



**One of the exploration drill rigs targeting Kamo-a-Kakula-style copper mineralization at Makoko on Ivanhoe's 100%-owned Western Foreland exploration licences (see page 15).**



Building what will be  
**③ of the world's  
best mines**  
in Southern Africa's  
legendary mineral fields

### KAMOA-KAKULA

Initial development  
of two mining areas  
on **world's 4<sup>th</sup>-largest**  
copper discovery

**Democratic Republic  
of Congo's Central  
African Copperbelt**

### PLATREEF

Mine projected to be  
**Africa's lowest-cost producer**  
of platinum-group metals,  
plus nickel, copper & gold

**Northern Limb of South Africa's  
Bushveld Complex**

### KIPUSHI

**Ultra-high-grade**  
historic mine being  
upgraded to produce  
zinc, copper, silver,  
germanium & lead

**D.R. Congo's  
Copperbelt**





## Kamoa-Kakula – Kakula Mine

An underground ore truck exiting the Kakula conveyor decline with a load of broken rock from another blast in the continuing development of the tunnel. Once completed, the decline will be equipped with a conveyor system to transport high-grade copper ore from the Kakula deposit up to surface for processing.





## Kamoa-Kakula, DRC – Kakula Mine

Drilling rock-bolt holes into the ceiling of one of the twin decline tunnels at Kakula. Anchor bolts will be inserted into the holes as a safety measure to reinforce the excavated tunnel. More than 2,100 metres of underground development has been completed and the declines are expected to intersect the high-grade copper ore in approximately 400 metres.



## Kamoa-Kakula – Kakula Mine

Members of the Kamoa Copper construction crew at the newly constructed Kakula Mine control centre that will be equipped with a computerized monitoring and control system. Operators in the control centre will monitor key underground activities to ensure safe and highly-efficient mining operations.





## Kamoa-Kakula

Engineers inspecting pipes (penstocks) feeding water to turbines driving generators inside the Mwadingusha hydroelectric power plant – the first of three DRC power plants being upgraded by Ivanhoe and Zijin Mining, in conjunction with the state-owned power company La Société Nationale d'Electricité (SNEL), to secure a supply of clean, sustainable electricity for the development of the Kamoa-Kakula copper project. Mwadingusha's output to the grid already has tripled, to 32 megawatts (MW), and is expected to be restored to its installed, 71 MW capacity by the end of 2019.



## Kamoa-Kakula

One of the new, high-pressure valves installed in the Mwadingusha hydroelectric power plant to control the flow of water to the plant's six new turbines. Spinning turbines activate generators that produce hydroelectricity for the national grid and for Kamoa-Kakula.





Exploration drilling at the Kamo North area testing the extent of a new zone of copper mineralization. Kamo North was identified in 2017 by the Kamo-Kakula geology team as one of nine high-priority targets located in the untested areas of the Kamo-Kakula Project.





## Kamoa-Kakula

Extracting mineralized core from Kakula North exploration drilling.





## Kamoa-Kakula

Eric Mbuya (left) and Micheline Kyenge logging geotechnical cover drill holes from the Kakula twin declines. Cover holes are long holes drilled in advance of the declines to provide the mining team with detailed information on the rock conditions the decline tunnels will pass through.





## Kamoa-Kakula

Workers preparing samples of drill core from recent holes in Kakula West and Kamoa North. Approximately 380 samples were processed and sent to Australia last week for detailed assaying and analysis.



## Kamoa-Kakula

Papy Wedialumbele, a paramedic at the Kamoa-Kakula Project, with one of 300 Deki Readers being used in the 'Know for Sure' campaign that provides automated, rapid and reliable malaria testing and real-time reporting in the DRC. The 'Know for Sure' initiative is an Ivanhoe-Zijin collaboration with the DRC Ministry of Health and Fio Corporation, a global healthcare technology company.





## Kamoa-Kakula

Harvesting cabbage from the Sustainable Livelihoods garden at Kamoa-Kakula. The garden is part of Kamoa-Kakula's program to support and expand successful food production activities in nearby communities.





## Kamoa-Kakula

A new secondary school has been built in Kaponda, a small village near the Kamoa-Kakula Project, as part of the project's community relations program. Classes will begin soon at another school nearing completion at Muvunda village.





## Western Foreland

A drill rig in action on the Makoko exploration area on a portion of Ivanhoe's 100%-owned Western Foreland licences. Makoko is approximately 20 kilometres west of the Kakula copper discovery.





## Platreef, South Africa

Excavation of blasted rock from the box cut for Shaft 2, located approximately 100 metres northeast of Shaft 1. Six of eight planned blasts have been successfully completed. Construction of the box cut and hitch (foundation) is scheduled to be completed by the end of this year.





**Platreef**

Vertical holes being drilled for explosives in preparation for another blast to deepen the box cut for Shaft 2.





**Platreef**

Horizontal drilling to insert rock bolts used to reinforce and support the side walls at the box cut for Shaft 2.





## Platreef

Lateral development nearing completion of what will be the first mine-access station on Shaft 1 – 750 metres below surface – is inspected by Johannes Nkoma, Ivanplats' strata control trainee. Resumption of shaft sinking is expected to intersect the upper contact of the Flatreef Deposit in September, at an approximate depth of 783 metres.





Left: Work advancing on the station at Shaft 1.



Right: A 'cactus grab' (mid-right) and kibble bucket (lower right) are being used to remove blasted rock from development of the underground station.





Ramotshela Mpule, a student at Nkakabidi High School, received one of the 200 secondary-school scholarships awarded by Ivanhoe Mines last year to students living near the Platreef Project in South Africa.

The scholarships recognized academic achievements in science and mathematics.





The work of female employees, and the roles that women have played in the long campaign for racial and gender equality in South Africa, were recognized by Ivanhoe on August 9 – National Women’s Day – at luncheons in Mokopane, near the Platreef Project, and in Sandton. It was the 62<sup>nd</sup> anniversary of a march by thousands of women to South African government offices to protest against laws requiring women to carry permits to enter cities.





**Left to right: Junchuan Liu, Steve Amos, Guoqiang Cao, Alex Pickard, Matthieu Bos, Egizio Bianchini, Gaoming Zhu, Robert Friedland, Yufeng Sun, Peter Zhou, Wenhai Zhao and Shengwen Wang**

## **Kipushi, DRC**

Yufeng “Miles” Sun, President of CITIC Metal (fourth from right), Gaoming Zhu, Vice President of CITIC Group (sixth from right), and other key representatives from CITIC Metal and CITIC Group joined Robert Friedland, Ivanhoe’s Executive Chairman (fifth from right), Egizio Bianchini, Ivanhoe’s Vice Chairman (seventh from right) and other members of Ivanhoe’s senior management team during a recent site visit to Kipushi.





## Kipushi

New shaft steel being unloaded at Kipushi storage yard will be used to further upgrade Shaft 5 and enhance its rock-hoisting capabilities. The work is part of the ongoing infrastructure upgrading program at Kipushi as the engineering team prepares for the restart of mining operations.





## Kipushi

KICO employees installing new, high-strength steel cable on Shaft 5's rock winder that will be used to hoist broken rock from underground mining activities.





## Kipushi

Two massive, orange fly wheels being installed on the main frame of the new, primary rock crusher at Kipushi's 1,150-metre-level crusher station.





## Kipushi

Electricians installing high-voltage electrical cables at the primary underground crusher, 1,150 metres below surface.





Delivery of Kipushi's new 13-tonne Manitou forklift that will be used on surface to lift and move construction materials.