Kamoakakula's first ten years' average annual production of copper in concentrate considered to be its nominal copper production). Source: Wood Mackenzie, USGS (based on public disclosure, the Kakula 2017 PEA has not been reviewed by Wood Mackenzie).



# Drilling at the Kakula West Copper Discovery

KAMOA-  
KAKULA





# Excellent visual drill intercepts continue to be returned at Kakula West

KAMOA-  
KAKULA





**July 21, 2017 – The first delivery of copper ore from the Kansoko Mine is stockpiled on surface**

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KAMOA-KAKULA





# April 2015: Zijin Mining acquired a 9.9% stake in Ivanhoe Mines

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- Zijin invested approx. C\$105 million to help advance Ivanhoe's three principal projects through a private placement at a price of C\$1.36 per share.
- “Zijin will establish a close and strategic partnership with Ivanhoe through which we plan to closely cooperate in the development of Ivanhoe's mines.”

*Chen Jinghe, Chairman, Zijin Mining*



# December 8, 2015: Zijin Mining acquired 49.5% stake in Kamoa Project for US\$412 million

KAMOA-KAKULA

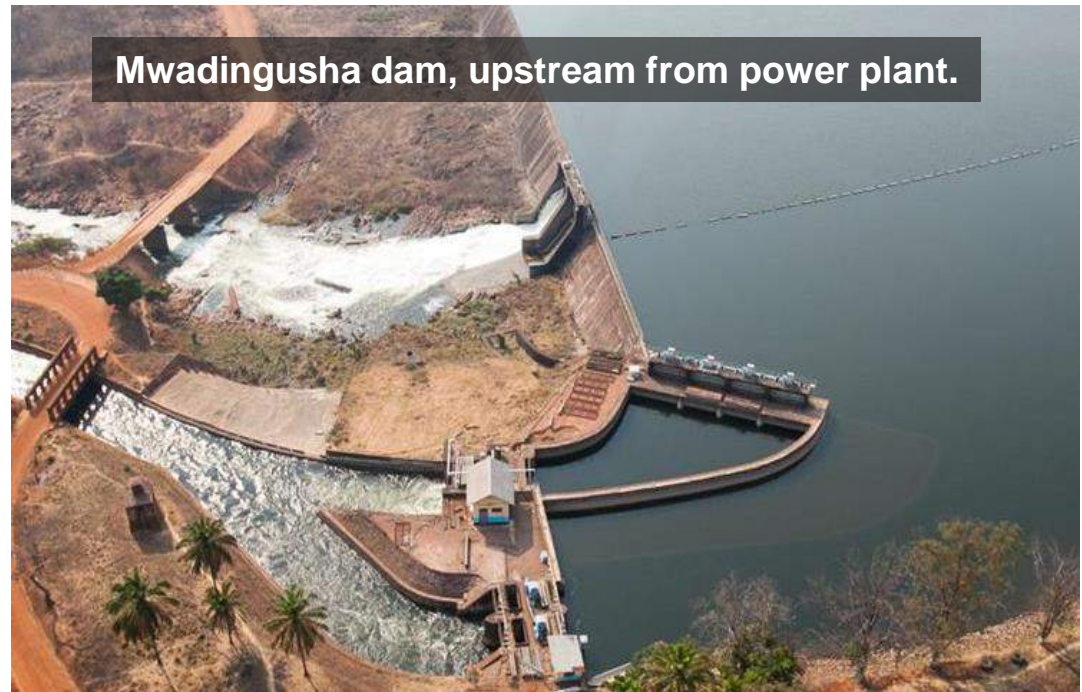


- Zijin has committed to use its best efforts to arrange or procure project financing for 65% of the capital required to develop the first phase of the Kamoa Project, to be detailed in the ongoing feasibility study.

# Mwadingusha hydroelectric power station

KAMOA-KAKULA

- Mwadingusha is the first of three hydroelectric power plants in the DRC that Ivanhoe and Zijin will upgrade to secure a supply of **clean, sustainable electricity for the development of Kamoa-Kakula.**
- Mwadingusha is now supplying 32 megawatts (MW) of electricity to the grid. The plant should be fully operational by the end of 2019 – restoring the plant to its installed capacity of approximately 71 MW.
- The three plants will have installed capacity of approximately **200 MW** of electricity for the national grid, which is expected to be more than sufficient for the Kamoa-Kakula Copper Project.



Mwadingusha dam, upstream from power plant.



# 120kV power line at the Kamoia Project

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KAMOIA-  
KAKULA







# Kipushi Mine Exploration and Upgrading

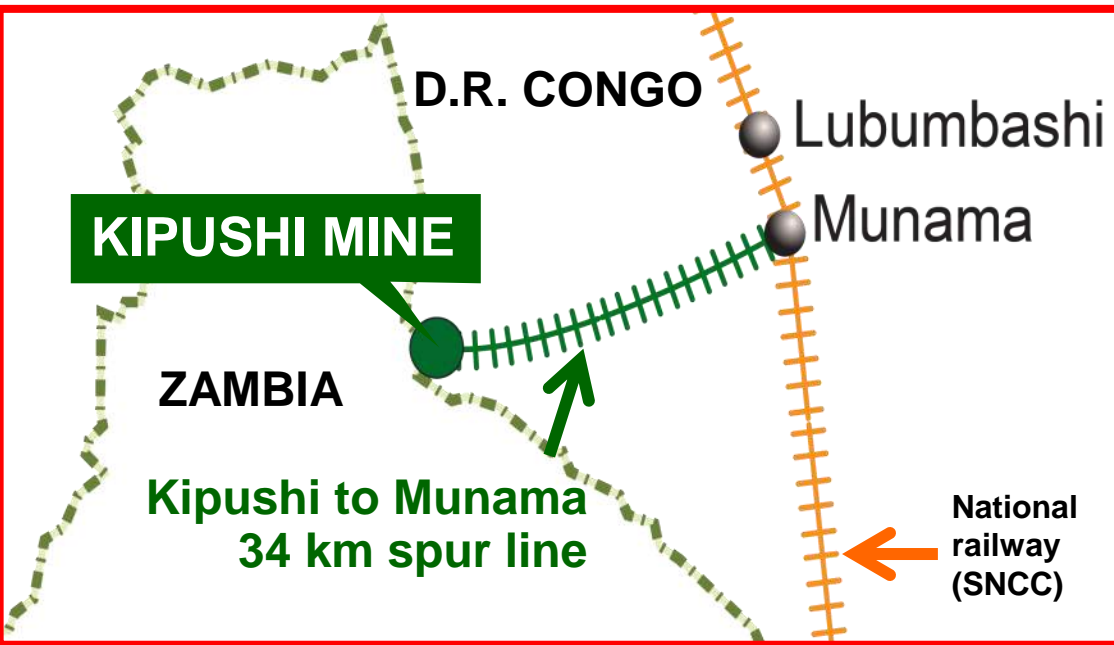
Democratic Republic  
of Congo

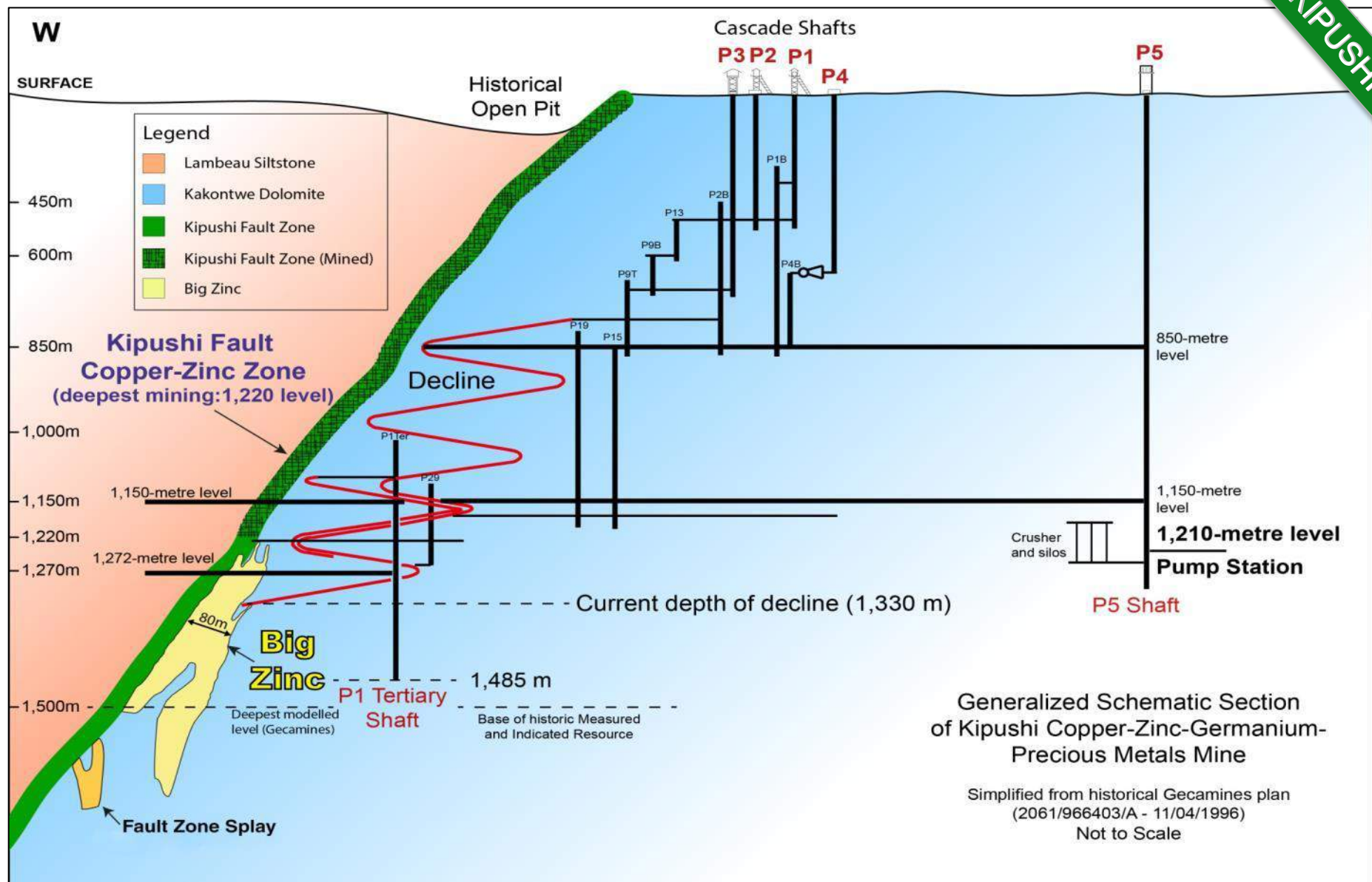
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**October 30, 2017:**  
Ivanhoe signed an MOU with DRC's state-owned railway company, Société Nationale des Chemins de Fer du Congo (SNCC) to rebuild the Kipushi-Munama spur line, which has been inactive since 2011.

**Representatives of SNCC and Ivanhoe's Kipushi team at Munama railway station.**

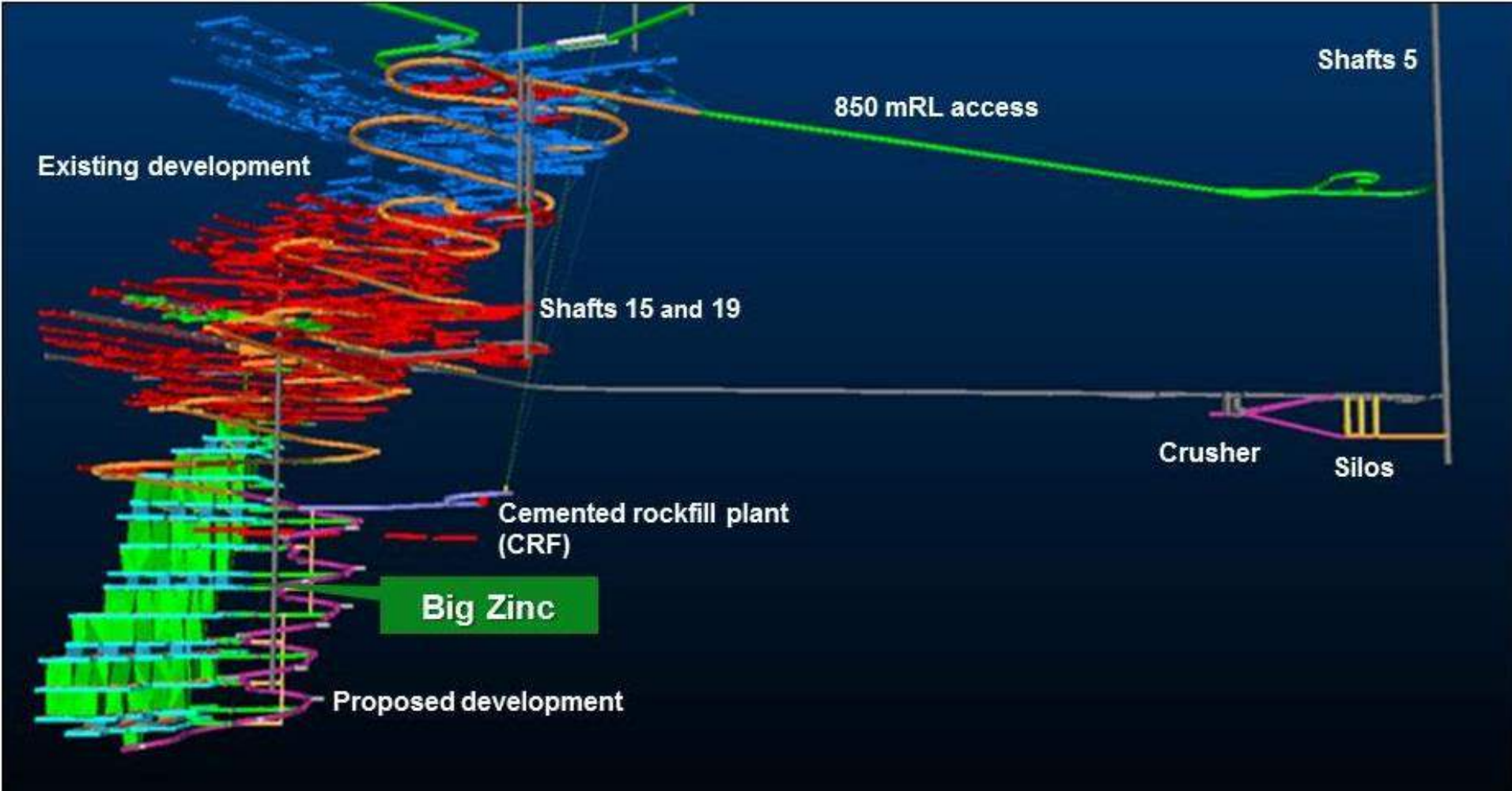




- Kipushi Fault Zone was mined 1924-1993 to approx. 1,150-metre level.
- Big Zinc discovered prior to 1993 closure; never mined.

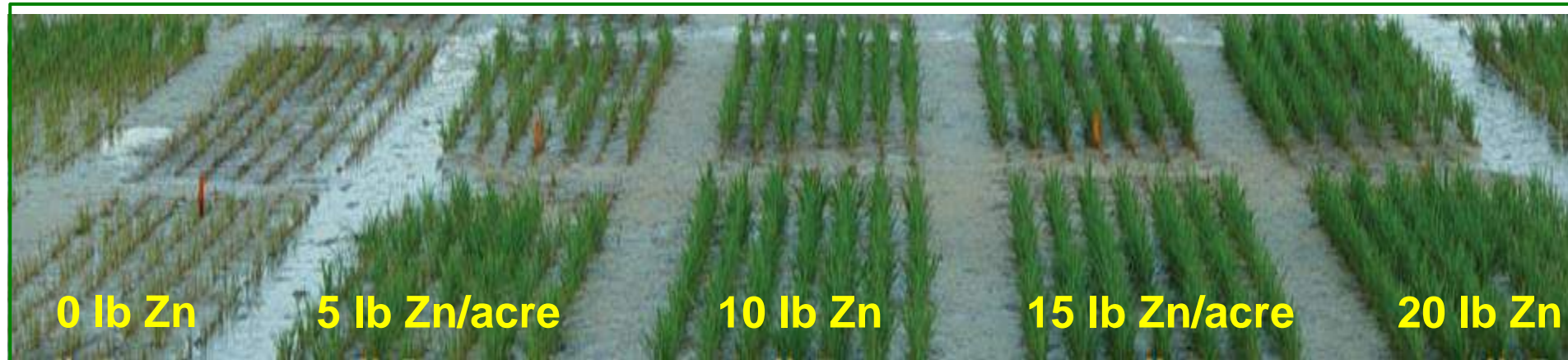


# Planned and existing development at Kipushi



# Think Zinc. Demand growing in farming & food.

- Zinc aids plant growth, increases food-crop production and quality. More than 50% of all soils in India and China are said to be zinc-deficient.



**Demonstration of zinc fertilizers at work in Louisiana rice paddy.  
Zinc deficiencies reportedly have cut rice yields by 10% to 60% in the U.S.**

- Booming vehicle manufacturing in China demanding more galvanized metal.
- Nutritional supplements for people's diets. 400,000 children under 5 worldwide said to die each year from diseases linked to zinc deficiency.



# **Some human health benefits from zinc**

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**Zinc stopped cancer-cell growth in tests; research pursuing potential to block esophageal tumour cells.**

**Newsweek** Oct. 3, 2017

**Zinc lozenges may help colds go away 3 times faster.**

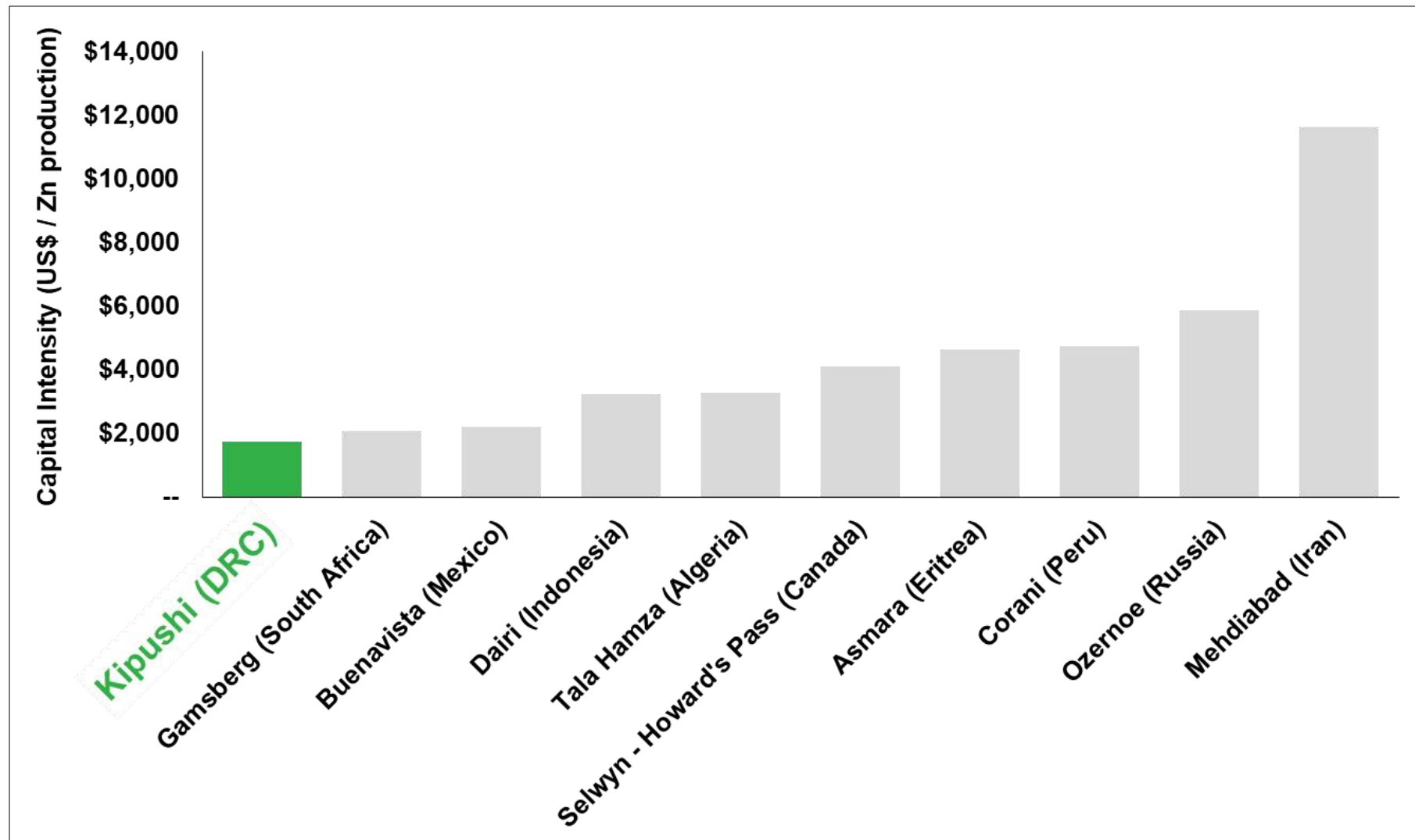
**TIME** May 16, 2017

**Shortage of zinc in the body can affect cardiovascular health.**

**UPI** April 18, 2017



# Capital intensity for zinc projects



Source: Wood Mackenzie, December 2017. Note: All comparable “probable” and “base case” projects as identified by Wood Mackenzie. Source: Wood Mackenzie (based on public disclosure and information gathered in the process of routine research. The Kipushi 2017 PFS has not been reviewed by Wood Mackenzie).



# Upgraded supports for Shaft 5 pump columns at the 1,200-metre-level pump station

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# Upgraded 1,150-metre-level ore conveyor belt at the historic, high-grade Kipushi zinc-copper-lead-germanium mine

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# New lighting installed at 1,200-metre level

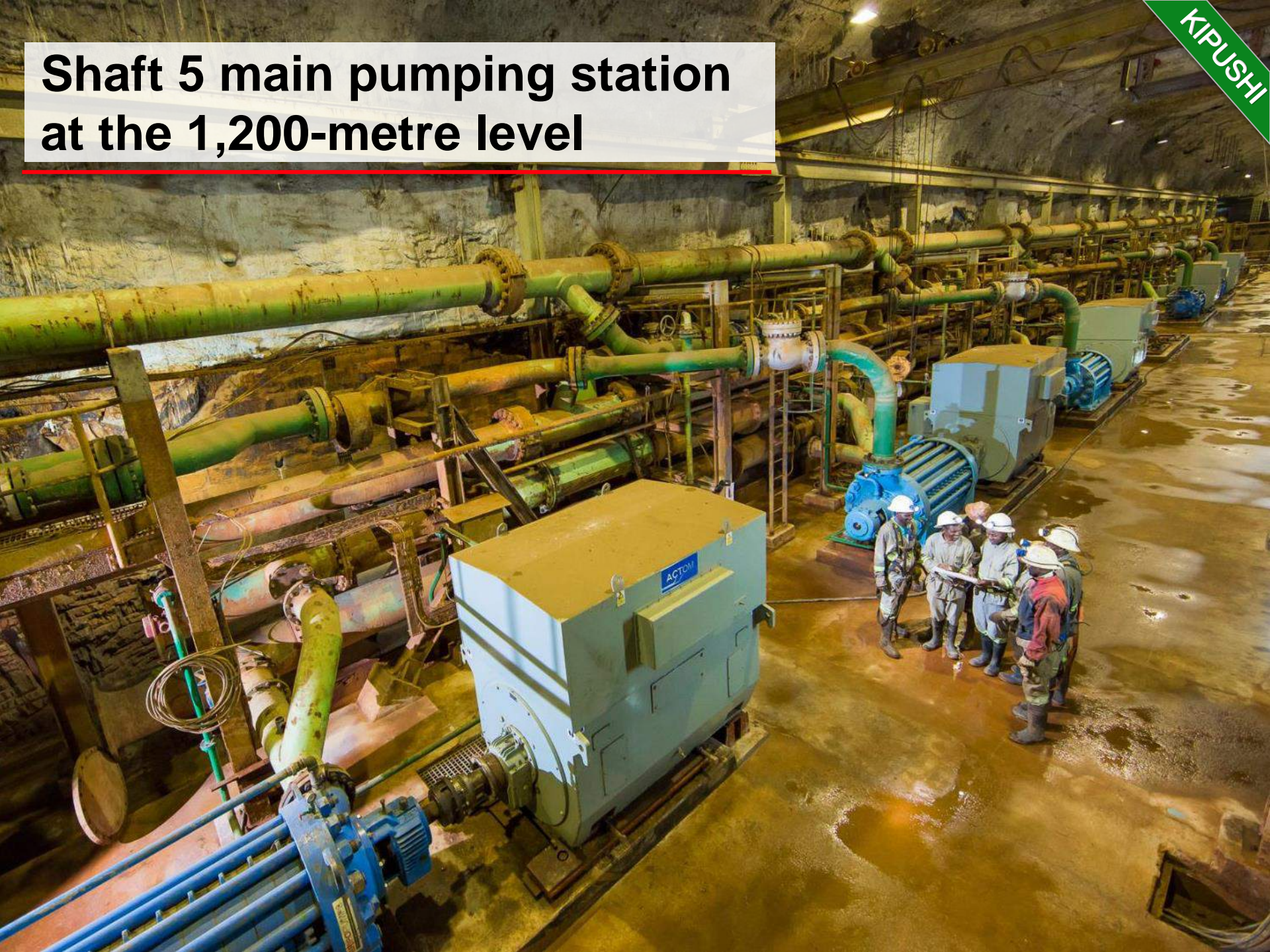
KIPUSHI





# Shaft 5 main pumping station at the 1,200-metre level

KIPUSHI





# Control room operator at Kipushi's Shaft 5

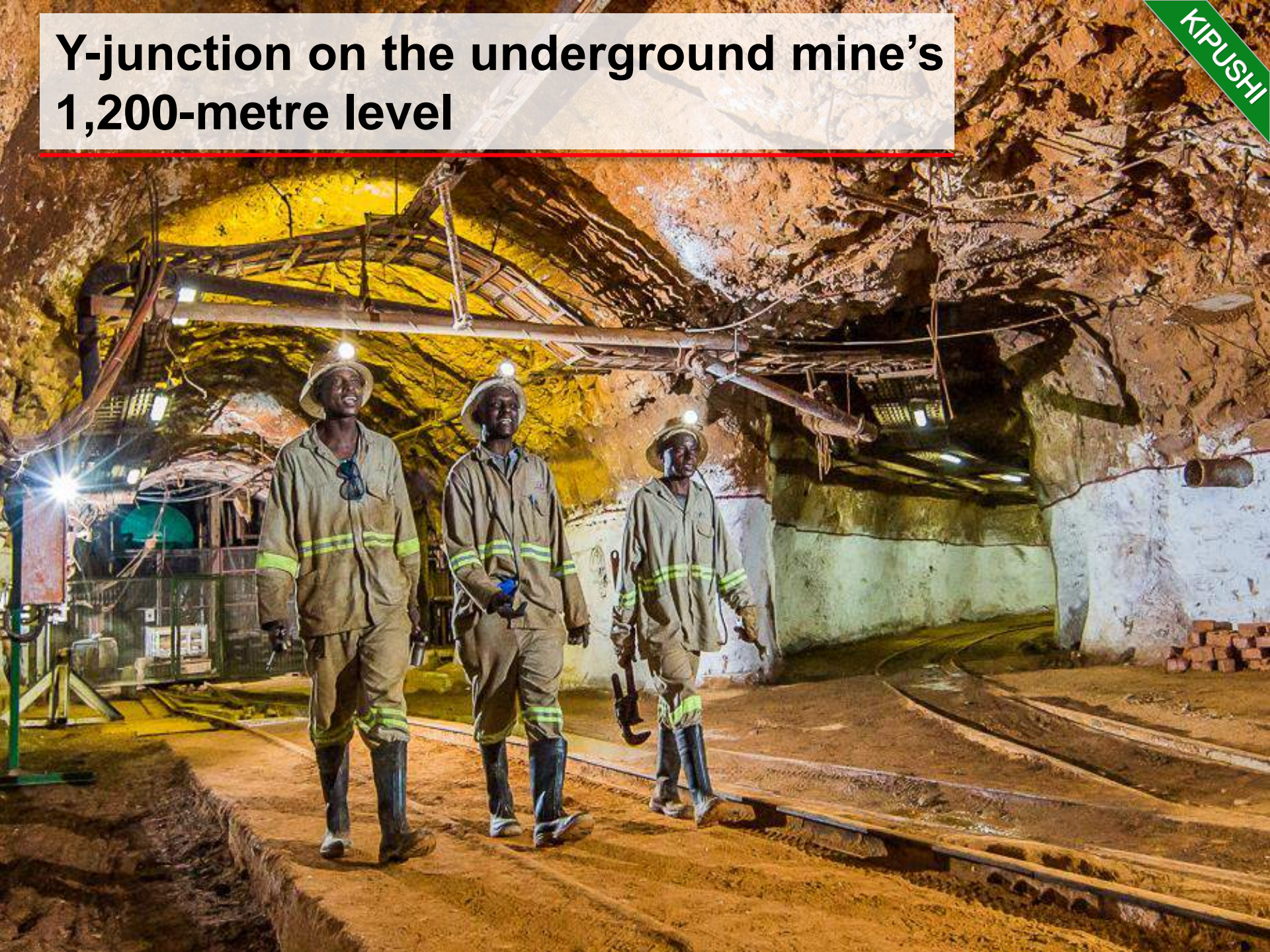
KIPUSHI





# Y-junction on the underground mine's 1,200-metre level

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**A scooptram loader and haul truck, part of the fleet of new underground mining equipment**

**KIPUSHI**





**Sponsored by Ivanhoe Mines and Zijin Mining, in collaboration with [Fio Corporation](#), of Toronto, and the DRC Ministry of Health, Know for Sure has equipped 252 health facilities with Deki Readers and trained more than 600 healthcare workers to effectively utilize the technology**

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# Putting people first

**A representative of the *Know for Sure* initiative, holding a Deki Reader used to conduct rapid diagnostic testing for malaria, explains to children how to get access to testing for themselves and their parents.**

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# Members of Kipushi's geology team at the drill core shed

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Thank you.

**IVANHOE MINES**  
NEW HORIZONS

