

Peru Mining sector outlook

2022

February 3, 2023

Key points



Importance of the Peruvian mining sector

Mining is an economically important sector in Peru, contributing with around 10% of the country's total output and two-thirds of export value.



Mining production

Peruvian mining output has not yet been able to recover its pre-pandemic levels. Social unrest in the sector and the gradual depletion trend of some units have not aided recovery. However, with the start of operations of the Quellaveco copper mine, the country's mining output is on track to exceed its pre-pandemic levels by 2024 if social conflict recedes.



Investment in mining

On the mining investment side, a period of strong expansion came to an end in 2022, precisely at the conclusion of the construction of Quellaveco (a project that required an investment of more than USD 5 billion) and other smaller mines. It is likely that, in an environment of continuous political instability and high social unrest, investment in the sector will decrease over the next two years, despite the attractive levels of metal prices.

Key points



Competitiveness of the mining sector

In a broader investment analysis horizon, Peru is a country with mining resources, which favors interest in investment. In addition, its production costs are competitive. However, the policies implemented in the mining sector do not seem to be the most favorable for attracting investment in this sector. In addition to the country's continued political instability in recent years (which poses risks of regulatory changes) and the duplicities and inconsistencies in regulation, there is growing uncertainty regarding both the administration of current regulations and environmental regulations, for example. There is room for improvement in these aspects.



Copper price trend and outlook

In terms of mining prices, copper's (the main metal that Peru produces) recovered recently with the post-COVID reopening of China and a more benign outlook for monetary policy in the US. However, despite this auspicious start to the year, a positive balance between supply and demand in the copper market is expected for 2023, which contrasts with what happened in previous years and will tend to place the copper price below its current level, in a range that we estimate will average between USD 3.75 and 3.85 per pound for the year. Later, the price of copper will find structural support in a greater demand associated with investment in "green" infrastructure and vehicle reconversion, elements that will gradually become more relevant, which favors the price of copper.

Key points



Opportunities

In addition to the development of copper projects in the portfolio (which, according to MINEM data, amounts to USD 37 billion), Peru has opportunities in the lithium industry, another metal that is attractive due to the growing global interest in green technologies. To exploit lithium, it is necessary to develop a timely regulation that generates the right incentives in economic, social and environmental terms.

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01

Importance of the Peruvian mining sector

Importance of mining: direct impact on...



EXPORTS

57%

of value of exports



PRIVATE INVESTMENT

11%

of private investment



GDP

11%

of total output*



TAX REVENUE

8%

of tax revenue



EMPLOYMENT

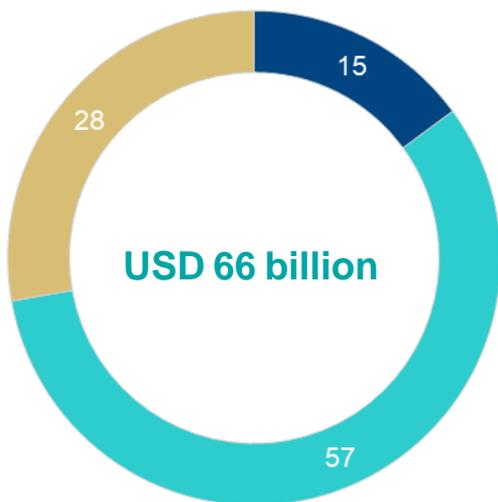
5%

of employed labor force

Importance of mining: direct impact on exports

VALUE OF PERUVIAN EXPORTS

(% OF TOTAL EXPORTED IN 2022*)

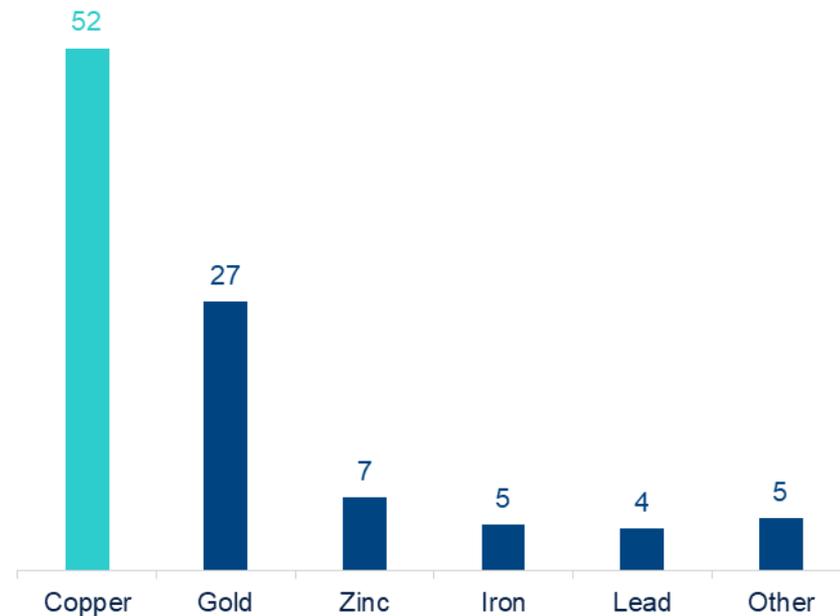


■ Other traditional exports ■ Mining ■ Non-traditional exports

* Accumulated last twelve months as of November 2022.
Source: BCRP.

SHARE OF EACH METAL IN MINING EXPORTS*

(% OF TOTAL MINING EXPORTS)



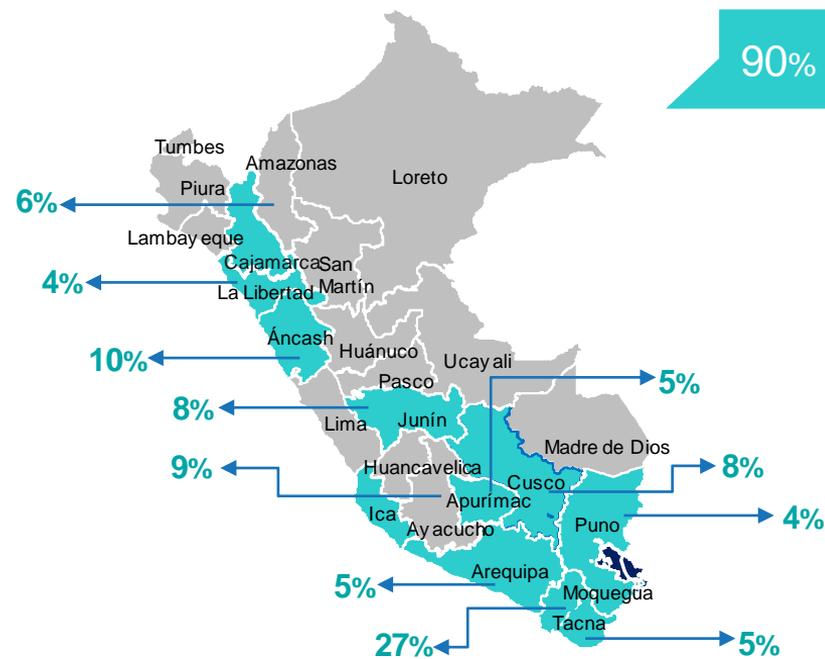
* Accumulated last twelve months as of November 2022.

Importance of mining: direct impact on investment



* Accumulated last four quarters as of third quarter 2022.
Source: BCRP, MINEM and BBVA Research.

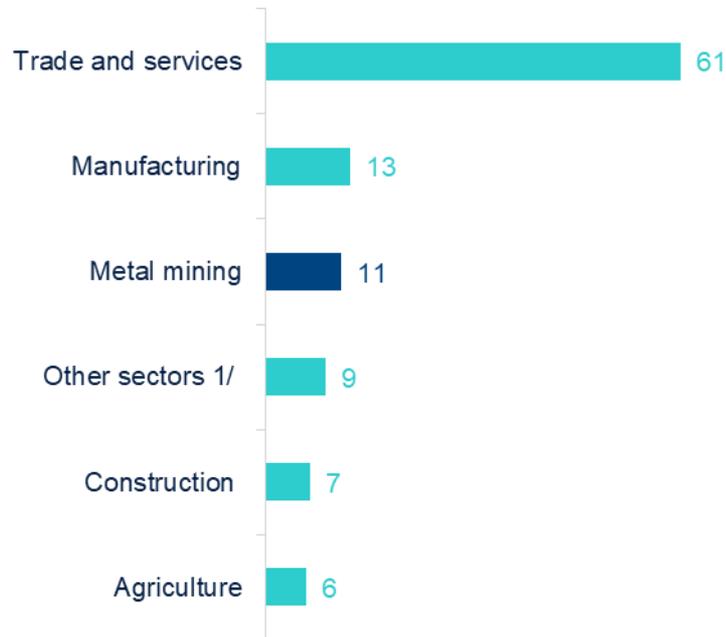
MINING INVESTMENT BY REGION IN 2021 (% OF TOTAL INVESTED IN MINING)



Source: MINEM.

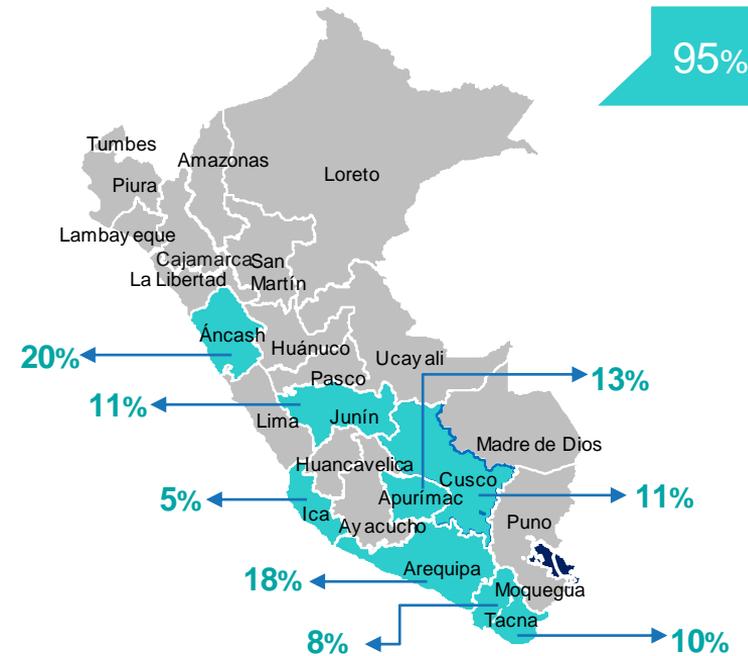
Importance of mining: direct impact on GDP

GDP: SECTORAL SHARE IN 2022* (%)



* Accumulated last four quarters as of third quarter 2022. Mining includes hydrocarbons.
1/ Fishing and Electricity.
Source: BCRP.

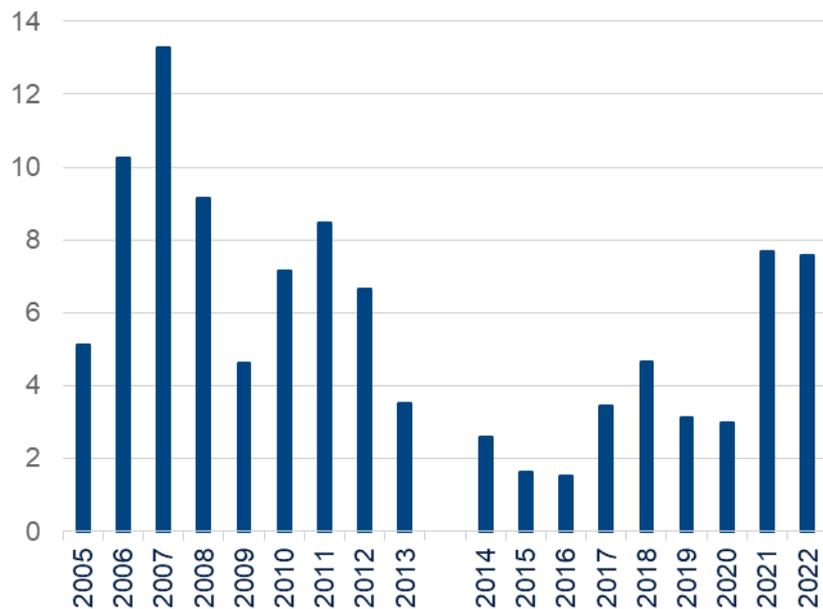
COPPER OUTPUT BY REGION IN 2021 (% OF TOTAL COPPER PRODUCED)



Source: MINEM.

Importance of mining: direct impact on tax revenues

TAX REVENUES RELATED TO MINING OUTPUT (% OF TAX REVENUES)



Source: SUNAT and BCRP.

TAX REVENUES RELATED TO MINING OUTPUT (MILLIONS OF PEN)

	2017	2018	2019	2020	2021	2022
1. Tax revenues	3,273	5,411	3,292	2,597	16,739	13,646
Income tax	2,569	4,552	2,707	2,151	8,538	11,869
Payments on account	1,727	2,585	2,036	1,573	5,220	6,081
Regularization	842	1,967	672	578	3,318	5,788
IEM (mining tax)	638	770	545	430	1,802	1,608
Levy	66	88	40	16	199	168
Other ^{1/}					6,200	
2. Non-tax revenues	1,070	1,247	1,470	1,203	3,572	2,082
Royalties	1,070	1,247	1,470	1,203	3,572	2,082
Total (1+2)	4,343	6,658	4,762	3,800	20,310	15,728
% of GDP	0.6	0.9	0.6	0.5	2.3	1.7

1/ In 2021, extraordinary tax revenues were registered from the mining sector, amounting to PEN 6.2 billion (0.7% of GDP), which correspond to the payment of tax debts by four important mining companies and revenues associated with controlling shares held by SUNAT.

Source: SUNAT.

Importance of mining: direct impact on employment



227,000

DIRECT JOBS
CREATED
BY MINING



5%

EMPLOYED
EAP (2021)

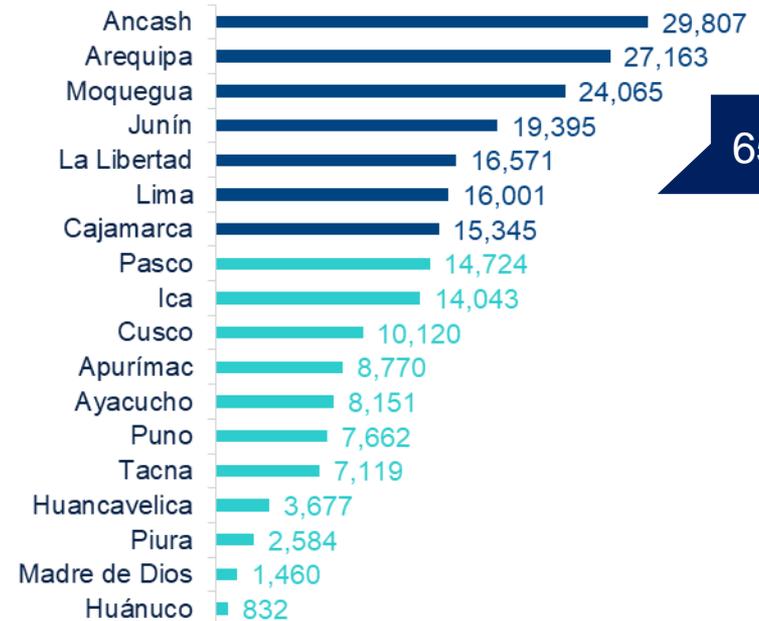


For every
direct job
created...

4

INDIRECT JOBS*
are created

MINING: DIRECT EMPLOYMENT BY REGION IN 2021 (NUMBER OF PERSONS EMPLOYED)



65%

* Calculation by Macroconsult
Source: MINEM and Macroconsult.

Source: MINEM.

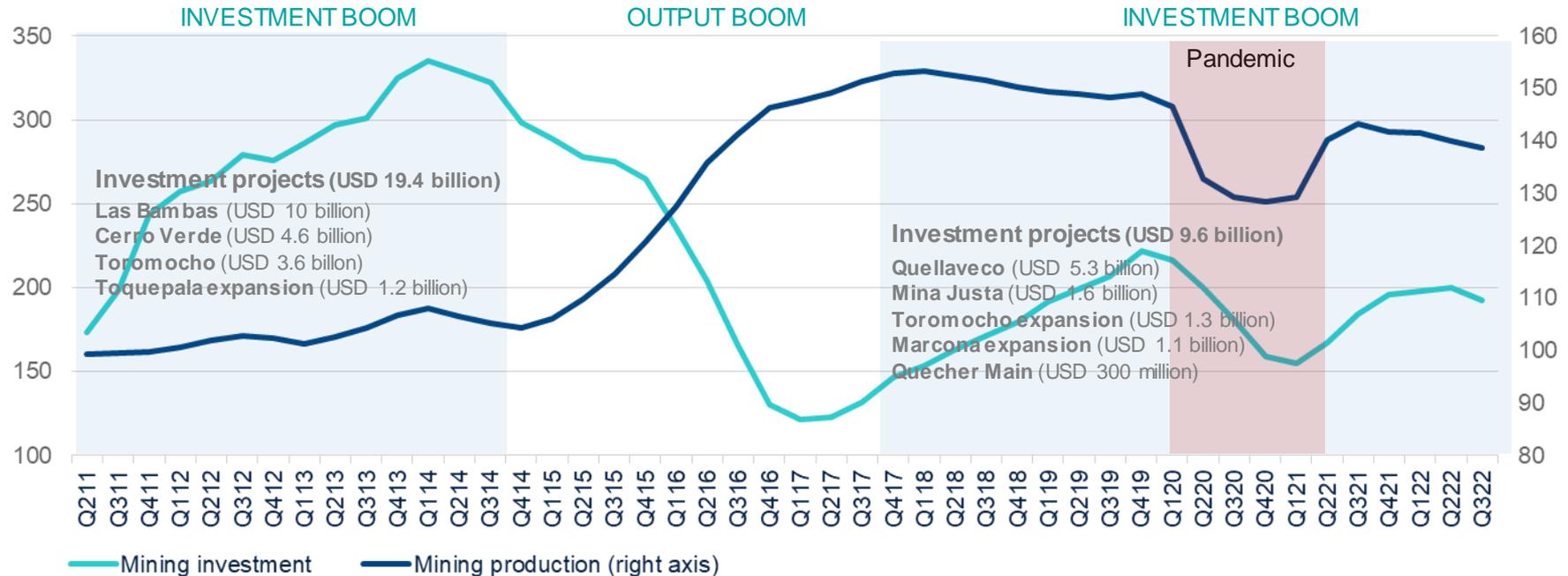
02

Recent trends and short-term outlook

2022 marked the end of a boom in mining investment, which should soon give way to a new period of expansion in output

MINING ACTIVITY CYCLE: INVESTMENT AND OUTPUT

(IN REAL TERMS, CUMULATIVE OVER THE LAST FOUR QUARTERS, INDEX 100 = 1Q10)



In an environment of social unrest and the exhaustion of some operations, mining output has not recovered to pre-pandemic levels

MINING OUTPUT (INDEX, 2019 = 100)



2015	2016	2017	2018	2019	2020	2021	2022
15.7	21.2	4.5	-1.7	-0.8	-13.8	10.5	-0.4

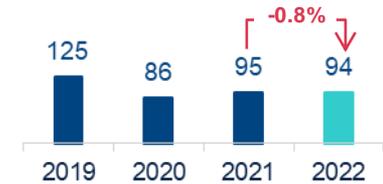
Source: BCRP, MINEM, Gestión newspaper.

MINING OUTPUT BY METAL

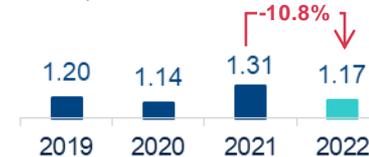
COPPER (MILLIONS OF MT)



GOLD (THOUSANDS OF KG)



ZINC (MILLIONS OF MT)



Social conflict



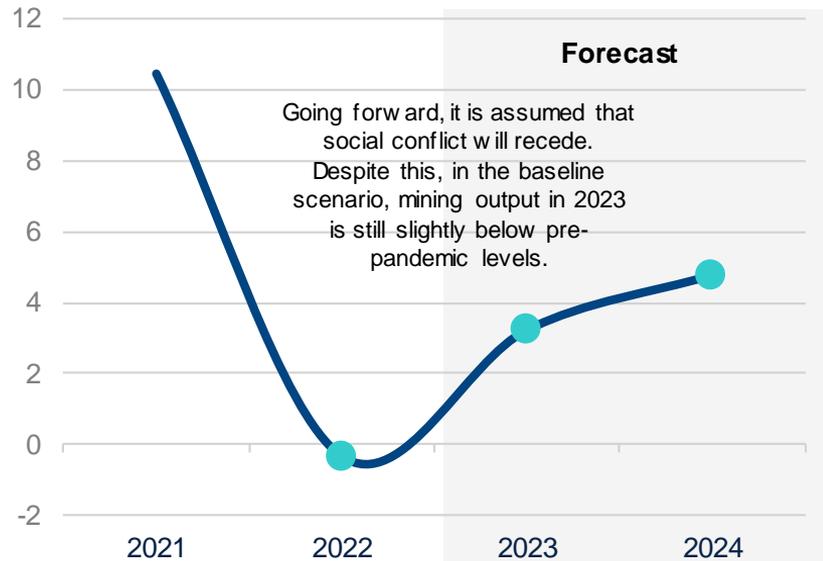
"In the first half of 2022, Las Bambas and Cuajone were paralyzed for almost 2 months (111 days between the two)."
Gestión (Aug. 11, 2022)

"The direct impact of social conflict on the 2022 GDP is estimated to be between 0.2 and 0.6 percentage points."
Gestión (Aug. 11, 2022)

Going forward, however, mining output will increase with the start of operations at Quellaveco and on the assumption of some normalization at other mines

MINING OUTPUT

(% YEAR-ON-YEAR CHG.)



MINING OUTPUT BY METAL

COPPER (MILLIONS OF MT)



GOLD (KG)

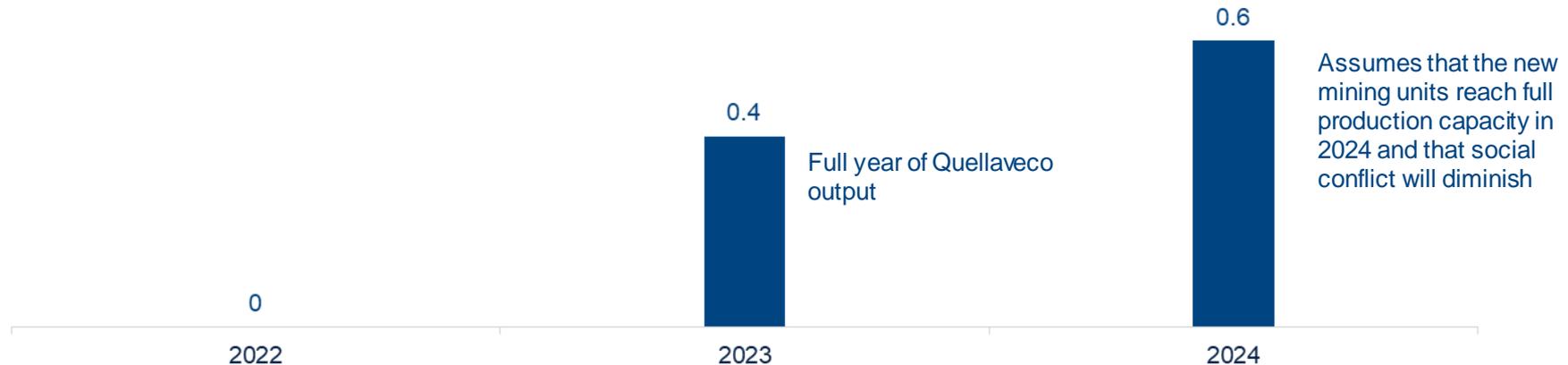


ZINC (MILLIONS OF MT)



This expansion of mining output will be one of the main drivers of Peruvian GDP growth in 2023 and 2024

MINING: DIRECT CONTRIBUTION TO GDP GROWTH (IN PERCENTAGE POINTS OF GDP)




Total GDP
(chg. %)

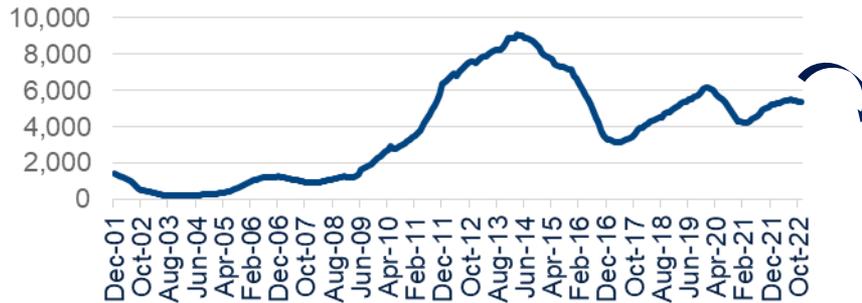
2.7%  Downward bias

2.5%  Downward bias

2.4%  Upward bias

As for mining investment, the most recent boom is coming to an end following the completion of Quellaveco

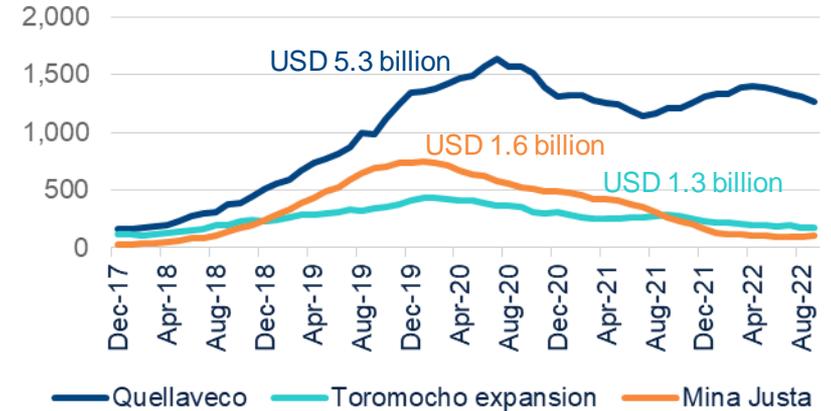
INVESTMENT IN MINING (MILLIONS OF USD, CUMULATIVE LAST 12 MONTHS)



INVESTMENT IN MINING (BILLIONS OF USD)

	2012	2013	2014	2018	2019	2020	2021	2022
Equipment	1.7	2.2	1.4	2.1	2.4	2.2	2.2	1.9
Exploration	0.9	0.8	0.6	0.4	0.4	0.2	0.3	0.4
Infrastructure	1.8	1.8	1.5	1.1	1.3	0.9	1.4	1.3
Preparation	0.6	0.4	0.4	0.8	1.1	0.4	0.6	0.8
Other	2.5	3.7	4.1	0.6	0.7	0.7	0.8	0.6
Total	7.5	8.9	8.1	5.0	5.9	4.3	5.3	5.0

MINING INVESTMENT IN SELECTED PROJECTS (MILLIONS OF USD, CUMULATIVE LAST 12 MONTHS)

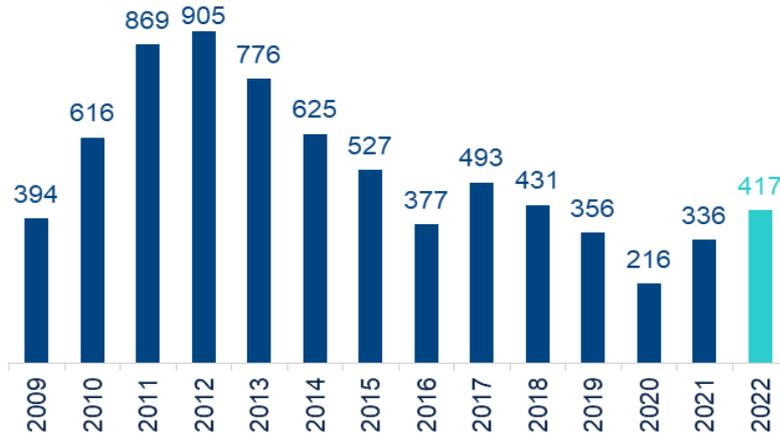


INVESTMENT IN MINING (% OF NOMINAL GDP)

2012	2013	2014	2018	2019	2020	2021	2022
3.9	4.4	4.0	2.2	2.5	2.1	2.3	2.0

Investment in mineral exploration, in particular, has been relatively subdued despite the climate of attractive metal prices

INVESTMENT IN MINERAL EXPLORATION (MILLIONS OF USD)



INVESTMENT IN MINERAL EXPLORATION (NOMINAL USD, CHG. %)

Year	2017	2018	2019	2020	2021	2022
Change (%)	31%	-13%	-18%	-39%	56%	24%

FACTORS DISCOURAGING INVESTMENT IN MINERAL EXPLORATION



Social
conflict



Political
instability



Regulatory environment

For example, according to the director of the Peruvian Institute of Mining Engineers:

- **Regulations on Environmental Protection for Mineral Exploration Activities** (which went into effect in 2019) establishes environmental requirements for conducting exploratory drilling that would be excessive.
- **Prior consultation for exploration.** It is difficult for communities in the vicinity of explorations to be adequately informed about exploration projects that have only partial data. In addition, since they are explorations, they may not be able to be expanded in the end.

In this context of low investment in exploration, the development of new mining units (and thus total mining investment) will decrease in the future

INVESTMENT IN MINING (BILLIONS OF USD)



INVESTMENT IN MINING (% OF GDP)

2012	2013	2014	2018	2019	2020	2021	2022	2023	2024
3.9	4.4	4.0	2.2	2.5	2.1	2.3	2.0	1.6	1.5

INVESTMENT IN MINING (NOMINAL USD, CHG. %)

2017	2018	2019	2020	2021	2022	2023	2024
19%	25%	19%	-27%	22%	-5%	-21%	-5%

03

Analysis of mining sector competitiveness

Is it attractive to invest in the Peruvian mining sector? What factors does this depend on? How does Peru compare with other countries?

1



Are mining resources available?

2



Production costs?

3



Tax regime

4



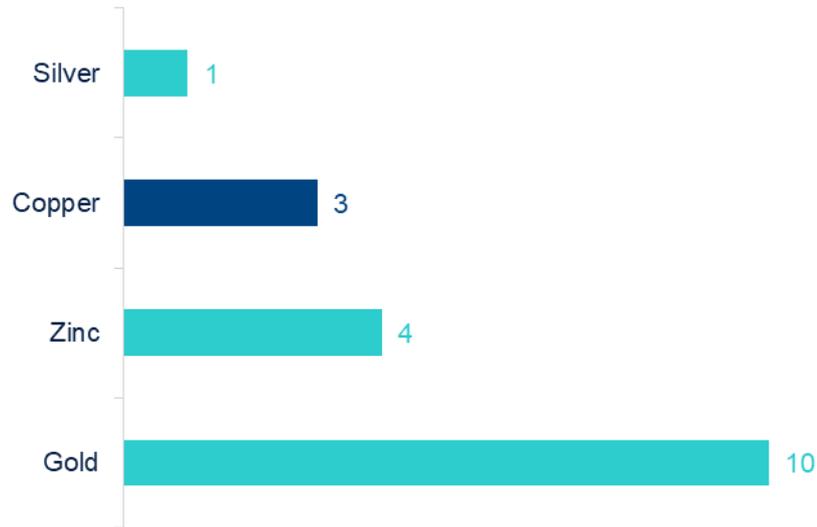
Is the environment favorable for mining activities?

- Regulation
- Human capital
- Infrastructure

- Safety
- Social conflict

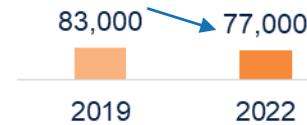
1 - Peru has significant mineral resources... although in recent years the level of reserves has been decreasing

PERU IN THE RANKING OF WORLD RESERVES* (POSITION IN THE 2022 RANKING)



Source: USGS.

COPPER RESERVES (THOUSANDS OF MT) PERU



CHILE



ZINC RESERVES (THOUSANDS OF MT) PERU



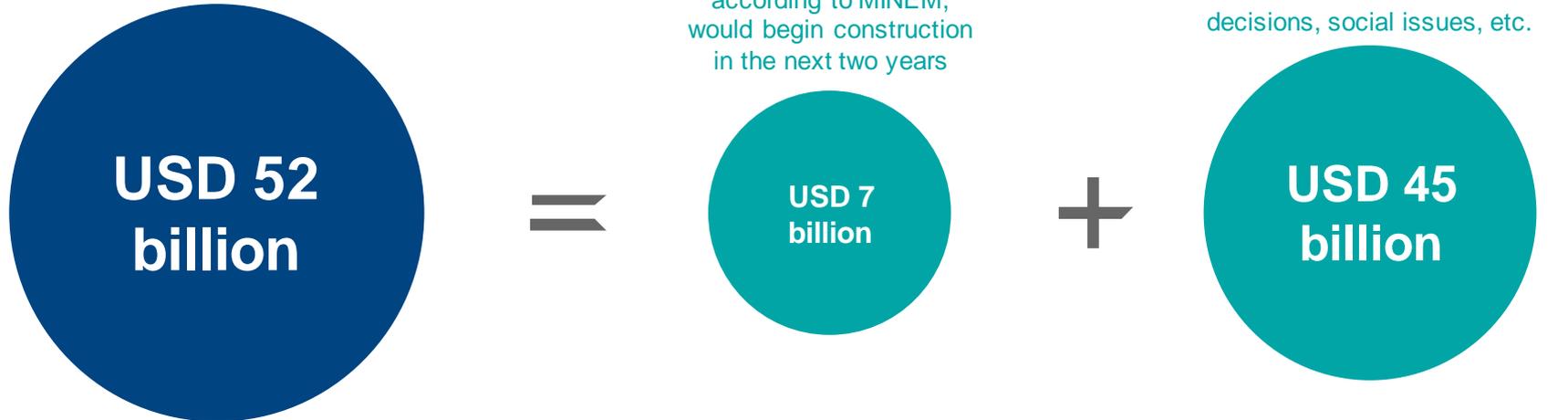
AUSTRALIA



A relatively recent discovery of lithium resources could potentially position the country among the first in the world in terms of lithium reserves, which is highly valued in the growing electric vehicle industry.

There are projects in the pipeline for approximately USD 52 billion, mainly in copper, which could begin to be built in the next few years

PROJECT PIPELINE FOR MINING INVESTMENT



2 - Relatively low production costs are favorable for mining investment in Peru

AVERAGE CASH COST OF COPPER MINES IN MAJOR COPPER-PRODUCING COUNTRIES*

(USD/POUND)

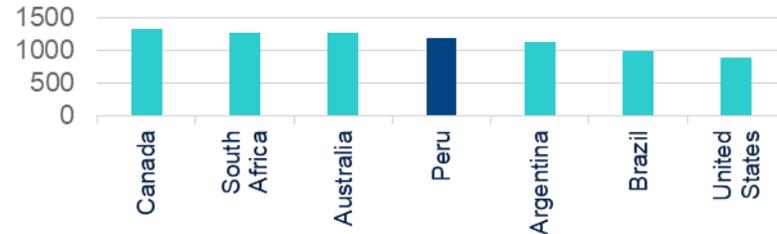


* Data from 2019. Cash cost includes the cost of mining, crushing, concentration, administrative expenses, and freight.

Source: Wood Mackenzie.

AVERAGE CASH COST OF GOLD MINES IN MAJOR GOLD-PRODUCING COUNTRIES*

(USD/TROY OUNCE)

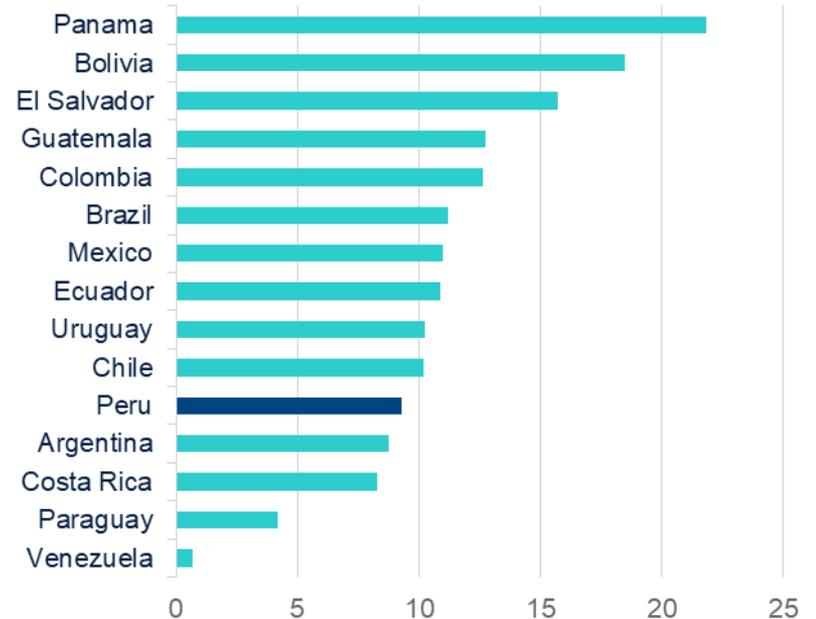


* Data from 2020.

Source: Apoyo Consultoría.

ELECTRICITY RATES FOR INDUSTRIAL CUSTOMERS*

(cUSD/KWh)

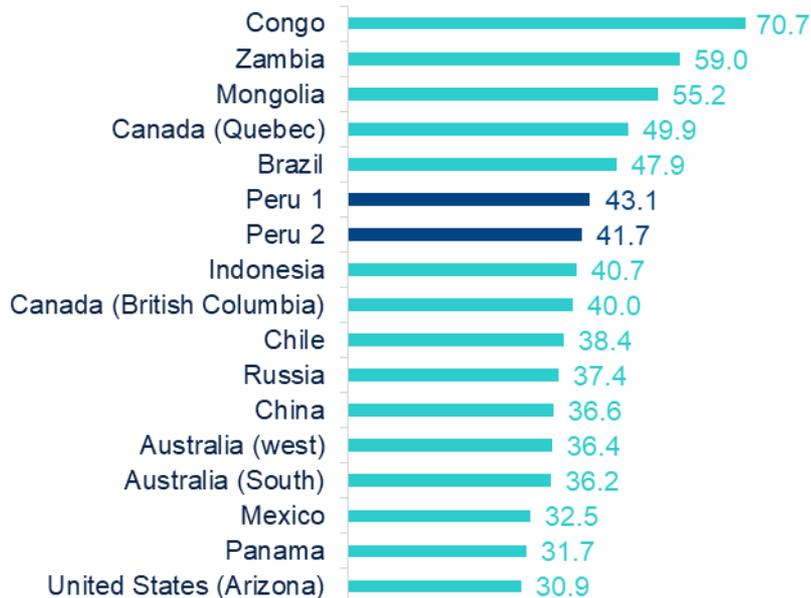


* Data from 2021.

Source: Osinergmin.

3 - And in terms of taxation, the Peruvian mining tax regime is competitive and progressive, in accordance with the IMF

AVERAGE EFFECTIVE TAX RATE (% OF CORPORATE INCOME)



- Peru is in the middle range of tax rates in mining countries.
- Compared to Chile (the world's largest copper producer), the Peruvian tax rate is slightly higher.
- The Peruvian tax regime is progressive because it uses specific levies based on profits.
- Additionally, Peru has extended the General Sales Tax (IGV) refund for exploration until 2027.

4 - However, the policies implemented in the Peruvian mining sector are not the most favorable for attracting investment

POSITION IN THE RANKING OF POLICY PERCEPTIONS PREPARED BY FRASER

Country	2021 ^{1/}	2018 ^{2/}	Change in position
Ireland	1	4	↑ 3
Australia	4	5	↑ 1
Chile	38	22	↓ -16
Ecuador	45	64	↑ 19
Colombia	51	58	↑ 7
Mexico	54	44	↓ -10
Brazil	68	52	↓ -16
Peru	69	34	↓ -35
Bolivia	77	67	↓ -10

1/ Ranking considers 84 jurisdictions.

2/ Ranking considers 73 jurisdictions.

Source: FRASER.

What are the factors that weaken the environment for mining activities in Peru?

ASPECTS ASSESSED IN THE POLICY PERCEPTION INDEX*

1. Labor standards
2. Socioeconomic agreements with communities
3. Political stability
4. Regulatory overlap and inconsistencies
5. Uncertainty regarding environmental regulations
6. Uncertainty regarding disputed land claims
7. Legal system
8. Quality of infrastructure
9. Uncertainty regarding administration, interpretation or enforcement of existing regulations
10. Tax regime
11. Uncertainty regarding protected areas
12. Level of safety
13. Trade barriers
14. Geological data quality
15. Labor availability

PERU IN THE RANKING FOR EACH ASPECT ASSESSED IN THE POLICY PERCEPTION INDEX* (RANKING POSITION OUT OF 84 JURISDICTIONS)

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15
Peru	73	72	71	70	67	66	64	63	61	55	53	51	50	44	26
Chile	61	44	58	63	55	41	53	31	29	62	41	51	42	33	11
Ecuador	56	59	44	65	59	44	58	40	14	47	68	50	55	64	46
Colombia	52	70	53	64	36	42	54	60	43	46	42	83	41	57	48
Mexico	71	68	70	67	48	54	56	35	49	65	54	74	45	34	21
Brazil	63	58	65	62	51	56	60	57	56	57	56	71	74	62	53
Bolivia	80	78	74	61	57	54	75	66	77	79	76	69	69	80	75

* Based on surveys conducted by the Fraser Institute. Considers the percentage of respondents who answered "Yes, it encourages investment" on each of the aspects assessed (15 questions).

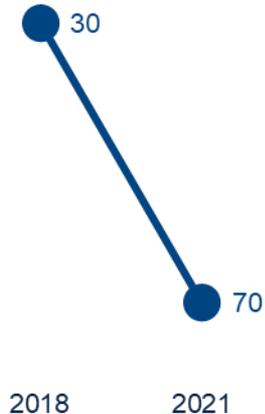
Source: FRASER and BBVA Research.

Main weaknesses: uncertainty regarding regulatory administration and regarding environmental regulations, regulatory overlap, and political instability

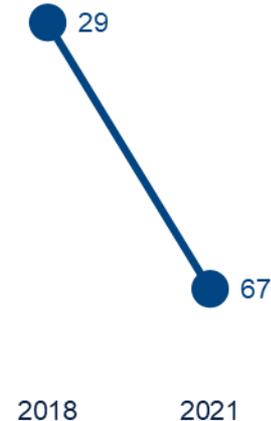
UNCERTAINTY REGARDING THE ADMINISTRATION, INTERPRETATION OR APPLICATION OF EXISTING REGULATIONS*
(RANKING POSITION)



REGULATORY OVERLAP AND INCONSISTENCIES*
(RANKING POSITION)



UNCERTAINTY REGARDING ENVIRONMENTAL REGULATIONS*
(RANKING POSITION)



POLITICAL INSTABILITY*
(RANKING POSITION)



* Ranking considers 73 jurisdictions in 2018 and 84 jurisdictions in 2021.
Source: FRASER and BBVA Research.

Regulatory overlap and inconsistencies? Lots of procedures, lots of entities involved... Is simplification possible?

Many administrative processes and public entities involved to grant permits to develop mining projects

+ 470 legal standards...  ... taking into account all stages of the value chain of medium and large-scale mining

Commission for Sustainable Mining Development (2020)

Number of administrative processes in the mining sector



President of the Institute of Mining Engineers (IIMP) 2021, Mining 2021: procedures or consensus

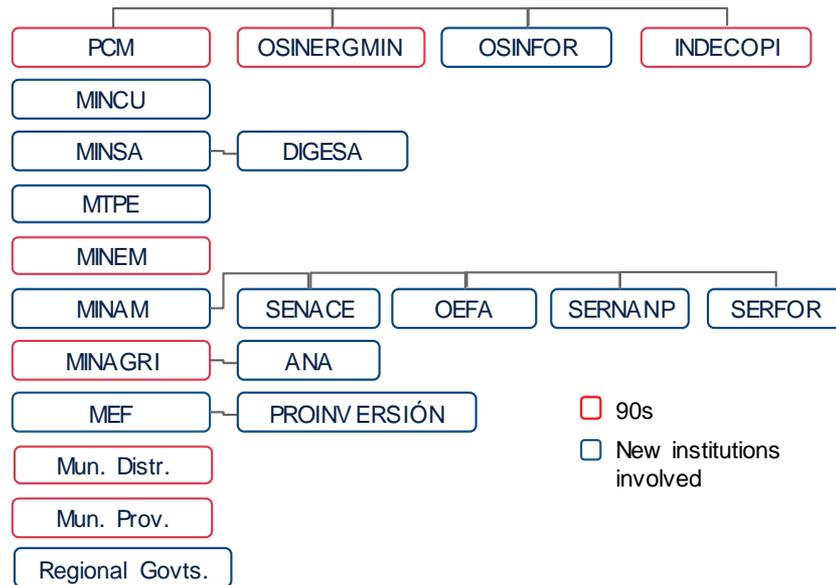
10% of project delays are due to procedural matters

IIMP 2022 Mining Competitiveness Index

90% believe that the procedures for the approval of mining permits are complicated or very complicated; they expect it to get worse (sector stakeholder survey)

BCRP (2018).

COMPETENT ENTITIES IN THE MINING SECTOR



Source: Commission for Sustainable Mining Development (2020) "Propuestas de medidas normativas, de gestión y de política pública para afianzar la sostenibilidad del sector minero"; Institute of Mining Engineers of Peru (2022) Mining Competitiveness Index 2022; and BCRP (2018), "December 2018 Inflation Report. Section 7".

Source: Ac Pública SAC (2019) "Proposals to facilitate the development of the mining industry". In Commission for Sustainable Mining Development (2020). "Propuestas de medidas normativas, de gestión y de política pública para afianzar la sostenibilidad del sector minero".

Main weaknesses: uncertainty regarding regulatory administration and regarding current environmental regulations and political instability



UNCERTAINTY REGARDING ADMINISTRATION OF CURRENT REGULATIONS AND ENVIRONMENTAL REGULATIONS

- August 2022: National Water Authority (ANA) issues resolution allowing the operator of the Quellaveco copper project to use 22 million cubic meters of water from the Titire (not suitable for human consumption) and Vizcachas rivers.
- Late September 2022: Quellaveco obtains commercial operating license.
- October 2022: Tambo Valley representatives disagree with ANA's resolution and appeal.
- October 2022: "Ruling on water rights will be known in November" says ANA.
- ANA has not yet issued a resolution on the controversy between Quellaveco and the community in the mining project's area of influence. However, the ruling will probably be sent to the judiciary in the event of disagreement from one of the parties.



POLITICAL INSTABILITY

- Six presidents in five years (resignations, vacancies).
- Dissolution of Congress (former president Vizcarra) or attempt to do so (former president Castillo).
- Constant tensions between the Executive Branch and Legislative Branch. This favors populist policies.
- Deterioration of state management due to constant change of authorities.
- Risk of a Constituent Assembly being called (change in the rules of the game).

In summary, Peru has mining resources, and output costs are competitive, but the policies implemented in the mining sector...



Availability of mining resources



Production costs



Tax regime



Policies that encourage investment



... do not seem to be the most favorable to encourage mining investment, which could decline over the next few years

Peru's share of the global budget allocated to mining exploration is decreasing

PERU'S MINING EXPLORATION AS A PROPORTION OF MINING EXPLORATION WORLDWIDE (%)



Source: S&P Global Markets Intelligence and MINEM.

The environment for mining activity in Peru has been weakening, and investment in the sector is likely to decline in the coming years

INVESTMENT IN MINING (BILLIONS OF USD)



Source: MINEM and estimates from BBVA Research as of 2022.

Social conflict?

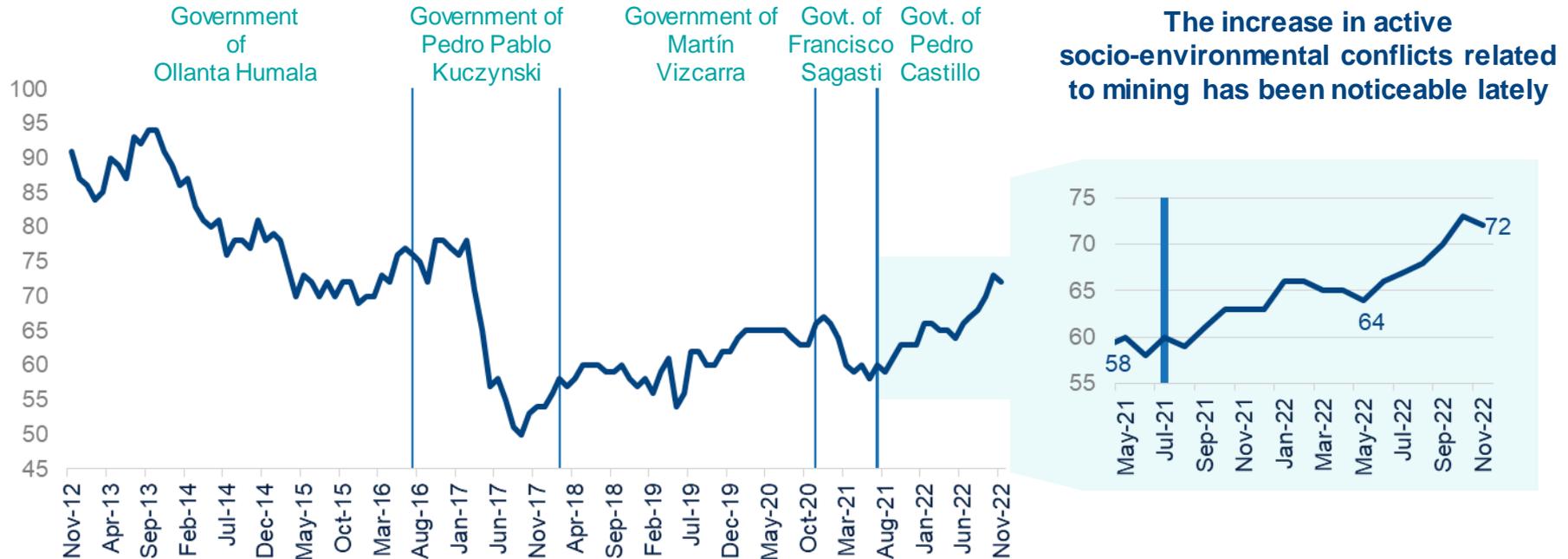
There is an important group of projects that are **paralyzed** due to **business** decisions but also due to **social conflicts** (USD 45 billion in total), including Conga (USD 4.8 billion), El Galeno (USD 3.5 billion), and La Granja (USD 5 billion).

04

Social conflict in Peruvian mining

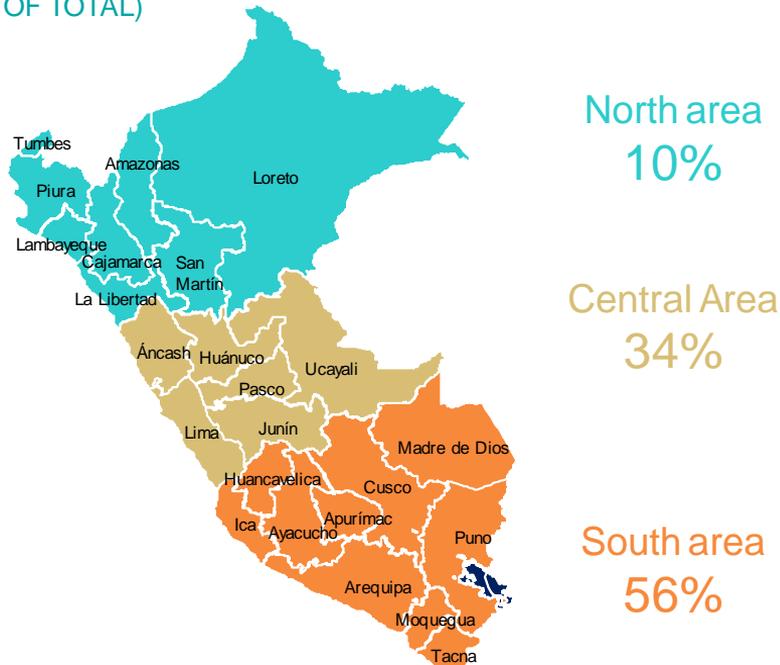
Social conflict in Peruvian mining has tended to increase in the last few years

SOCIO-ENVIRONMENTAL CONFLICTS ACTIVE IN THE PERUVIAN MINING SECTOR (NUMBER)

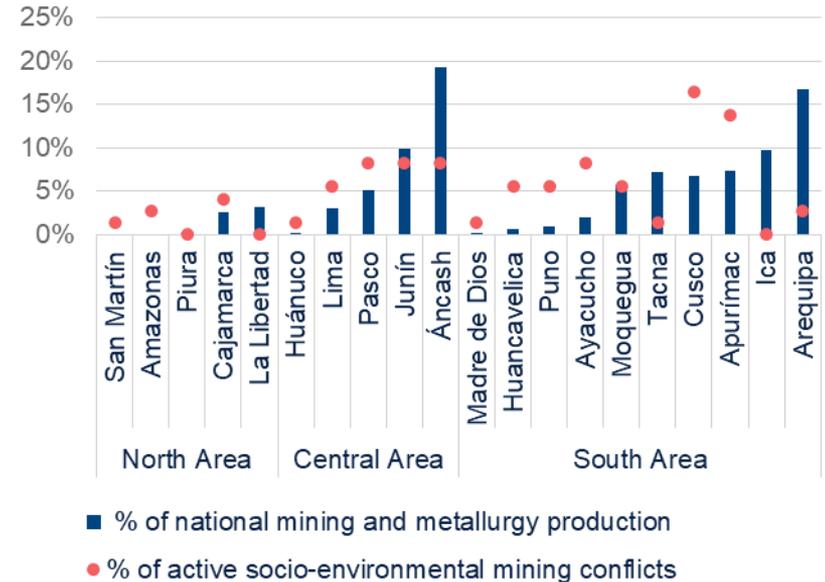


The highest number of social conflicts in mining is in the south of Peru, which also concentrates a good part of the country's mining output

GEOGRAPHICAL DISTRIBUTION OF ACTIVE SOCIO-ENVIRONMENTAL CONFLICTS IN MINING*
(% OF TOTAL)



GROSS VALUE OF MINING PRODUCTION AND ACTIVE SOCIO-ENVIRONMENTAL CONFLICTS IN MINING BY DEPARTMENT^{1/} (%)

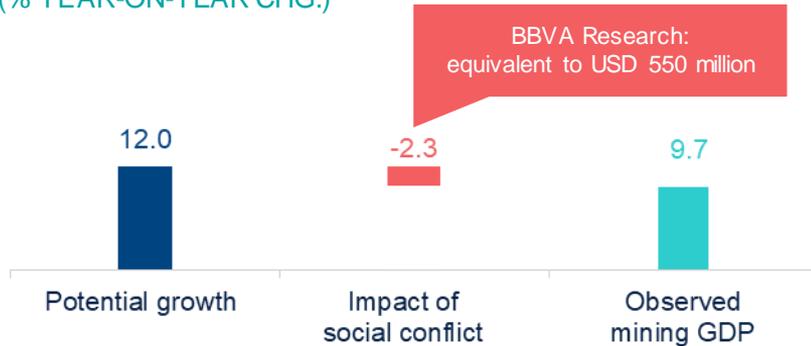


^{1/} Departmental output between January and October 2022 of copper, gold, zinc, lead, silver, iron, tin and molybdenum as well as INEI benchmark prices are considered. Source: INEI, MINEM, Ombudsman's Office.

* As of September 2022. Source: Ombudsman's Office.

This social conflict has a significant impact on Peruvian GDP

SOCIAL CONFLICT: IMPACT ON MINING GDP IN 2021* (% YEAR-ON-YEAR CHG.)



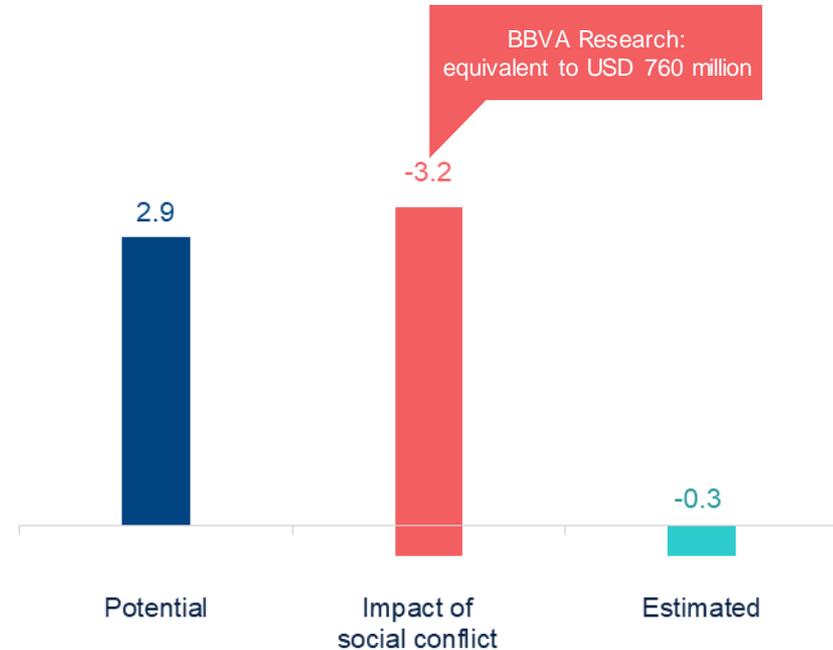
*The BCRP updated the 2021 mining sector growth rate to 10.5% rather than 9.7%.

MINING PRODUCTION LOSSES IN 2021 DUE TO SOCIAL CONFLICT

Metal	Mines	Units
Copper	Las Bambas, Constancia, Antapaccay, Antamina	68,000 FMT
Gold	Antapaccay, Apumayo, Constancia, Ares	13,000 troy ounces
Zinc	Antamina, Buenaventura	12,000 FMT
Lead	Antamina, Buenaventura	3,000 FMT
Silver	Constancia, Antamina, Antapaccay, etc.	1.276 million troy ounces

Source: BCRP.

SOCIAL CONFLICT: IMPACT ON MINING GDP IN 2022 (% YEAR-ON-YEAR CHG.)



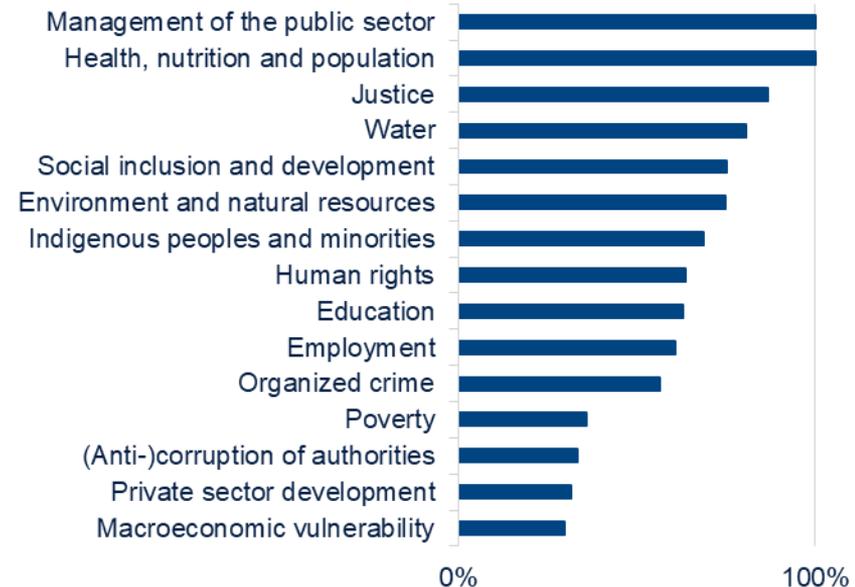
Source: BBVA Research.

According to media reports, social conflicts seem to be more related to public sector management and socioeconomic elements

PERUVIAN PRESS COVERAGE OF SOCIAL CONFLICT AND PERUVIAN MINING



TOPICS MENTIONED IN THE PRESS WHEN COVERING SOCIAL CONFLICT AND PERUVIAN MINING (2022, % OF TOTAL PRESS COVERAGE OF SOCIAL CONFLICT IN MINING)



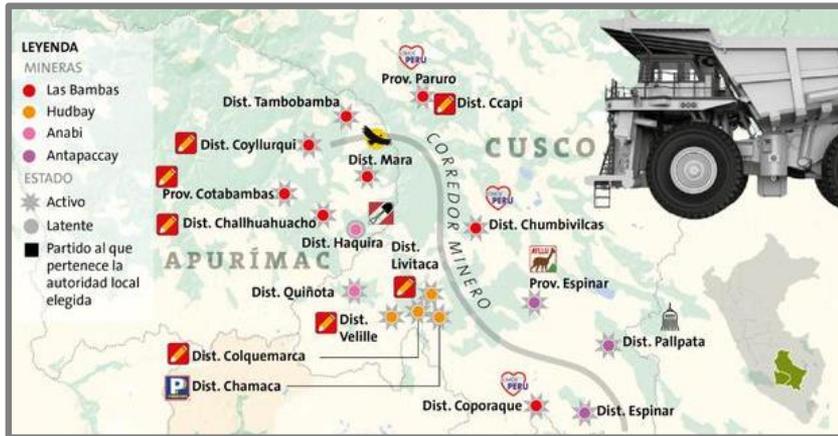
Moving forward, impact on social conflict in mining of recent change of administration in sub-national governments?

SOUTHERN MINING CORRIDOR

This is the main route by which copper is transported from southern Peru to shipping ports on the coast. If the corridor were to be blocked, 30% of Peruvian copper output would be at risk.

Source: Adapted from Grupo Propuesta Ciudadana (2022)

MINING CORRIDOR IN SOUTHERN PERU: ELECTED POLITICAL PARTIES IN THE AREA



Source: Perú 21 (Oct. 11, 2022) "PerúLibre is the party that won the most districts in the Mining Corridor."



IDEOLOGY OF THE POLITICAL PARTY PERÚ LIBRE

CHAPTER XVII Concerning our main sources of wealth

"... that the State becomes the creditor of 70% or 80% and the private transnational of 30% or 20% ... if the companies do not accept the new conditions of profit sharing, the State must proceed to the nationalization of the deposit in question ..."

CHAPTER XVIII Concerning our sovereignty

"... the main deposits of large- and medium-scale mining such as Yanacocha, Antamina, Toromocho, Marcona, Cuajone, Quellaveco, Toquepala, etc. should be nationalized and decentralized to the administration of the regional governments according to their jurisdiction ... the rights and sovereignty over the soil and subsoil of the peasant and native communities should be constitutionally recognized ... prior consultation should have a binding character for compliance, including veto power."

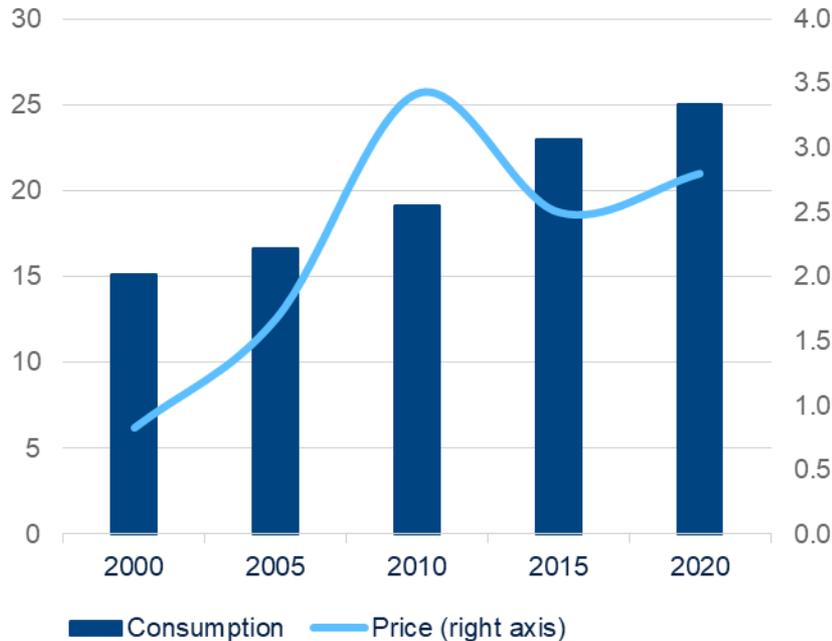
Source: Perú Libre national political party (2020) "Perú Libre Ideario y Programa."

05

Recent trends and outlook for copper prices

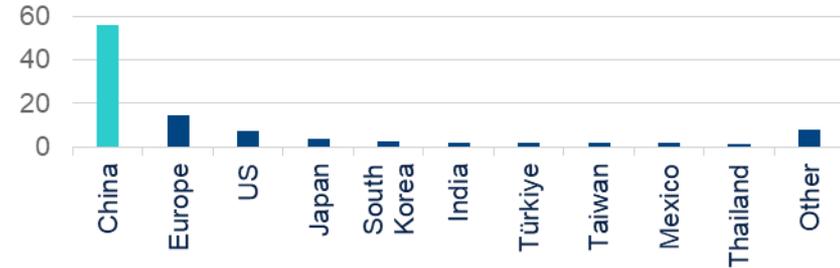
Upward trend in global copper demand, with China as a key support, led the price of the metal to register a similar trend

WORLDWIDE REFINED COPPER CONSUMPTION AND PRICE (MILLIONS OF MT AND USD PER POUND)



Source: International Copper Study Group.

COPPER CONSUMPTION, 2021 (% OF TOTAL)



COPPER CONSUMPTION BY END USE, 2021 (% OF TOTAL)



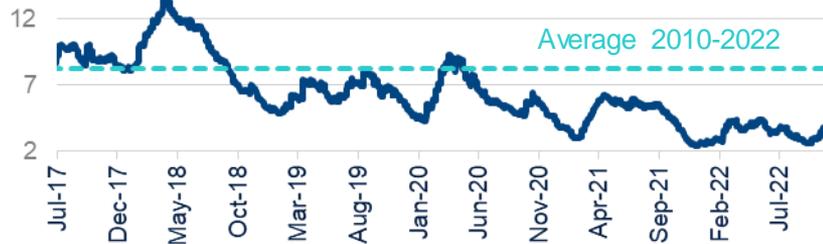
Source: Cochilco and International Copper Study Group.

On a shorter-term analysis, the copper price has recently recovered from the decline that occurred in the middle of last year

COPPER PRICE AND DXY (USD/POUND AND INDEX)



COPPER INVENTORIES (IN NUMBER OF DAYS OF WORLDWIDE CONSUMPTION PER YEAR)

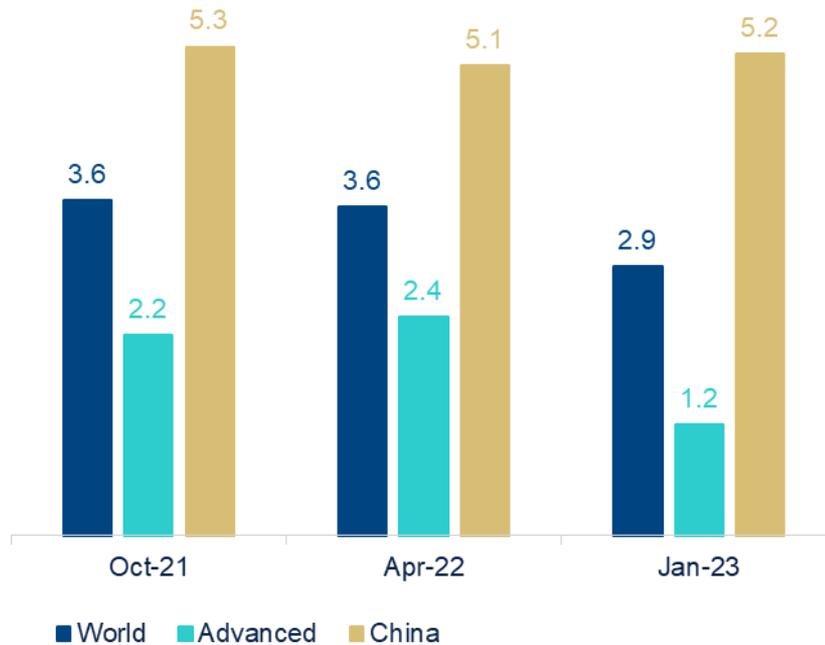


Source: Bloomberg and Cochilco.

- Price correction downward in a context of a strengthening dollar (making it more expensive for importers such as China to acquire the metal in local currency), concerns about demand in China (problems in the real estate sector, zero-COVID policy, and drought), and constant cuts in global growth forecasts.
- Tight inventories, high production costs (diesel), and problems at some major production units (CODELCO, Escondida, drought in Chile and China, Las Bambas in Peru) set the price floor.
- In recent weeks, the withdrawal of the zero-COVID restrictions in China, a more benign outlook for the US monetary policy trend, and supply problems in Peru gave a new boost to the price. We estimate part of this price advance will be transitory.

Factors impacting the copper price in 2023? Global growth concerns, commencement of operations of new mines...

IMF: GROWTH FORECASTS FOR 2023 (% YEAR-ON-YEAR CHG.)



Source: IMF (WEO), ICSG and BBVA Research.

- Aggressive interest rate hikes in 2022 from the world's main central banks (to curb inflation) will slow global growth in 2023. In such an environment, a moderate increase in demand for copper is expected.
- On the supply side, supply should rise 7.3% in 2023 according to BofA (+2.4% per year on average over the last ten years), while Cochilco forecasts a 5.4% increase.

MAJOR COPPER UNITS ENTERING PRODUCTION PHASE

Name	Country	Start of operations	Annual capacity (thousands of MT)
Kamoa Kakula	R.D. Congo	2021 – 2022	400
Quellaveco	Peru	2022 – 2023	350
Quebrada Blanca	Chile	2022 – 2023	250
Spence	Chile	2021 – 2022	180
Udokan	Russia	2023	150

... would lead to a positive balance (oversupply) on the copper market

ICSG: WORLD REFINED COPPER BALANCE (THOUSANDS OF MT)



COCHILCO: WORLD COPPER BALANCE (MILLIONS OF MT)

	2021	2022		2023	
	FMT	FMT	Chg. %	FMT	Chg. %
Mine production	21.3	22.1	3.5%	23.2	5.4%
Refined copper supply	24.7	25.0	1.3%	26.0	3.9%
Refined copper demand	24.9	25.1	0.8%	25.7	2.4%
Balance	-0.2	-0.1		+0.3	

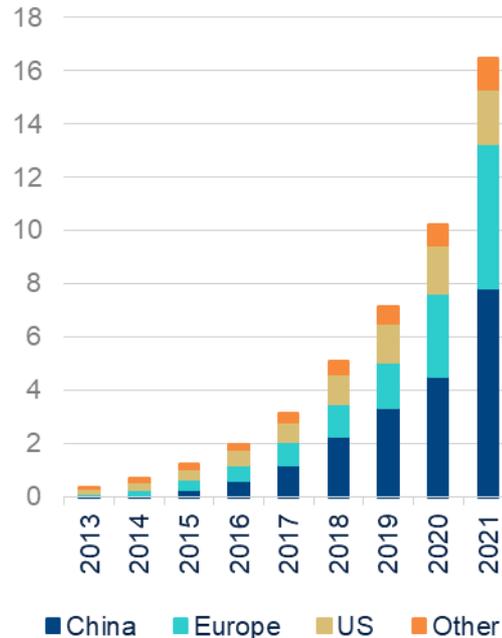
Moving forward, the copper price will be supported by increased demand from industries such as electric vehicles, for example.

COPPER USE BY VEHICLE TYPE (KILOGRAMS)

Type of vehicle	Use of copper
Standard vehicle	23
Hybrid electric vehicle	40
Battery electric vehicle	83
Hybrid electric bus	89
Battery electric bus	224-369

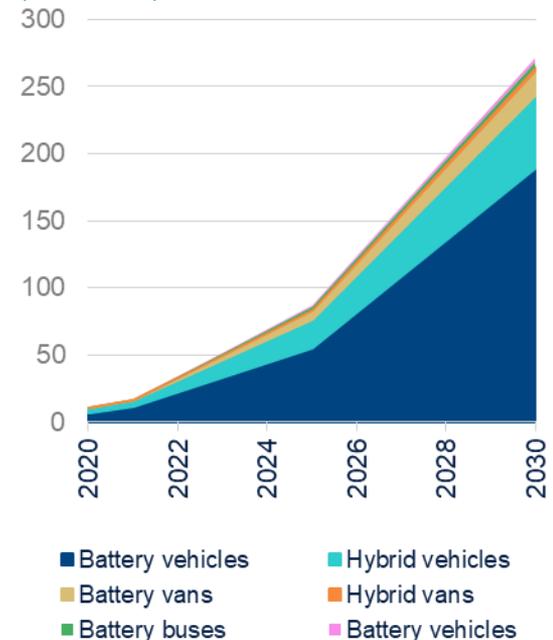
Source: International Copper Association.

NUMBER OF ELECTRIC CARS IN THE WORLD (MILLIONS)



Source: International Energy Agency (IEA).

NUMBER OF ELECTRIC VEHICLES IN THE WORLD (MILLIONS)



Source: International Energy Agency (IEA).

Copper prices in the medium term? Positive outlook: higher structural demand due to green infrastructure and vehicle conversion



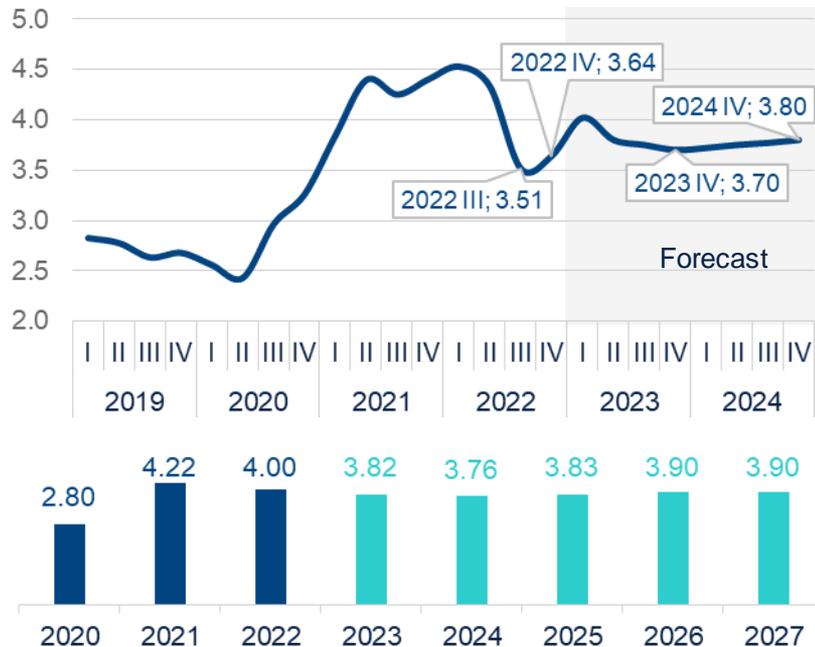
S&P Global (July 2022) estimates that copper demand will rise from 25 million MT in 2025 to 35 million MT in 2035

Conflict in Ukraine has accelerated plans for clean energy generation in Europe and reduced dependence on hydrocarbons (gas) from Russia

- European Parliament (June 2022): conventional cars will be banned starting in 2035.
- BHP Billiton: in 2016 there were 1.1 billion light vehicles in the world, of which around 1 million were fully electric (EV); by 2035 there will be 140 million EVs, comprising 8% of all light vehicles (1.8 billion).
- *Inflation Reduction Act* of the Biden administration: along with other economic and social goals, this act aims to reduce US carbon emissions by 40% by 2030, compared to 2005 levels. This will boost demand for copper, a metal strongly associated with clean energy technologies (solar panels, wind turbines and electric vehicles).
- Will increased supply accompany this structural increase in copper demand?

Against this backdrop, we expect the copper price to experience a slight downward trend in the short term, but then it will find support

PRICE OF COPPER (USD/POUND AVERAGE FOR THE PERIOD)



- Slight downward trend in the short term (2023) due to an improvement in the world copper balance in an environment of (i) global growth slowdown and (ii) start of production in some mines (Quellaveco, for example).
- Despite this, the price will remain at attractive levels due to certain supports, among them the sustained problems in the supply of some important mines (in Peru, for example, as a result of social conflict).
- Then, starting in the second half of 2023, copper prices will find support in the recovery of global growth and, more structurally, in greater demand associated with investment in green infrastructure and vehicle conversion, both in Europe and in the US, elements that will gradually become more relevant.

06

Opportunities: lithium?

Opportunities: in addition to the development of the copper project portfolio, the growing global interest in green technologies paves the way for lithium

EXPECTED DEMAND FOR MINERALS ACCORDING TO ENVIRONMENTAL DECARBONIZATION SCENARIO ^{1/} (% CHG. COMPARED TO 2020)

Scenario according to global temperature increase →	2050		
	3°C	2°C	1.5°C
Copper	105	108	126
Lead	-20	-19	-10
Lithium	1009	1036	1124
Magnesium	145	147	149
Zinc	102	105	116
Total	92	95	107

^{1/} Takes into account: passenger and freight vehicles; electric vehicle chargers; industrial carbon capture and storage; wind, solar, nuclear, gas and oil power generation; and power transmission and distribution infrastructure.

Source: IDB (2022) "Leveraging the Growth in Demand for Minerals and Metals in the Transition to a Low Carbon Economy".

LITHIUM: MAIN PRODUCING COUNTRIES

(2021, THOUSANDS OF MT)



LITHIUM RESOURCES IN SOUTH AMERICA



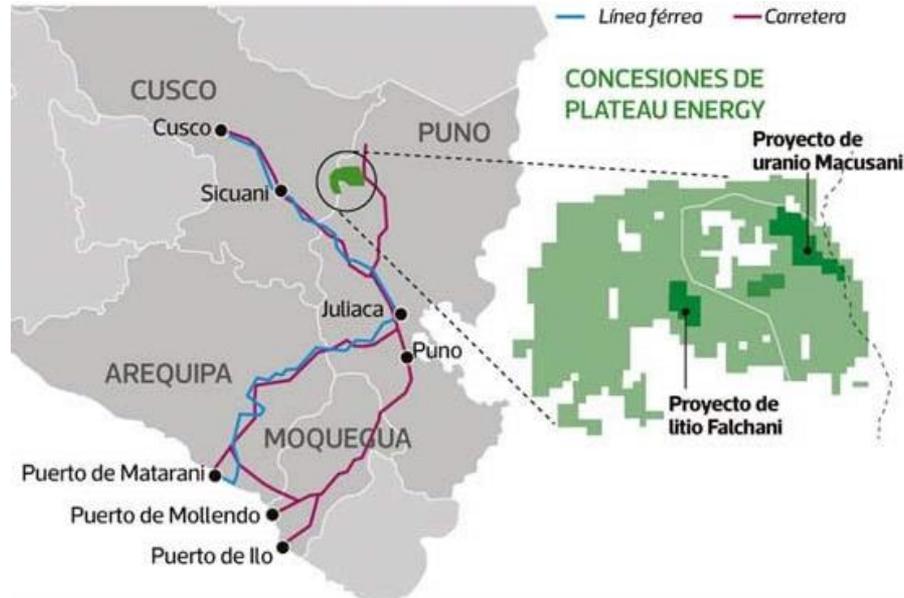
In terms of resources worldwide, the list is headed by:

Bolivia (21 million MT),
Argentina (19 million MT),
Chile (9.8 million MT),
USA (8 million MT) and
Australia (6 million MT).

Source: United States Geological Survey (USGS, 2022), "Mineral Commodity Summaries 2022".

In Peru there is potential for lithium exploitation...

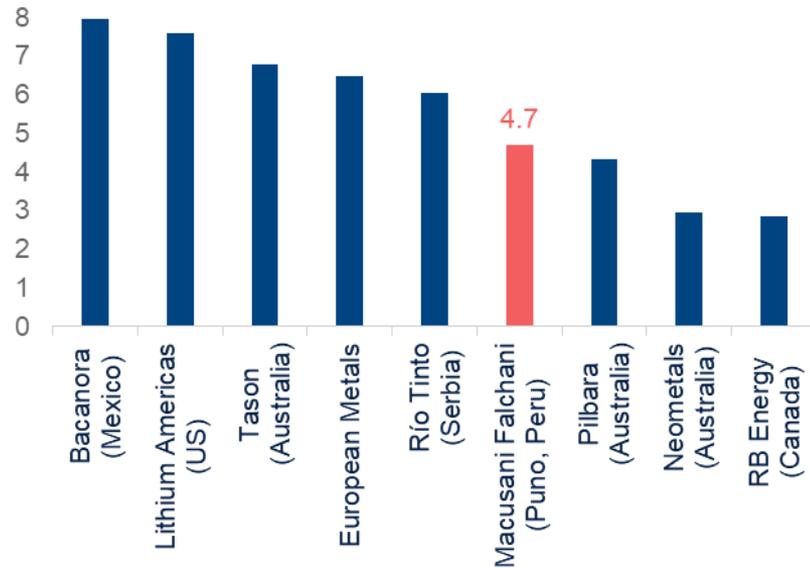
PERU: FALCHANI LITHIUM DEPOSIT



- Falchani (in the department of Puno, southern Peru) is a deposit in rock with a grade of between 3500 to 4000 parts per million (ppm) of lithium. It differs from the Chilean and Bolivian deposits in that the latter are salt deposits and have, on average, 500 ppm lithium.
- The Falchani deposit could potentially exceed Chile's current output and, with expansions, Australia's.

...but it remains to be clarified what regulations are needed (and to potentially develop them) to make projects viable

WORLD'S LARGEST LITHIUM-IN-ROCK DEPOSITS^{1/} (MINERAL RESOURCES, IN MILLIONS OF MT)



^{1/} Mineral resources (inferred, indicated or measured) ensure the existence of the mineral on land and estimate its quantity and quality. Reserves (likely or proven), on the other hand, narrow the findings to only the economically exploitable part.

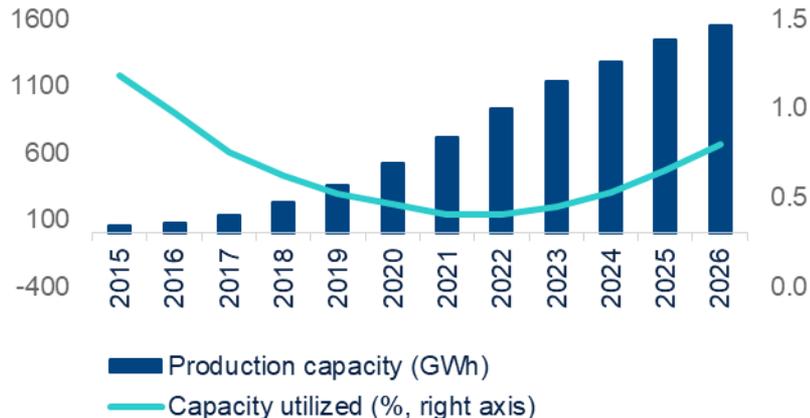
Source: Mining Report "Government and mining company go to court for 19% of lithium discovered in Puno."

- The regulation needed to exploit lithium in Peru is unclear: general regime or specific regulatory framework?
- A special regulation could be necessary for the Falchani deposit, with lithium deposits very close to uranium deposits (radioactive material, which requires a specific regulation for its exploitation).
- Recently, the Peruvian Ministry of Economy and Finance made public the Peruvian government's interest in initiating the development of the lithium industry in Puno. To this end, an executive roundtable will be created to include the main private and public stakeholders.

In addition to lithium extraction, there is an opportunity to advance in the value chain of battery manufacturing, although the challenge is great...

- 1 Companies producing lithium batteries have, at this moment and at least for the short term, **an excess of installed capacity**. This does not favor the entry of new producers.

INSTALLED CAPACITY TO PRODUCE LITHIUM BATTERIES GLOBALLY AND UTILIZATION ^{1/}

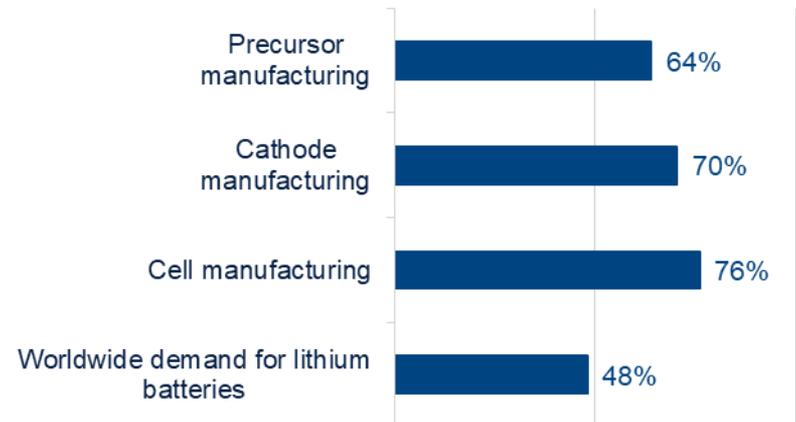


^{1/} Including that which is operating, under construction and planned.

Source: CEPAL (2021), "Lithium value chains: analysis of the global value chain of lithium-ion batteries for electric vehicles".

- 2 **High cost of lithium battery distribution.** These batteries are fragile and highly combustible. For this reason, production plants are usually located near electric car factories, which are currently concentrated in China.

CHINESE COMPANIES' PARTICIPATION IN THE LITHIUM BATTERY INDUSTRY



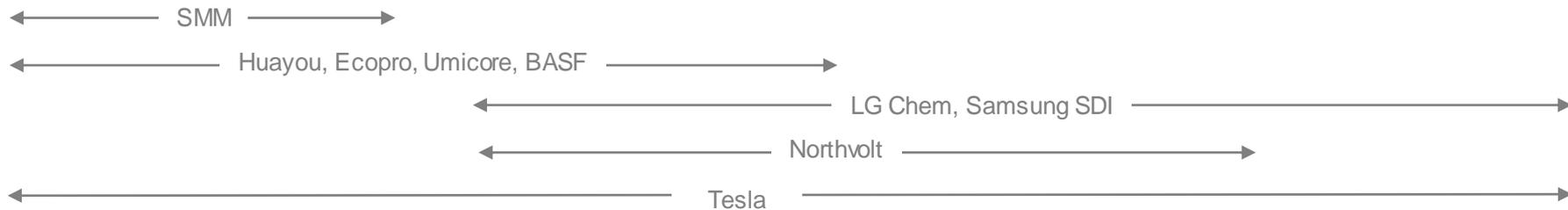
In addition to lithium extraction, there is an opportunity to advance in the value chain of battery manufacturing, although the challenge is great...

- 3 Competitiveness of new producers.** Higher efficiency with vertical integration. New competitors will have to assess how competitive they can be — even more so if they are not able to participate in the entire value chain.

LITHIUM BATTERY VALUE CHAIN



CURRENT PARTICIPANTS IN THE VALUE CHAIN



07

Annex

Annex 1. Pipeline of projects awarded by concession

SAN GABRIEL

LOCATION



Altitude: 4450-5000 meters above sea level /
837 km from Lima / 115.5 km from the city of Moquegua



OPERATOR

Compañía de Minas Buenaventura S.A.A.



DEPARTMENT / PROVINCE / DISTRICT

Moquegua / Sánchez Cerro / Ichuña



TYPE OF DEPOSIT AND/OR MINERALIZATION

Intermediate sulfidation epithermal



INVESTMENT

470 USD
MILLION

100% Grupo
Buenaventura (Peru)

Start of construcción	2022
Start of operation	2025
Type of project	Greenfield
Subtype of project	New
Jobs in construction	2000
Jobs in operation	500
Current status: Instr. de Gestión Ambiental (IGA)	Approved

Useful life	14 years
Mineral Reserves	14.9 Mt @ 4.04 g/t (1.94 Moz Au), 6.43 g/t of Ag
Estimated annual output	125,000 fine ounces of gold
Plant capacity	3000 tons per day
Water source	Groundwater
Type of exploitation	Subterranean

Annex 1. Pipeline of projects awarded by concession

CORANI

LOCATION



Altitude: 4800 to 5200 meters above sea level



OPERATOR

Bear Creek Mining S.A.C



DEPARTMENT / PROVINCE / DISTRICT

Puno / Carabaya / Corani



TYPE OF DEPOSIT AND/OR MINERALIZATION

Low to intermediate sulfidation epithermal (Ag-Pb-Zn)



INVESTMENT

700 USD
MILLION

100% Bear Creek Mining Corporation (Canada)

Start of construcción	2023
Start of operation	2026
Type of project	Greenfield
Subtype of project	New
Jobs in construction	1500
Jobs in operation	440
Current status: Instr. de Gestión Ambiental (IGA)	Approved

Useful life	15 years
Mineral Reserves	138.6 Mt @ 51.3 g/t Ag, 0.90% Pb, 0.55% Zn (P&P)
Estimated annual output	8 million ounces of silver, 47,627 FMT lead, 16,783 FMT zinc
Plant capacity	22,500 tons per day
Water source	Surface and underground waters
Type of exploitation	Open-pit mine

Annex 1. Pipeline of projects awarded by concession

MAGISTRAL

LOCATION



Altitude: 3300 - 4875 meters above sea level /
450 km northwest of Lima



OPERATOR

Nexa Resources S.A.A.



DEPARTMENT / PROVINCE / DISTRICT

Áncash / Pallasca / Conchucos



TYPE OF DEPOSIT AND/OR MINERALIZATION

Porphyry - copper (Cu) and molybdenum (Mo) skarns



INVESTMENT

493 USD
MILLION

100% Hejoassu
Administração S.A.
(Brazil)



Start of construcción	2023	Useful life	15 years
Start of operation	2026	Mineral Reserves	189.4 Mt @0.48% Cu, 2.8 g/t Ag, 0.046% Mo - (M&I)
Type of project	Greenfield	Estimated annual output	55,000 FMT of copper, 5000 FMT of molybdenum, 1000 ounces of silver
Subtype of project	New	Plant capacity	35,400 tons per day
Jobs in construction	1883	Water source	Groundwater
Jobs in operation	914	Type of exploitation	Open-pit mine
Current status: Instr. de Gestión Ambiental (IGA)	Under evaluation		

Annex 1. Pipeline of projects awarded by concession

REPOSICIÓN ANTIMINA

LOCATION



Altitude: 4300 meters above sea level,
100 km east of the city of Huaraz



OPERATOR

Compañía Minera Antamina S.A



DEPARTMENT / PROVINCE / DISTRICT

Áncash / Huari / San Marcos



TYPE OF DEPOSIT AND/OR MINERALIZATION

Copper (Cu) skarn



INVESTMENT

1.604 USD
MILLION

33.75%: Xstrata Glencore (Switzerland)
33.75%: BHP Billiton (Australia)
22.50%: Teck Base Metals Ltd. (Canada)
10.00%: Mitsubishi Corporation (Japan)

Start of construcción	2023
Start of operation	2029
Type of project	Brown field
Subtype of project	Repositioning
Jobs in construction	2500
Jobs in operation	2404
Current status: Instr. de Gestión Ambiental (IGA)	Under evaluation

Useful life	8 years
Plant capacity	208,000 tons per day
Water source	Surface waters
Type of exploitation	Open-pit mine

Annex 1. Pipeline of projects awarded by concession

YANACOCHA SULFUROS

LOCATION



Altitude: 3600 - 4200 meters above sea level /
583 km from Lima / 20 km from the city of Cajamarca



OPERATOR

Minera Yanacocha S.R.L



DEPARTMENT / PROVINCE / DISTRICT

Cajamarca / Cajamarca / Cajamarca,
La Encañada y Los Baños del Inca



TYPE OF DEPOSIT AND/OR MINERALIZATION

Copper (Cu) and gold (Au) porphyry



INVESTMENT

2.5 USD
BILLION

100% Newmont
Goldcorp Corp. (US)



Start of construcción	2024	Useful life	20 years
Start of operation	2027	Mineral Reserves	57.7 Mt @ 0.61 % Cu
Type of project	Brow field	Estimated annual output	525,000 gold equivalent ounces
Subtype of project	New	Water source	Surface waters
Jobs in construction	1340	Type of exploitation	Open-pit and underground mine
Jobs in operation	675		
Current status: Instr. de Gestión Ambiental (IGA)	Approved		

Annex 1. Pipeline of projects awarded by concession

ZAFRANAL

LOCATION



Altitude: 1444 - 2900 meters above sea level /
90 km straight northeast of the city of Arequipa



OPERATOR

Compañía Minera Zafranal S.A.C.



DEPARTMENT / PROVINCE / DISTRICT

Arequipa / Castilla y Caylloma /
Huancarqui, Lluta y Majes



TYPE OF DEPOSIT AND/OR MINERALIZATION

Copper porphyry (Cu)



INVESTMENT

1.473 USD
MILLION

80%: Teck Resources Copper (Canada)

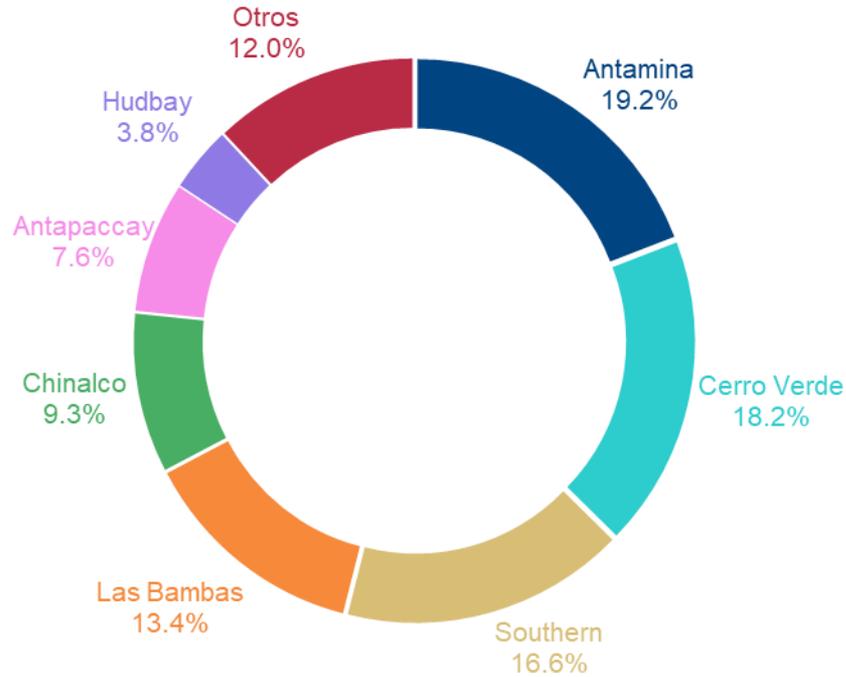
20%: Mitsubishi Materials Corporation
(Japan)

Start of construcción	2024
Start of operation	2028
Type of project	Greenfield
Subtype of project	New
Jobs in construction	3000
Jobs in operation	1210
Current status: Instr. de Gestión Ambiental (IGA)	Under evaluation

Useful life	19 years
Mineral Reserves	440.7 Mt@ 0.38% Cu, 0.07 g/t Au. - (P&P)
Estimated annual output	76,000 FMT of copper; 29,000 fine ounces of gold
Water source	Groundwater
Type of exploitation	Open-pit mine

Annex 2. Copper output by company

PERU: COPPER OUTPUT BY COMPANY (JANUARY 2019 - NOVEMBER 2022)



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Peru Mining sector outlook

2022

February 3, 2023