



JINCHUAN 金川

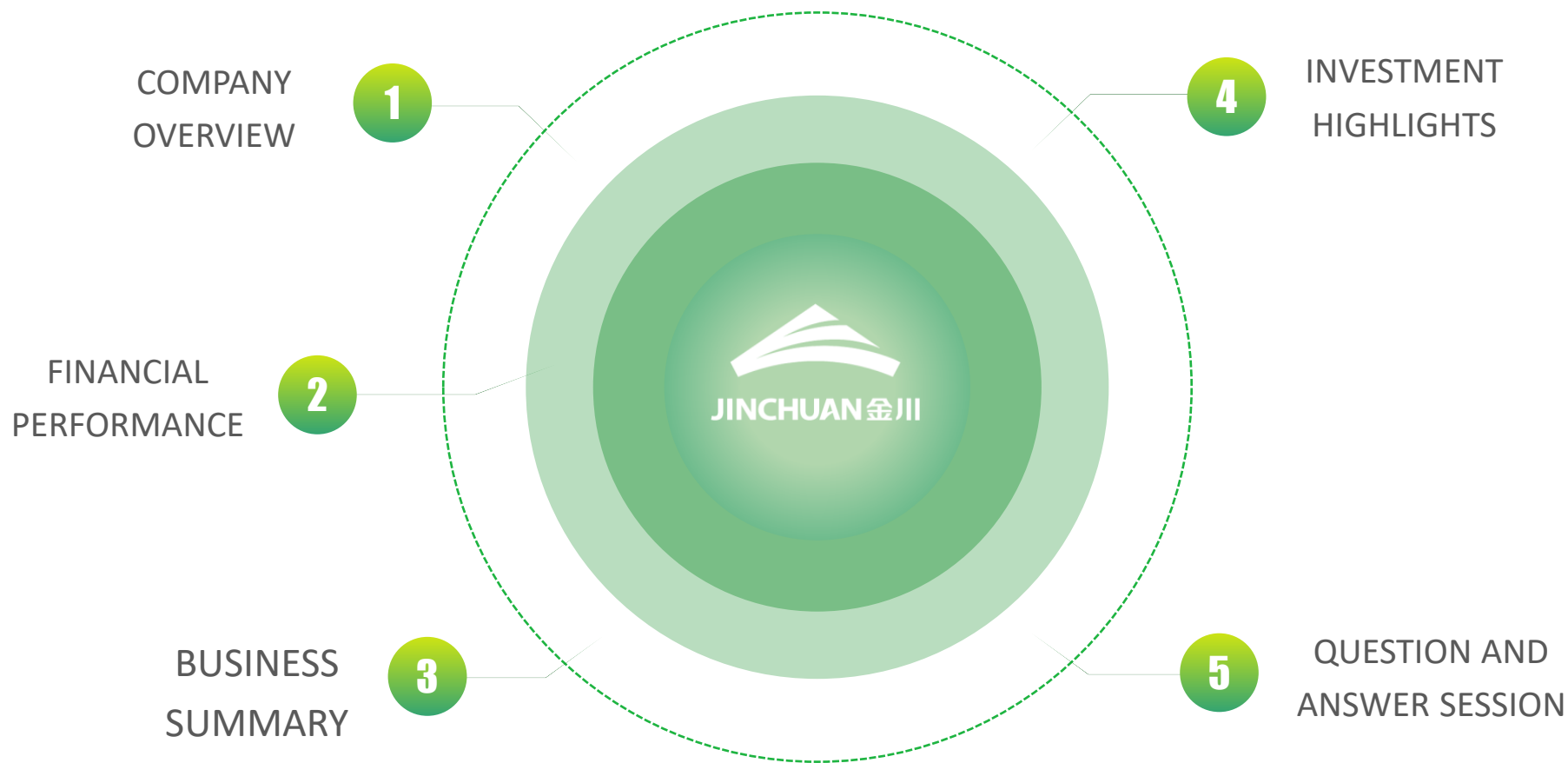
金川集团

国际资源有限公司

Jinchuan Group International Resources Co. Ltd



Contents





COMPANY OVERVIEW

Jinchuan International - Overview

- Jinchuan Group International Resources is a majority owned subsidiary of Jinchuan Group and flagship platform for overseas resources development. The Company is listed on Main Board of the Hong Kong Stock Exchange (2362.HK)
- With substantial support from Jinchuan Group, the Company continues to buildup on international mining resources development and operations. Jinchuan International owns a number of large scale high-grade copper and cobalt mines in Africa, and engages in production and trading of base metals. Mining assets include:

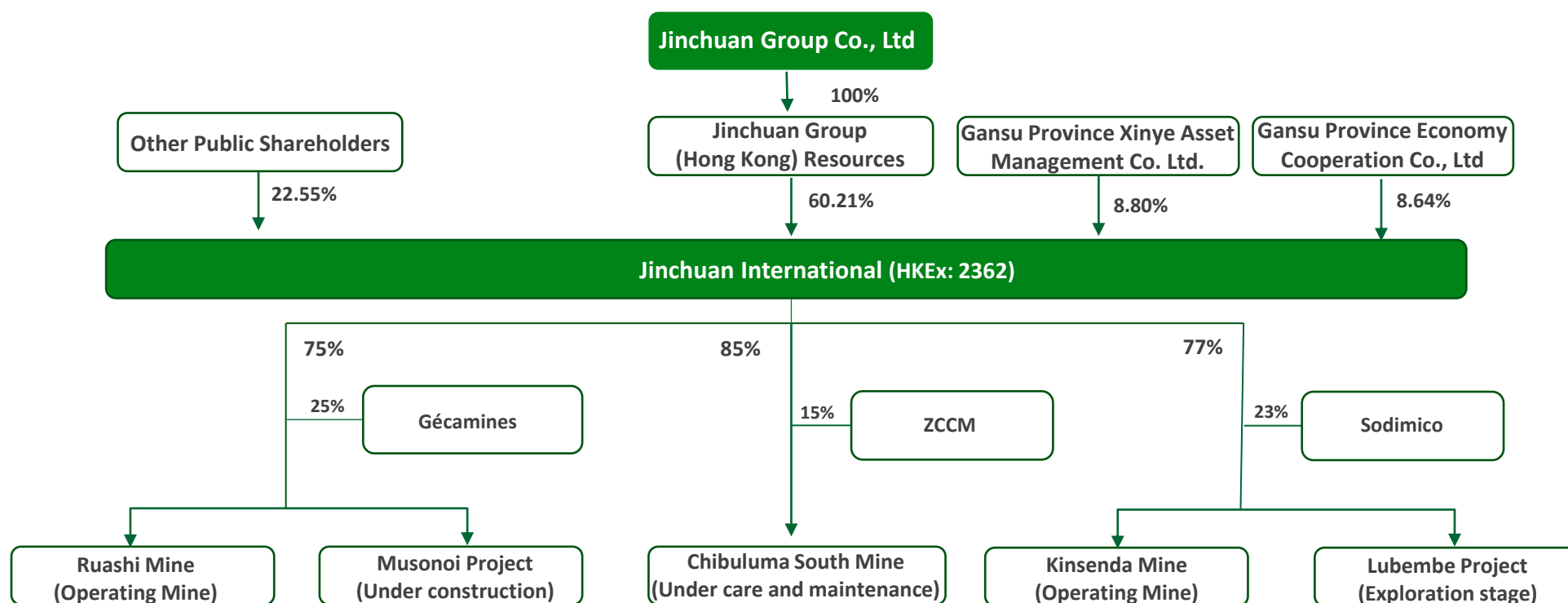
Operating Mine	Ruashi (75% owned)	Located in DRC, open-cast mine, producing cathode copper and cobalt hydroxide since 2009. Cathode copper and cobalt hydroxide are sold to global commodities traders. Ruashi Mine produced 33,897t of copper and 4,158t of cobalt in 2020
	Kinsenda (77% owned)	Located in DRC, underground mine, producing high grade copper concentrates/copper blister. One of the world's highest grade copper deposits, the average grade of copper reserves is high as 5.8%. Kinsenda Mine produced 30,557t of copper content in copper concentrates in 2020
	Chibuluma South Mine (85% owned)	Located in Zambia, Chibuluma entered into a lease agreement with an independent third party in December 2020 to lease out mineral assets including Chifupu deposit, thus realize the remaining value of Chibuluma mineral resources. The lease is 5 years long and comprises of a fixed rent of US\$6.2 million, and a variable royalty payment calculated based on the selling price of copper. Chibuluma Mine produced 8,023t copper in 2020
Development Project	Musonoi (75% owned)	Copper and cobalt mine located in DRC, the project is in construction, and has obtained all outstanding external and government approvals. The mine life of Musonoi is 19 years, according to the feasibility study
Exploration Project	Lubembe (77% owned)	Located in DRC, 30km south of Kinsenda. ENFI updated and optimized its Pre-feasibility Study in 2020. Further metallurgical testwork is planned in 2021 to further optimize the processing process and copper recovery rate during the life of mine

Summary of Reserves and Resources (As at 31 Dec 2020 and compiled by 100%)

	Ore	Grade		Contained Metal	
	Mt	%	%	Kt	Kt
Copper & Cobalt		Copper	Cobalt	Copper	Cobalt
Proved	11.5	3.2	0.9	366	103
Probable	20.5	2.3	0.5	470	97
Total reserves	32.0	2.6	0.6	836	200
Measured	17.6	2.8	0.8	489	149
Indicated	40.9	2.1	0.4	840	179
Inferred	19.0	2.1	0.6	393	119
Total resources	77.5	2.2	0.6	1,722	447
Copper Only					
Proved	0	4.5	-	2	-
Probable	5.4	5.6	-	298	-
Total reserves	5.4	5.5	-	300	-
Measured	0.7	4.4	-	31	-
Indicated	69.0	2.4	-	1,662	-
Inferred	49.0	2.5	-	1,225	-
Total resources	118.7	2.5	-	2,918	-
Jinchuan International Summary					
Total reserves	37.4			1,137	200
Total resources	196.2			4,640	447

Shareholding Structure

- Following Jinchuan Group’s acquisition of controlling stake in Macau Investment Holdings in Nov 2010, Macau Investment Holdings was renamed as Jinchuan Group International Resources Co. Ltd
- In Sept 2013, Jinchuan International was approved by its shareholders to acquire Metorex’s assets from Jinchuan Group via issuance of 1,595,880,000 shares (at an issue price of HK\$1.00 per share) and 8,466,120,000 shares of PSCS which could convert into ordinary shares at a conversion price of HK\$1.00 per share
- In March 2017, the Company issued 483,000,000 new ordinary shares to introduce SD Hi Speed Investment HK Limited as a strategic shareholder
- In Jun 2018, Jinchuan Group (Hong Kong) transferred and converted part of the PSCS it held, whereby Jinchuan International successfully introduced 9 investors, including Gansu Province Xinye Asset Management, Gansu Province Economy Cooperation Corp, Haitong International and Valuestone Advisors Limited



Parent company, Jinchuan Group overview

Business overview:

- Jinchuan Group is the world's leading non-ferrous metal manufacturer, and its headquarters is located in Jinchang, known as the "Nickel Capital of China"
- The Group integrates mining, milling, smelting, processing and fine processing, mainly producing Ni, Cu, Co, PGM (and non-ferrous metal rolling products, chemical products, non-ferrous metal chemicals, non-ferrous metal new materials, etc)
- The Group owns world's 3rd largest Cu-Ni sulfide deposit, and is the 3rd largest Ni producer and the 4th largest Co producer in the world, as well as the 4th largest Cu producer in China and the largest producer of PGM in Asia

Main business overview

Non-ferrous metal segment

- Owns 13 minerals in the world, mines, smelts and processes Ni, Cu, Co and platinum group precious metals
- Constantly extends to the downstream of the industrial chain, develops new energy and new material further processing business, and provides high-quality raw materials for the downstream new energy electric vehicle industry and aerospace industry

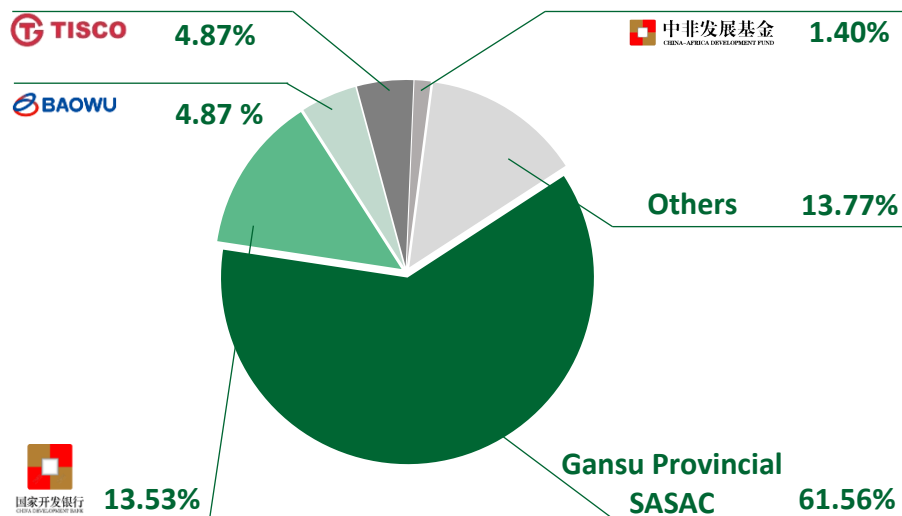
Trade segment

- Trades ore raw materials and products of non-ferrous metal, mainly in steel and nickel, and earns trade service fees
- Opens up the upstream and downstream markets for the main business of non-ferrous metals
- The Group has extensive sales network, superior geographical location and convenient transportation advantages

Other segment

- Chemicals: chemical by-products in the production of non-ferrous metals, including sulfuric acid, hydrochloric acid, and sulphide, etc
- Others: engineering construction, thermoelectric power, transportation logistics, phosphor-copper products, etc

Shareholding structure



Awards & credentials



Top 500 PRC enterprises in 2020 **#93**

Top 500 PRC manufacturing enterprises in 2020 **#31**

Top 100 PRC multinational enterprises in 2020 **#56**

Fortune Global 500 in 2020 **#369**

- Vision To build a world class top tier company with strong performance of primary business, comprehensive governance, leading technology, advanced management practices, outstanding results and strong ability in strategic allocation of global resources
- Strategy To propel reform, enhance innovation driven growth, improve quality and efficiency, and transform for upgrading

LTM share price performance



Stock information

Stock code	Issued shares	Share price	Market Cap	52-week price range
2362.HK	12,609,873,051	HK\$1.26	HK\$15.9bn	HK\$0.445~1.61



FINANCIAL PERFORMANCE

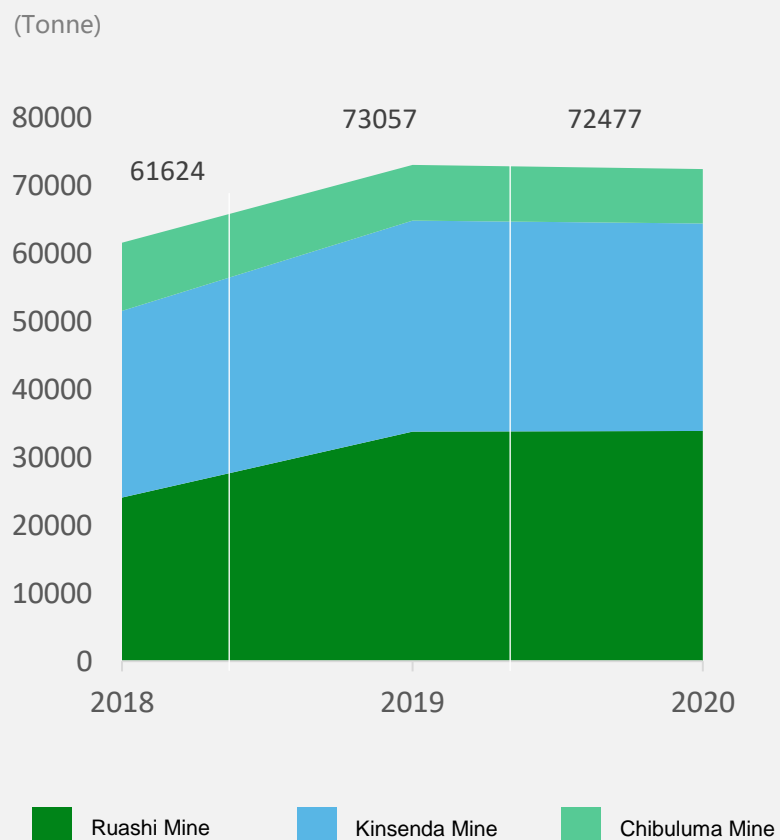


Key Financial Indicators

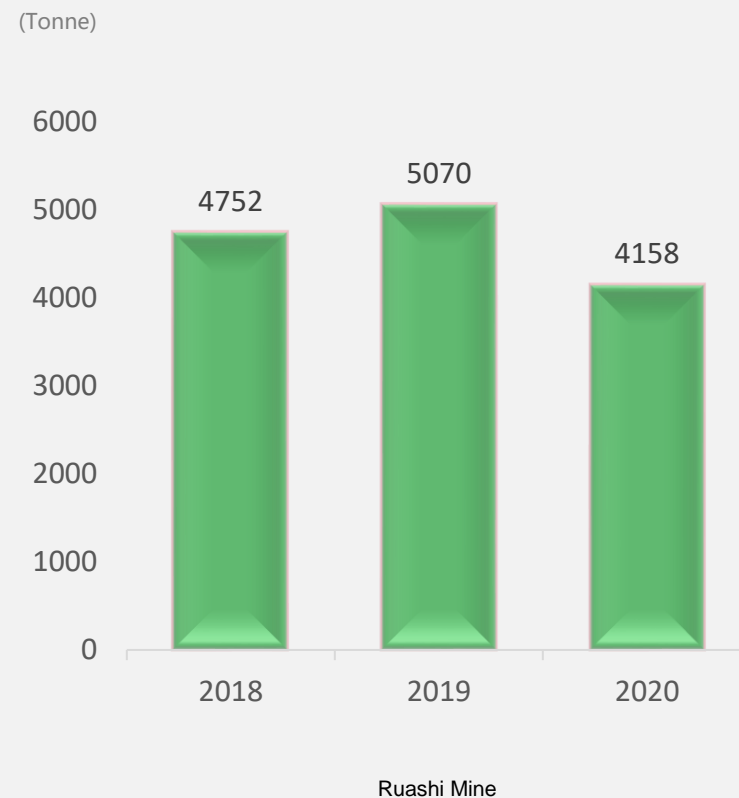
Key Financial Indicators	2018	2019	2020
Copper Production(Tonne)	61,624	73,057	72,477
Cobalt Production(Tonne)	4,752	5,070	4,158
Revenue From Mining Operation(US\$M)	606	465	498
EBITDA(US\$M)	214	116	140
Profit for the year(US\$M)	95	13	42
C1 Cash Cost Per Tonne Of Copper(US\$/t)	1,598	3,068	2,948

Main Financial Indicators-Production

Copper Production

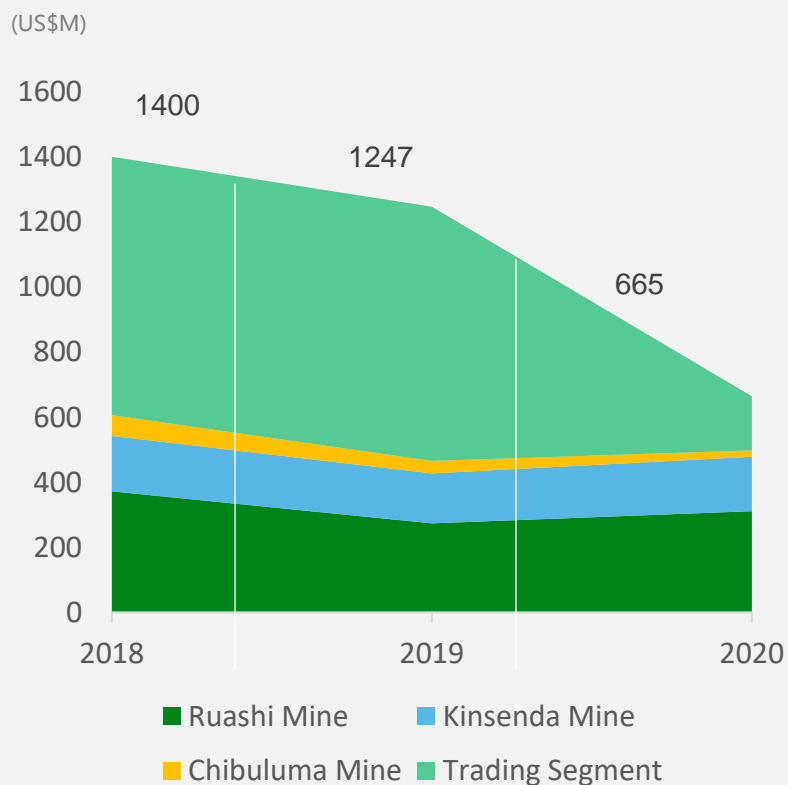


Cobalt Production



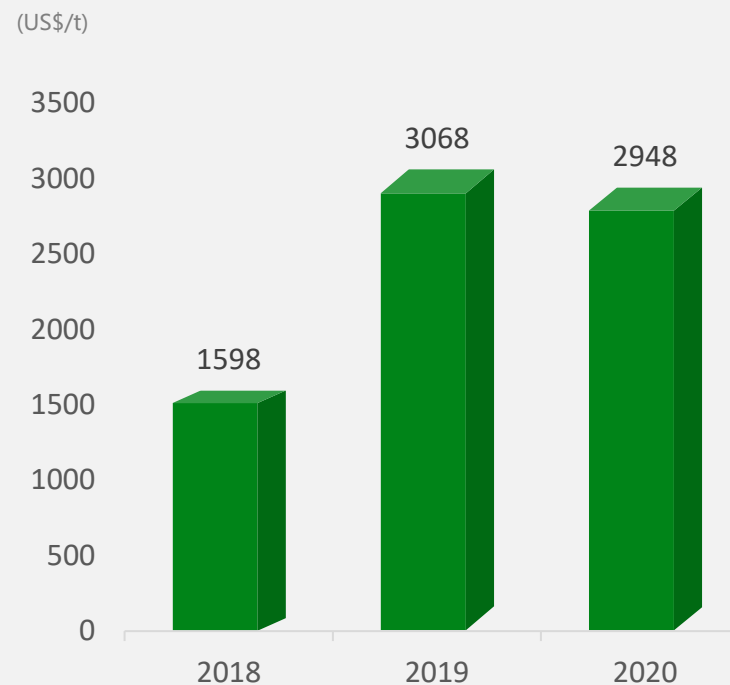
Main Financial Indicators-Revenue and Cost

Revenue



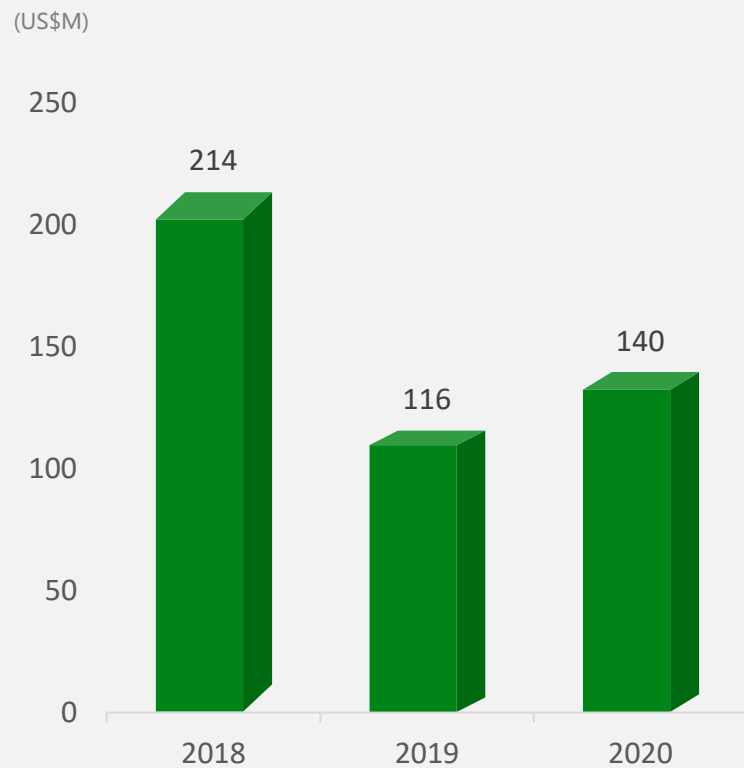
C1 Cash Cost Per Tonne of Copper

(including by-product credit)

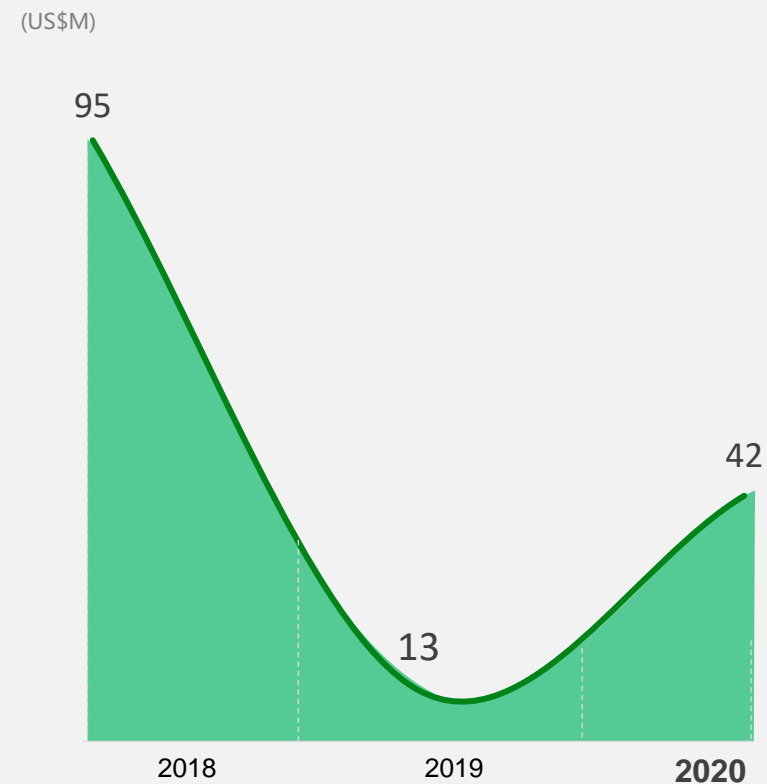


Main Financial Indicators-Profit

EBITDA

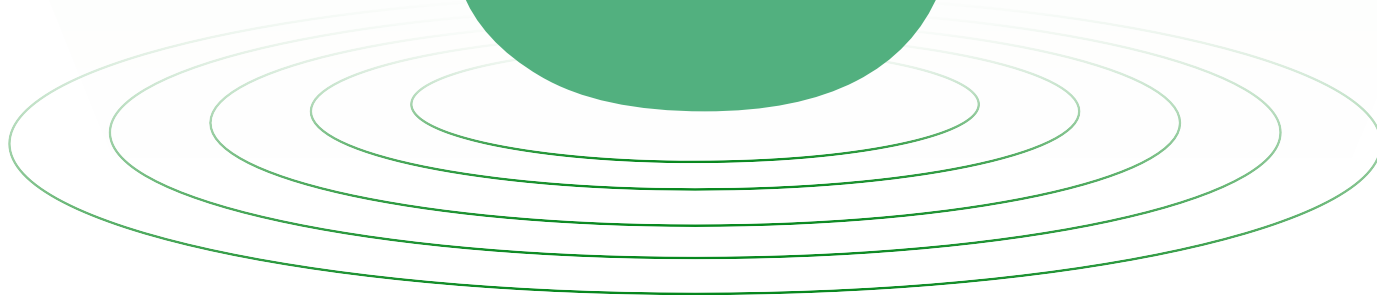


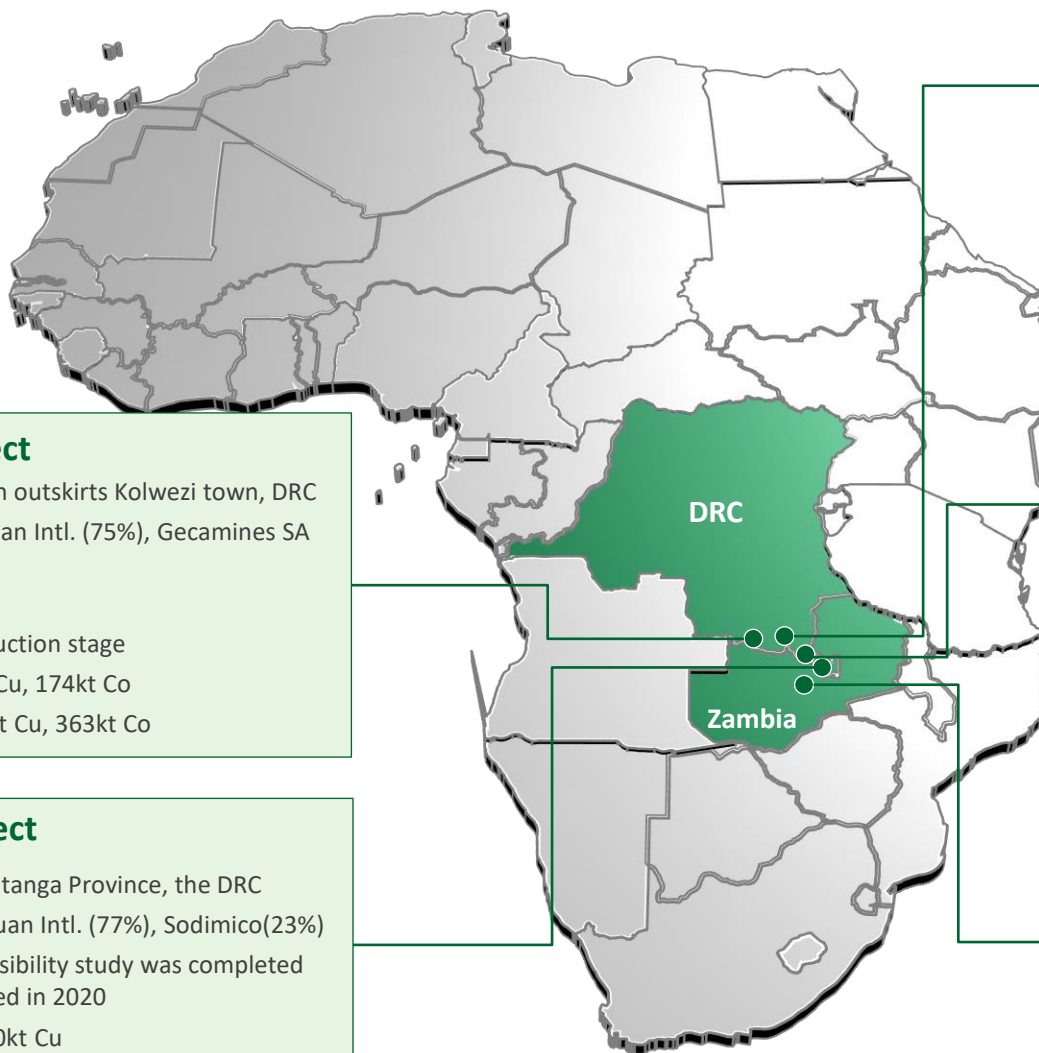
Profit for the year





BUSINESS SUMMARY





Ruashi Mine

- Location: Lubumbashi, Katanga Province, DRC
- Ownership: Jinchuan Intl. (75%), Gecamines (25%)
- Products: Cathode copper, cobalt hydroxide
- LoM: 8 years
- Reserves: 243kt Cu, 27kt Co
- Resources: 637kt Cu, 85kt Co
- 2020 production: 33,897t Cu, 4,158t Co
- 2020 revenue: US\$310m

Kinsenda Mine

- Location: Katanga Province, DRC
- Ownership: Jinchuan Intl. (77%), Sodimico (23%)
- Product: Copper concentrates, copper blister
- LoM: >10 years
- Reserves: 294kt Cu
- Resources: 1,052kt Cu
- 2020 production: 30,557t Cu
- 2020 revenue: US\$167m

Chibuluma South Mine

- Location: Zambia
- Ownership: Jinchuan Intl. (85%), ZCCM (15%)
- Product: Copper concentrates
- 2020 production: 8,023t Cu
- 2020 revenue: US\$19.4m
- Status: under care and maintenance

Musonoi Project

- Location: Northern outskirts Kolwezi town, DRC
- Ownership: Jinchuan Intl. (75%), Gecamines SA (25%)
- LoM: 19 years
- Progress: Construction stage
- Reserves: 594kt Cu, 174kt Co
- Resources: 1,085kt Cu, 363kt Co

Lubembe Project

- Location: Haut-Katanga Province, the DRC
- Ownership: Jinchuan Intl. (77%), Sodimico(23%)
- Progress : Pre-feasibility study was completed in 2018 and revised in 2020
- Resources: 1,800kt Cu

Asset Overview



2020 Result Performance

- Copper and cobalt production is 38,897t and 4,158t respectively in 2020
- Overall revenue for 2020 is US\$310 million, increased by 13.6% compared to 2019

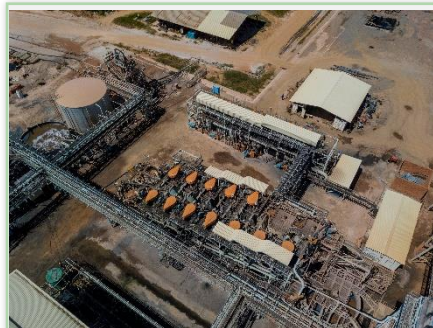
Operation Review

- ◆ Open-pit oxide copper and cobalt mine with sulfide potential underneath in DRC
- ◆ In the second half of 2020, Ruashi commenced the construction of a 600kt per annum flotation and magnetic separation plant which is targeted to treat low grade oxide and sulphide material via magnetic separation and the successful construction of the floatation and magnetic separation plant will further increase the mine life of Ruashi
- ◆ The main mining license (PE578) has been renewed for the period of 15 years and will expire in September 2036
- ◆ Copper cathode and cobalt hydroxide are sold to international trading company through off-take agreements

Reserves and Resources summary (As at 31 Dec 2020)

	Tonnage (Mt)	Grade		Contained Metals	
		%	%	Kt	Kt
		Cu	Co	Cu	Co
Proved	0.1	6.1	0.4	6	0
Probable	11.6	2.0	0.2	236	26
Total reserves	11.7	2.1	0.2	243	26
Measured	0.1	5.4	0.4	6	0
Indicated	26.7	2.0	0.2	526	63
Inferred	6.0	1.8	0.3	105	21
Total resources	32.8	1.9	0.3	637	84

Asset Overview



- ❑ One of the world's grade copper deposits and has good access to infrastructure
- ❑ The current mine life is more than 10 years and there exists substantial additional ore resources that could extend the mine life to 20 years and beyond



- ❑ Kinsenda Concentrator completed in May 2015
- ❑ Production started in Oct 2016
- ❑ The first batch of concentrates was exported in Nov 2017
- ❑ Part of copper concentrate was processed into blister copper for sale from 2020

Reserves and Resources summary (As at 31 Dec 2020)

	Ore	Grade	Contained metals
	Mt	%	kt
		Cu	Cu
Proved	0.0	5.4	2
Probable	5.1	5.8	293
Total reserves	5.1	5.8	294
Measured	0.7	4.5	31
Indicated	11.6	5.2	602
Inferred	10.2	4.1	419
Total resources	22.6	4.7	1,052

Operation Review

- In 2020, the annual output of copper is 30557t, overall revenue is US\$167.5 million, an increase of about 9% from 2019
- Kinsenda's main mining license (PE101) has been renewed for a period of 15 years and will expire in October 2036
- Capital expenditure in 2020 is US\$17.3 million, primarily spent on underground development and new generator system for underground dewatering
- Kinsenda Mine is developing a second ramp decline as a capital development project to open up the East Mine Resource

Asset Overview



- ◆ Musonoi Project is a brownfield copper and cobalt project, located on the northern outskirts of Kolwezi
- ◆ In 2018, the ENFI Feasibility Study on optimization studies and detailed engineering works was completed and first reserves were declared for Musonoi Project
- ◆ Musonoi Project has a high grade of cobalt content with a reserve ore grade of 0.9%
- ◆ Gécamines SA approved the ENFI Feasibility Study 2018 in May 2019
- ◆ A detailed evaluation of the orebody indicates that the mineral resources are SAMREC Code compliant, with sufficient size to support a mining project
- ◆ The project is now in construction phase. The surface explosive magazine was completed in 2020. The main shaft construction commenced in December 2019. Works on the ventilation shafts commenced in May 2020. The construction of office facility/building commenced in April 2020. Works on the living camp, warehouse and core shed commenced in May 2020. The Front End Engineering Design (FEED) is in progress by ENFI

Reserves and Resources summary (As at 31 Dec 2020)

	Ore Mt	Grade		Contained metals	
		% Cu	% Co	kt Cu	kt Co
Musonoi (oxide)					
Proved	2.8	3.2	1.1	90	30
Probable	0.6	2.0	0.7	12	4
Total reserves	3.4	3.0	1.0	102	34
Measured	4.7	3.1	1.0	144	48
Indicated	1.2	1.9	0.8	22	9
Inferred	1.4	2.0	0.7	29	10
Total resources	7.3	2.7	0.9	195	68
Musonoi (mixed+sulphide)					
Proved	8.6	3.1	0.9	270	73
Probable	8.3	2.7	0.8	222	67
Total reserves	16.9	2.9	0.8	492	140
Measured	12.8	2.7	0.8	339	100
Indicated	13.1	2.2	0.8	292	107
Inferred	11.6	2.2	0.8	258	88
Total resources	37.4	2.4	0.8	890	295

Asset Overview

Project Description

- ❑ An exploration project located 30km south of Kinsenda Mine
- ❑ Low grade, bulk mineable, mixed oxide/ sulphide deposit
- ❑ Mining license renewed in 2016 and extended for a further to 2032
- ❑ A pre-feasibility study was completed in 2018 and is currently under review

Project Progress

- ◆ 2020 ENFI pre-feasibility study confirmed Lubembe's potential LoM as 15 years
- ◆ Hydrogeology and Engineering Geology research will start in 2021
- ◆ A 17-hole filling procedure will be completed in 2021 to collect sufficient samples for detailed metallurgy testing and further optimize the processing process and the copper recovery rate during the mining period

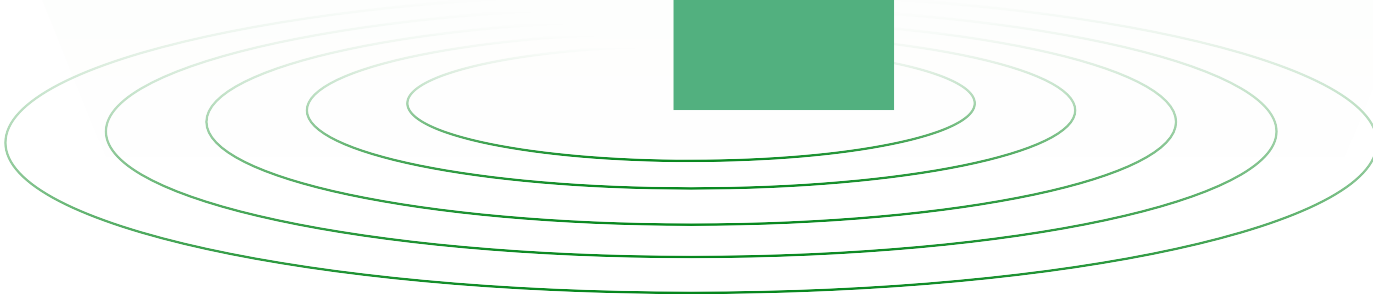
Resources summary (As at 31 Dec 2020)

	Ore	Grade	Contained metals
	Mt	%	kt
		Cu	Cu
Indicated	56.5	1.8	1,039
Inferred	36.6	2.1	761
Total resources	93.1	1.9	1,800

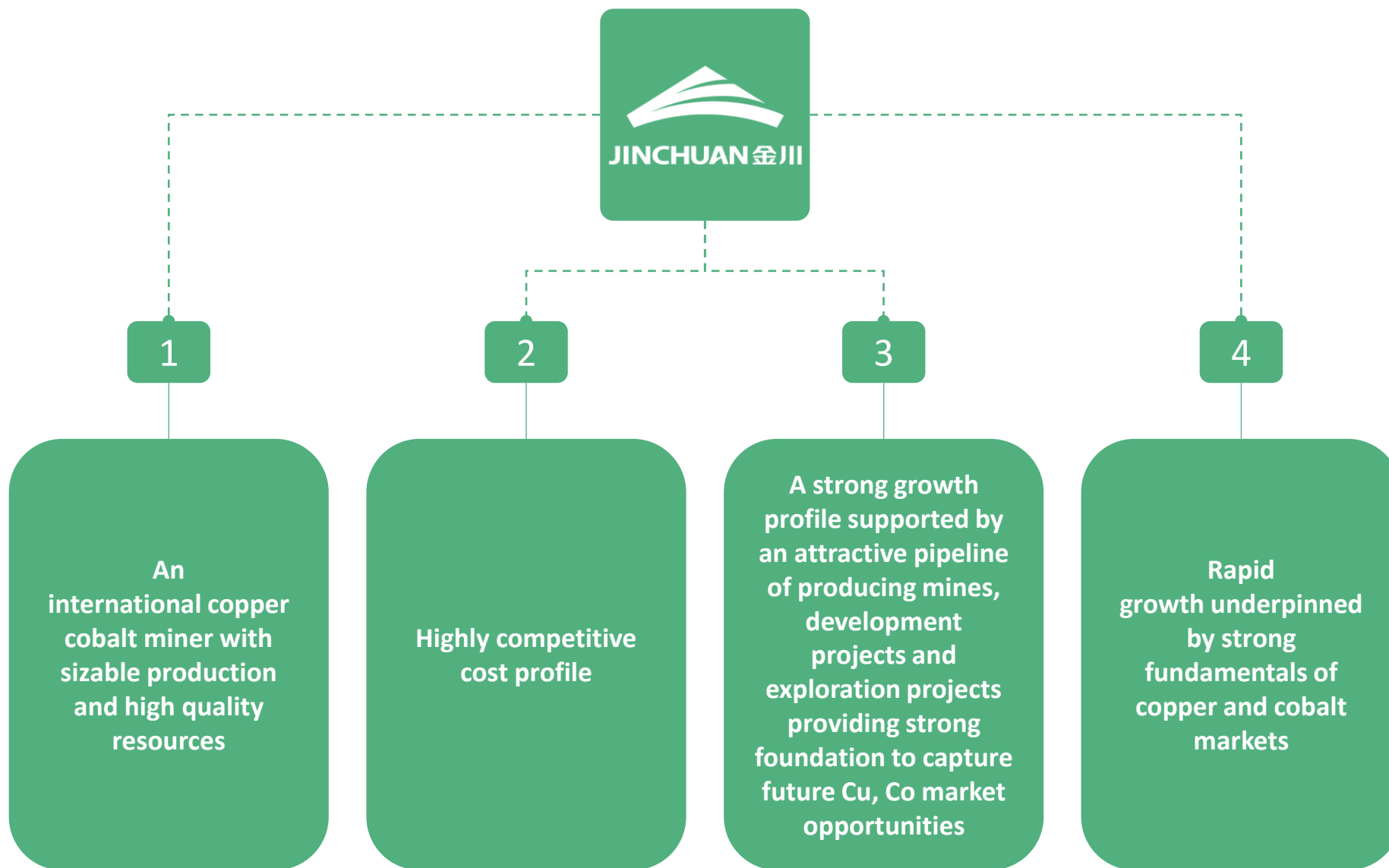




INVESTMENT HIGHLIGHTS



One of the few mature copper and cobalt miner in listed HKEX



1. An international copper and cobalt producer with considerable output, owns high-quality copper and cobalt resources

One of the only two Hong Kong-listed cobalt producers and a top 10 global cobalt listed producer

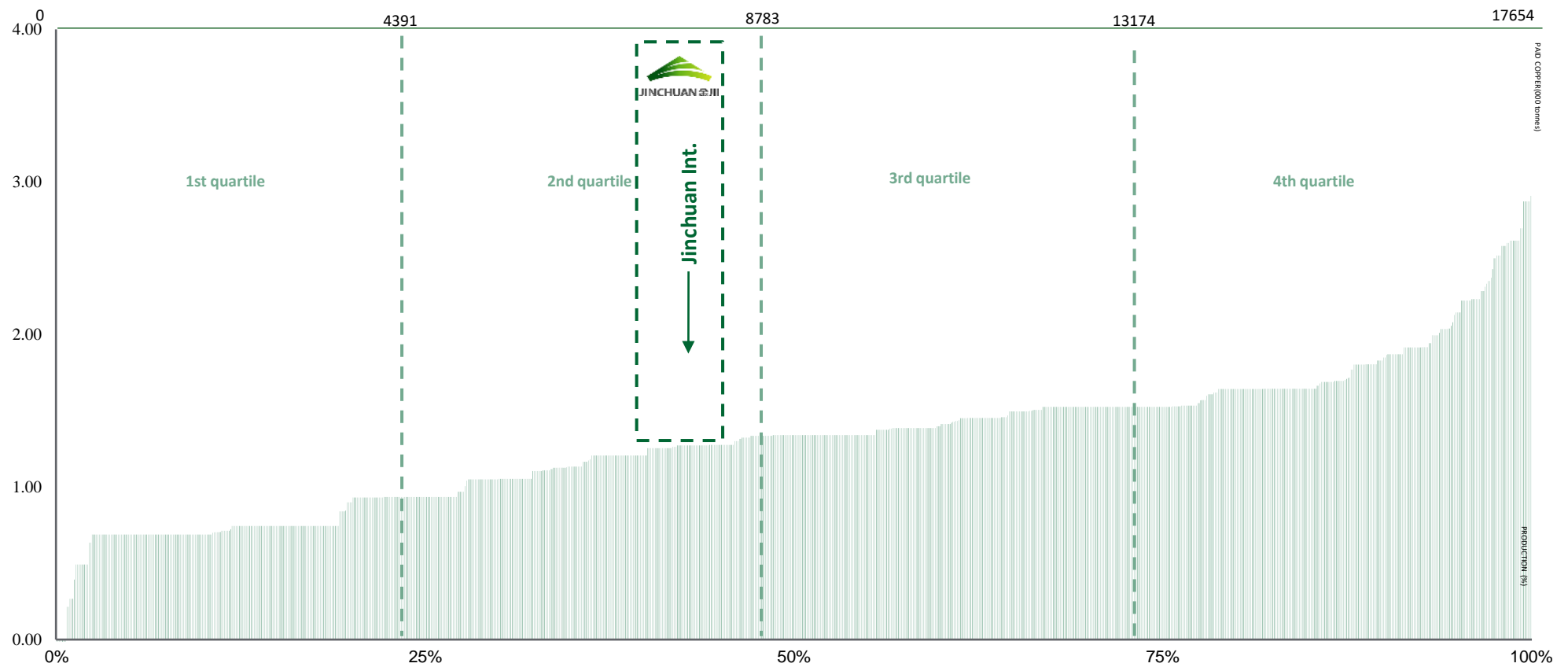
Rank	Company	Cobalt Production of 2021E (kt)	Cobalt Production of 2022E(kt)
1	Glencore	32	32
2	CMOC	18	18
3	ERC	12	12
4	Chemaf	12	12
5	MMG	8	8
6	Wanbao Minerals Limited	7	7
7	Jinchuan International	4	4
8	Hezong Science	2	2

Source: Company announcement and Dongguan Securities

2. Competitive cash cost

Competitive cash cost

2019 global copper companies C1 cash cost curve (USD/lb; including by product credit)



3. A highly potential portfolio with operation, development and exploration assets provides a strong guarantee for seizing opportunities in the future copper and cobalt market

The key development project Musonoi and the exploration project Lubembe will become another important source of profit to the Company



- **Musonoi copper-cobalt mine** is another cobalt-rich mine owned by Jinchuan Int., with cobalt resources of 363,000 tons and cobalt grade of 0.9%. At present, the major construction works Musonoi Project have started, the project construction is proceeding in an orderly manner, the project financing is basically implemented, the on-site work is progressing smoothly, the power supply contract has been signed, and the community relocation work is carried out smoothly
- When the Musonoi Project is completed, it will produce 7,400 tons of cobalt and 38,000 tons of copper per annum. By then, Musonoi will become a new profit growth point for Jinchuan International

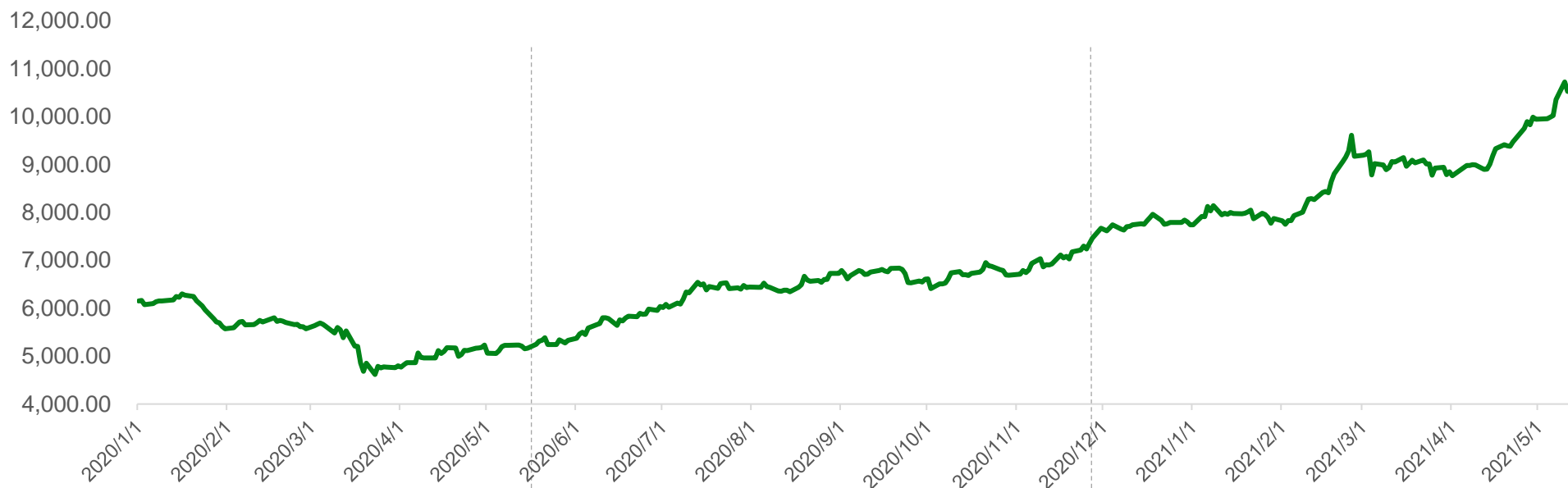


- **Lubembe copper mine** is located 170 km south of Lubumbashi. The project has resources of 93.1 million tons, of copper grade 1.9%, containing 1.8 million tons of copper. After the project is developed, it will greatly increase the copper production of Jinchuan International, and further improve the international strategic layout of Jinchuan Group
- In 2021, the company will upgrade the pre-feasibility study of the project. The surface infill exploration work will provide a basis for the selection of the milling and smelting process. The hydrogeology and engineering geology works will be carried out at the same time, and will further prove the mining technical conditions and provide mining design basis. 17 drilling holes were designed for surface infill exploration work. It is expected that the drilling will be completed in the first half of the year, and the milling and smelting test research will be completed before the end of the year, providing a feasibility basis for further advancement of the project

4. Strong fundamentals of copper and cobalt markets support the rapid growth of the Company

Copper price review: since 2020, copper prices have experienced a deep V shape rebound, which is mainly divided into three stages

LME copper spot settlement price since 2020 (unit: US\$/ton)



The first stage

- As barometer of the global macro economy, the extremely pessimistic economic expectations under the pandemic in 2020 drove the price of copper to fall to the 90th quintile of the global copper mine cost line in the short term. The price of LME copper fell from US\$6,301/ton on January 16 to US\$4,618/ton March 23, representing a decrease of 27%.

The second stage

- From March to September 2020, due to the severe disruption caused by the pandemic in the output of major copper producing countries, such as Chile and Peru in South America, the supply continued to be tight. According to Wind data, the monthly output of copper in Chile and Peru in July 2020 decreased by 4.2% and 2.2%, respectively from the same period last year, and Copper prices rebounded sharply to US\$6,800/ton.

The third stage

- Since October 2020, the pandemic has continued to affect the supply of copper mines in Chile and Peru. Entering 2021, with the popularization of vaccines, the world is showing a trend of economic recovery, copper demand has rebounded significantly, and copper prices reached a 10-year high of 10,724 US\$/ton on May 10, 2021.

4. Strong fundamentals of copper and cobalt markets support the rapid growth of the Company

Copper demand: the tide of carbon neutrality is unstoppable, and copper demand opens up new room for growth

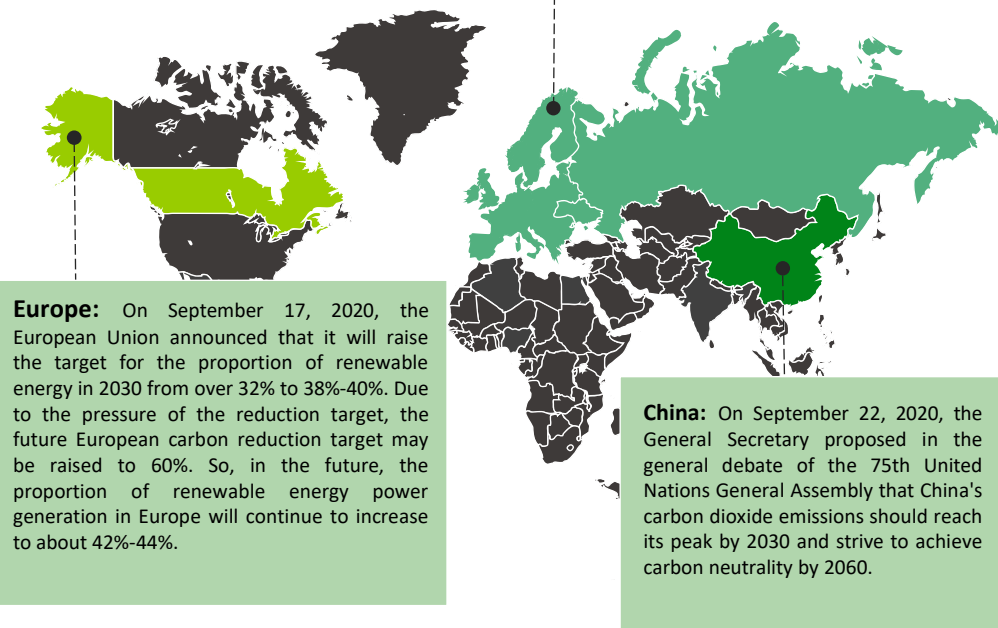
United States: Biden's "Clean Energy Revolution and Environmental Justice Plan" runs through its governance policies such as solving employment problems and stimulating the economy etc. In this plan, Biden intends to invest US\$400 billion in energy and climate research and innovation, as well as clean energy infrastructure construction in the next ten years, and strive to achieve carbon-free power generation by 2035, and ensure that the United States will achieve net zero carbon emissions before 2050, to achieving a 100% clean energy economy.

"Concept of Carbon Neutral"

Carbon neutrality refers to the calculation of the total amount of greenhouse gas emissions produced directly or indirectly by enterprises, groups or individuals within a certain period of time, and through afforestation, energy saving and emission reduction etc., to offset their own carbon dioxide emissions and achieve "zero carbon dioxide emissions". In recent years, with the rapid decline of the cost side, the increase of industrial giants and financial capital, wind and photovoltaic power generation have almost got rid of subsidies and entered the parity era. The replacement of traditional thermal power generation methods is expected to further accelerate; the penetration rate of new energy vehicle (NEV) is also accelerating.

"Carbon neutral solutions" have clearly brought greater demand for copper

Compared with traditional cables, fuel vehicles, air conditioners, real estate and other fields, emerging application fields such as NEVs, charging piles, photovoltaic and wind power etc., have entered a period of rapid development as environmental protection becomes stricter. Given its excellent conductivity, heat dissipation and other nature, copper is widely used in the above new application fields, which will drive its demand.

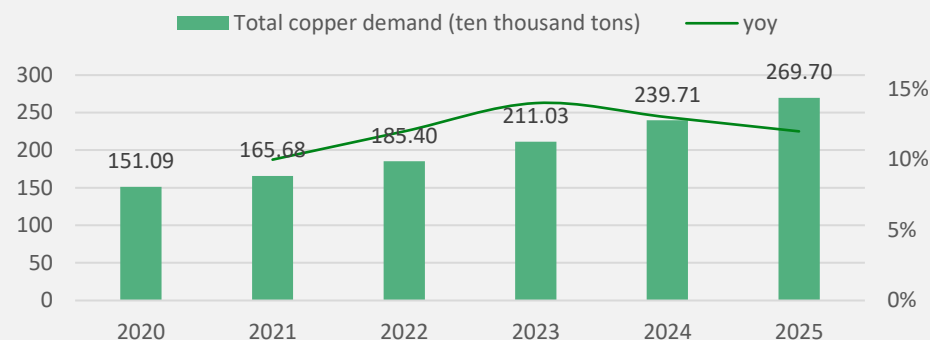


4. Strong fundamentals of copper and cobalt markets support the rapid growth of the Company

Copper demand: from 2021 to 2025, copper demand in the clean energy sector is expected to increase from 1.66 million tons to 2.7 million tons

- In the context of the clean energy revolution, the demand for copper in photovoltaics, wind power, energy storage, NEVs and supporting facilities has greatly increased. According to estimates, compared with 2020, the demand for copper in the clean energy sector will increase by 1.66 million tons, 1.85 million tons, 2.11 million tons, 2.4 million tons, and 2.7 million tons respectively from 2021-2025.
- The demand for copper in clean energy in 2030 will increase to 4.1 million tons.

Total increase in copper demand in the clean energy sector



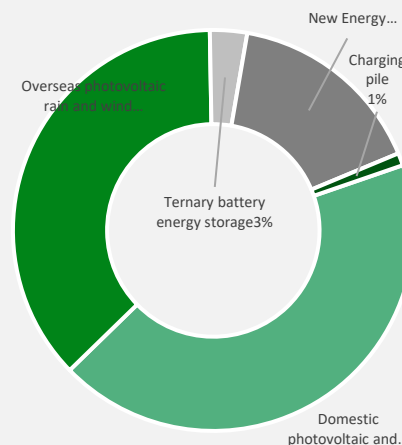
- In 2021, the demand for copper in the power generation sector will account for a high proportion of the clean energy sector

In 2021, the copper demand for photovoltaic and wind power in the clean energy sector will account for approximately 80%, and the copper demand in the NEV sector will account for approximately 17%.

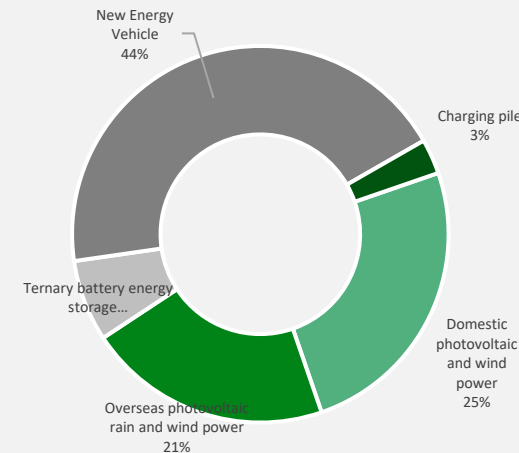
- After 2021, the field of NEV is the main driving force for the increase in copper demand

By 2025, the proportion of copper demand in the power generation sector will drop to about 46%, and the proportion of NEVs will reach 47%.

Proportion of copper demand in various fields in 2021



Proportion of copper demand in various fields in 2025



4. Strong fundamentals of copper and cobalt markets support the rapid growth of the Company

Copper Supply: The outlook of global copper mine supply from 2021 to 2023

In 2020, global copper mines significantly reduced production due to the pandemic, and new supply had a systemic slowdown

- According to SMM, the reduction in the production of the global copper mines was about 455,000 tonnes, which was directly affected by the pandemic in 2020. The loss of copper mines production accounted for about 2% of the world
- According to statistics, there are only a handful of large-scale copper mine projects in the world from 2021 to 2023, and the new supply is limited. It is estimated that the global new copper mine supply will be 920,000 tons, 610,000 tons, and 730,000 tons from 2021 to 2023
- It is estimated that the CAGR of copper supply is 2.85% from 2021 to 2023, which is a systemic slowdown compared with the CAGR of about 4.8% from 2012-2016

Statistics of major large-scale copper mine incremental projects from 2021 to 2023

Company	Country	Project	Production (Ten thousand tons)			2020	Increment (Ten thousand tons)		
			2021E	2022E	2023E		2021E	2022E	2023E
BHP	Chile	Spence Growth Operation	9.3	18.5	18.5	0.0	9.3	9.3	0.0
Anglo American	Peru	Quellaveco	15.8	31.5	31.5	7.9	9.7	15.8	0.0
Teck Resources	Chile	Quebrada Blanca Phase II	7.5	13.5	27.5	0.0	7.5	6.0	14.0
Antofagasta	Chile	Centinela Second Concentrator	7.0	10.0	12.0	0.0	7.0	3.0	2.0
Tongling Nonferrous Metals Group	Peru	TiaMaria	8.0	11.0	12.0	2.0	6.0	3.0	1.0
Codelco	Chile	Salvador Inca	5.5	5.5	5.5	0.0	5.5	0.0	0.0
WestemCopper	North America	Casino	5.5	7.5	7.5	0.0	5.5	2.0	0.0
Codelco	Chile	Chuquicamata Underground	15.7	21.0	21.0	5.2	5.2	5.2	0.0
Zijin Mining	Africa	Kakula -Kansoko -Kamoa	14.0	22.0	35.0	0.0	14.0	8.0	13.0
Zijin Mining	Ethiopia	Timok	7.6	16	18	0	7.6	8.4	2.0
	Other		443.8	443.0	489.6		16.2	0.2	40.6
Total Supply							91.7	60.8	72.6

4. Strong fundamentals of copper and cobalt markets support the rapid growth of the Company

With carbon neutrality era, a gap between supply and demand of the global refined copper will gradually expand

Looking forward to the supply and demand pattern of the global copper market from 2021 to 2023, new copper demand space will be opened with carbon neutrality era, and the global refined copper supply and demand gap will gradually expand

- From the perspective of supply and demand balance, it is estimated that the CAGR of copper mine supply will be 2.85% from 2021-2023, and the CAGR of refined copper supply will be 2.47%, which are both lower than 4.23% of the CAGR of the demand. From 2021 to 2023, the global refined copper market is expected to short of 304kt, 790kt and 1.18mt
- Global inflation trading has started, coupled with the low-speed growth of copper mine supply, the decline in processing fees has led to suppression of copper smelting capacity; new copper demand space will be opened under the background of the clean energy revolution. **A gap between supply and demand of the global refined copper will gradually expand, and copper prices are expected to gain strong upward momentum**

A gap between supply and demand of the global refined copper will gradually expand from 2021 to 2023

Unit (10,000 tons)	2020E	2021E	2022E	2023E
The global supply of refined copper	2,364	2,460	2,516	2,588
yoy	0.18%	4.07%	2.25%	2.89%
The global demand of refined copper	2,396	2,491	2,595	2,706
yoy	1.42%	3.97%	4.17%	4.30%
supply and demand balance	-31.5	-30.4	-79.0	-117.8

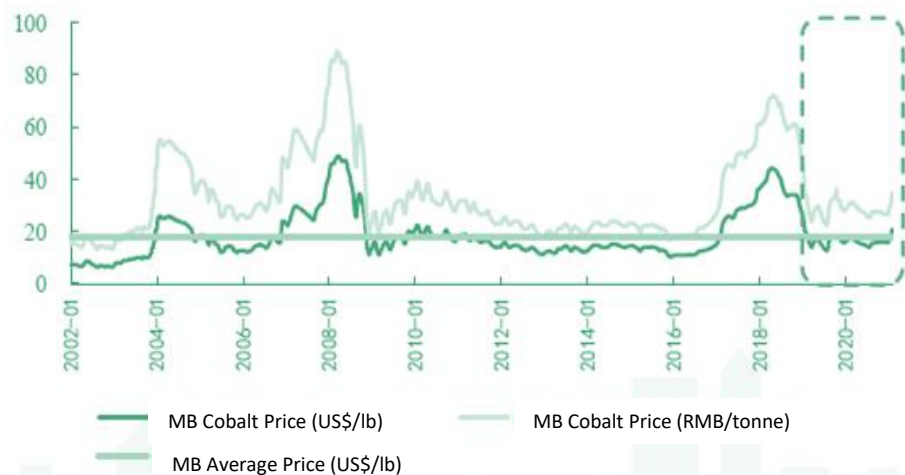
4. Strong fundamentals of copper and cobalt markets support the rapid growth of the Company

Cobalt price review

MB cobalt price: Entering 2020, the price of cobalt has fallen sharply under the impact of the pandemic, MB cobalt fell 10.4% to US\$13.9/lb from the beginning of the year. Since then, with the rapid recovery of terminal demand and the increasing tension of raw materials, the price of cobalt has rebounded and performed well. As of February 2, the price of cobalt has rebounded from the low of \$13.9/lb in 2020 to \$20.78/lb, but it is currently in the historical low range.

The products sold by upstream miners are crude cobalt raw materials, pricing basis=MB*purchase discount coefficient; As of January 29, the average price of crude cobalt intermediates was US\$17.81/lb (MB price*91% coefficient-average value), a sharp increase of 89.9% from the July 2020 low of US\$9.38/lb, reflecting the current shortage of raw materials. The profit of the industrial chain gradually returns to the upstream mine.

Even though the cobalt price rebounds slightly, but it is currently in the historical low range



The discount coefficient of crude cobalt hydroxide exceeded 90% in January 2021



4. Strong fundamentals of copper and cobalt markets support the rapid growth of the Company

Cobalt supply overview

Cobalt raw material prices are supported, as the growth rate of cobalt production in DRC is less than expected

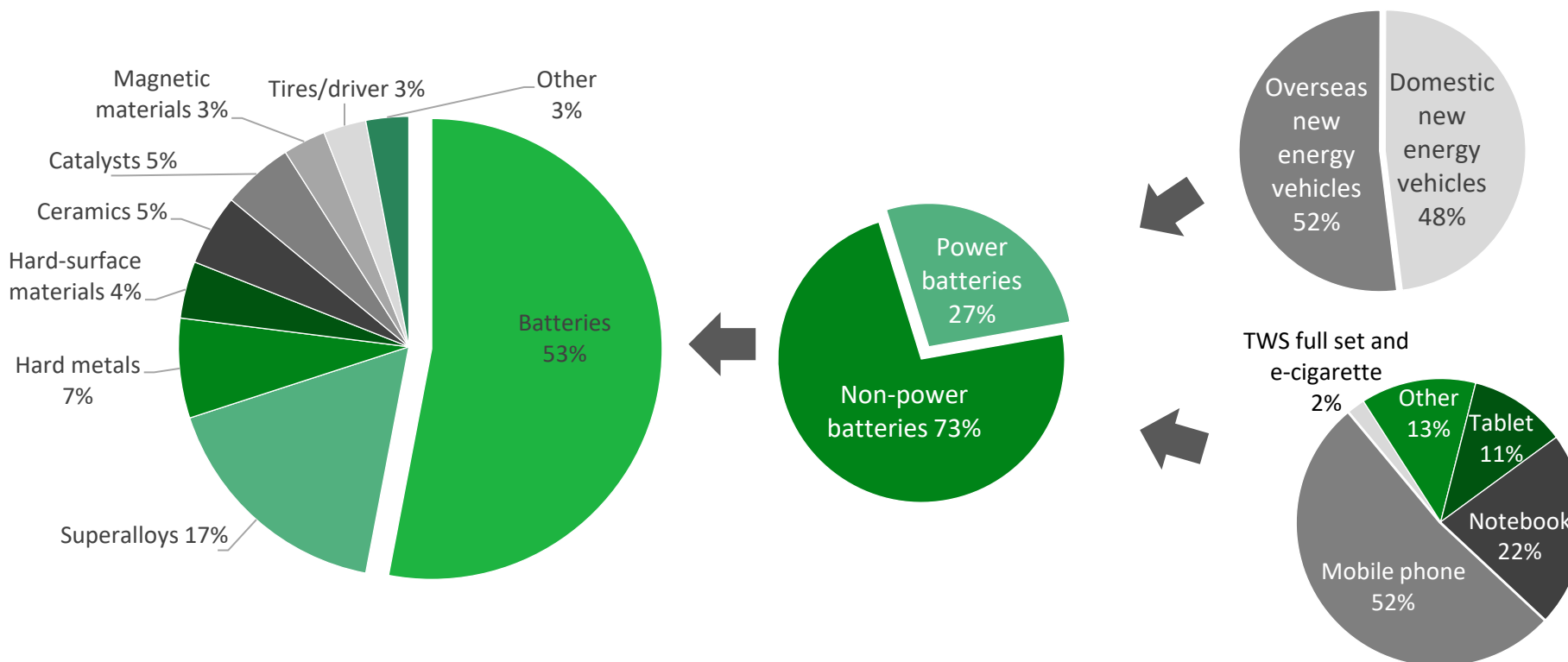
- DRC occupies more than 70% of the world's cobalt production, also as the main origin of cobalt production. Since the cobalt price has been fluctuating at its bottom from 2019, new capacities slowed down sharply, especially the artisanal mining, and the production of current mines has also reduced significantly. According to the central bank of DRC, cobalt production was 77,964t in 2019, representing a decrease of 28.74% YOY, and was 66,581t in Jan to Oct 2020, representing slight increase of 2.3% YOY
- From 2020-2025, it is expected that the CAGR of primary cobalt supply may reach 7.8%, and the supply amount may increase from 134.1kt to 194.8kt; the CAGR of recycled cobalt waste may reach 8.5%; the recovery of power batteries is expected increase significantly after 2023; it is forecasted that the CAGR of total cobalt supply may reach 7.8%, from 147.3kt to 214.6kt
- In general, the increase in supply may relatively limited between 2020 to 2022

	2019	2020E	2021E	2022E	2023E	2024E	2025E	2020-2025 CAGR(%)
Copper-Cobalt Mines in DRC	102,328	101,680	110,230	118,610	143,780	146,780	151,280	8.3%
From Artisanal Mining	15,630	15,980	16,480	17,080	17,680	18,180	18,180	2.6%
From Laterite Nickel Ore	20,343	19,100	17,800	25,760	29,235	31,265	31,265	10.4%
From Nickel Sulfide Ore	15,880	16,050	16,250	16,250	16,250	16,250	16,250	0.2%
Supply of Primary Refined Cobalt (ton)	138,551	136,830	144,280	160,620	189,265	194,295	198,795	7.8%
Availability Rate	98%	98%	98%	98%	98%	98%	98%	
Supply of Recycled Cobalt (ton)	12,810	13,195	13,591	13,998	14,978	17,255	19,809	8.5%
Growth Rate (%)	3.0%	3.0%	3.0%	3.0%	7.0%	15.0%	15.0%	
Total	148,590	147,288	154,985	171,406	200,458	207,634	214,628	7.8%
Change %	-3%	-1%	5%	11%	17	4%	3%	

4. Strong fundamentals of copper and cobalt markets support the rapid growth of the Company

Cobalt demand overview

- In 2020, the demand for cobalt was mainly distributed in the battery field, most of which was concentrated in the non-power battery sector. In 2020, the lithium battery sector accounts for **53%** of global cobalt demand, with the remaining superalloys (17%), hard metals (7%), hard-surface materials (4%), ceramics (5%), catalysts (5%), magnetic materials (3%), tires/driers (3%) and other fields (3%), etc.
- In terms of segmentation, the lithium battery segment is divided into **power lithium batteries** in the field of NEV (**27%**) and **non-power batteries** in the field of 3C consumer electronics (**73%**). Currently, non-power batteries are still the leading demand.



4. Strong fundamentals of copper and cobalt markets support the rapid growth of the Company

Cobalt demand overview

- In general, it is expected that the cobalt demand may reach 143.3kt in 2020, and may reach the level of 230.4kt in 2025, with an CAGR up to 10%. The core growth factors are mainly concentrated in the power battery field of NEV and the 3C field of non-power battery. The remaining superalloy and hard metals fields are assumed to maintain the demand growth rate of 4% and 1% respectively

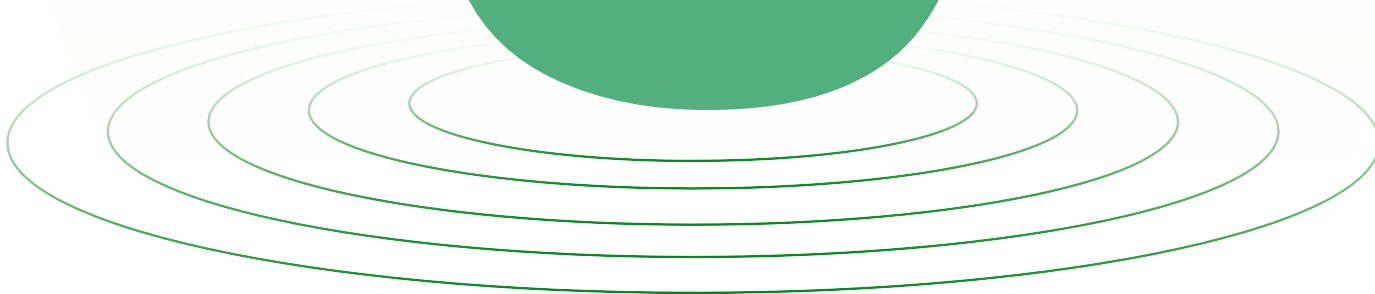
Demand side (ton)	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2020-2025 CAGR(%)
Power Battery	17,944.2	20,981.7	26,321.4	37,999.5	50,480.0	58,836.7	62,261.2	24.3%
Non-power Battery	51,978.6	55,718.7	62,614.5	70,046.4	75,825.1	82,166.5	88,764.8	9.8%
Subtotal of Battery Demand	69,922.7	76,700.4	88,935.9	108,045.9	126,305.1	141,003.2	151,025.9	14.5%
Cobalt for Superalloy	22,988	23,908	24,864	25,859	26,893	27,969	29,087	4.0%
Cobalt for Hard Metals	9,950	10,050	10,150	10,252	10,354	10,458	10,562	1.0%
Others	3,774	4,076	4,402	4,754	5,135	5,546	5,989	4.0%
Total (ton)	134,255	143,273	157,847	179,397	200,205	217,566	230,371	10%
Total growth rate (%)	7.1%	6.7%	10.2%	13.7%	11.6%	8.7%	5.9%	

Cobalt price trend forecast

- Considering the impact on the demand side by the pandemic in 2020, the cobalt industry may have a slight surplus in 2020. However, with the large-scale promotion of vaccines around the globe, the demand for cobalt in the industrial sector is expected to be significantly recovered in 2021, and accompanied by the acceleration of 5G mobile phone penetration, cobalt is expected to have a gap between supply and demand of about 2,862 tons in 2021
- In the medium and long term, the global new supply of cobalt is expected to be limited from 2021 to 2022. Meanwhile, the penetration of the current global NEV market electrification is accelerating, 5G still has obvious support for the demand for consumer batteries, and the cobalt supply and demand structure has improved significantly



QUESTION AND ANSWER SESSION



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