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Mining Sector

Recent Developments and Short-Term Outlook

Peru, January 2020

Creating Opportunities

Key Points (I)

- **In 2019, mining production shrank while investment in the sector maintained a strong rate of expansion** (although it is slowing).

- On the mining production side, lower grades of ore, social conflicts and the depletion of gold units explained its decline.
- A recovery in mining production is planned for 2020.
- The normalization of mining production will have a significant impact on growth in 2020.

- On the investment side, in 2019, project development totaled about USD 6 billion, with an emphasis in copper.
- By 2020, mining investment is expected to continue to increase, albeit at a slower pace.
- Looking forward, mining investment will be curbed due to the completion of ongoing copper projects.

Key Points (II)

- This scenario can be improved by starting construction on concessioned projects, which are in various phases of study and focus on copper projects.

- The competitiveness of the Peruvian mining sector stands out due to its geological potential and relatively low production costs. But, there is room for improvement in policies that support investment in the sector, in particular those related to uncertainty regarding protected areas in line with communities and labor regulation.

- It is important for the Government to continue to develop policies to encourage further exploration, to make upcoming projects viable, to ensure the continuation of current operations, to promote the formalization of mining, and to manage environmental liabilities related to mining.

- In 2019, the number of social conflicts rose. Geographically, the southern part of the country has the largest number of social conflicts in the sector. Environmental pollution and unfulfilled agreements are the main mining conflict disputes.

- Our estimates suggest that in districts with a higher incidence of poverty, high income inequality, and a larger population, the likelihood of conflict increases.

Key Points (III)

- Finally, with regard to metal prices, in the latter part of 2019, copper prices rebounded in a more favorable foreign environment, mainly because of the decline in trade tensions due to the preliminary agreement (Phase 1) between the US and China.

- The elements that will influence copper's price in our base scenario, in the short term, are China's tempered growth (which demands about 50% of global copper production), more contained trade tensions, the FED maintaining its expansionary monetary policy, a lower probability of recession in the US, and a balanced global copper equilibrium.

- As a result, we anticipate that the average price of copper will be around USD 2.70 per pound in 2020. In the future, copper prices will benefit from the increased demand for electric cars and the infrastructure required by these types of vehicles.

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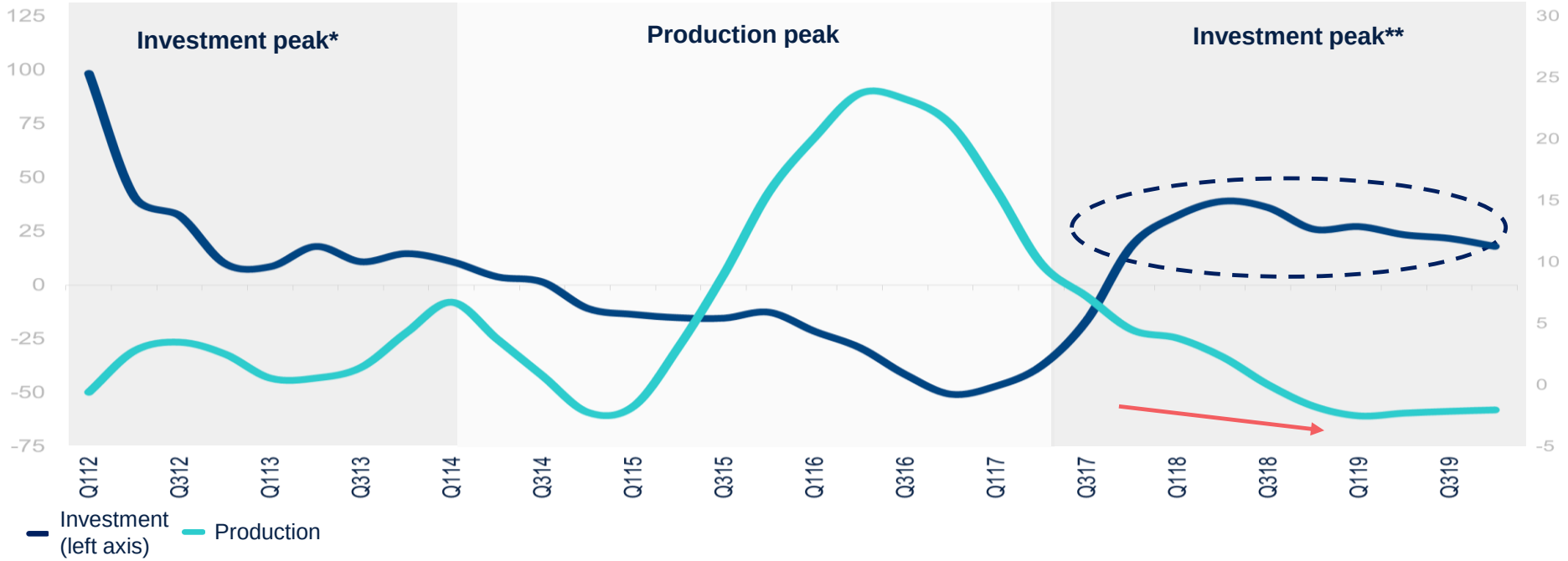
01

Recent Developments and Short-Term Outlook

In 2019, mining production dropped while investment in the sector maintained a strong rate of expansion (although it is slowing)

METAL MINING ACTIVITY CYCLE: INVESTMENT AND PRODUCTION

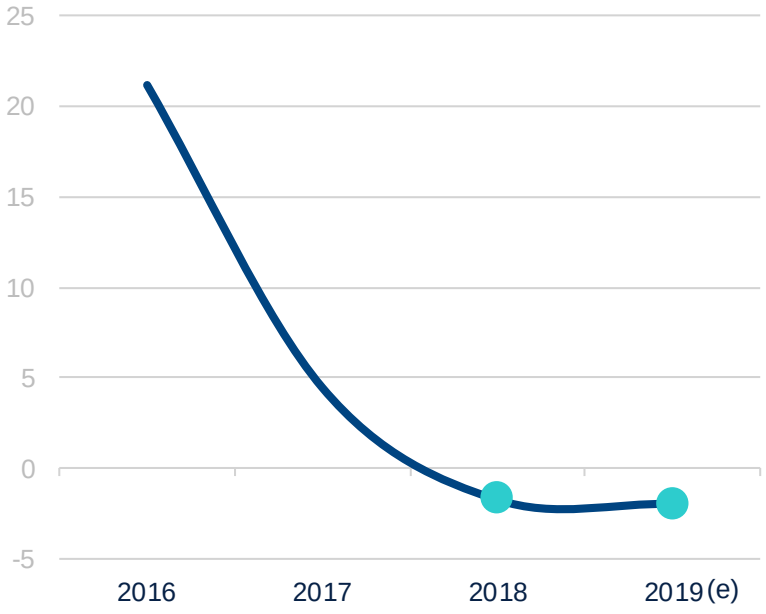
(COLLECTED IN THE LAST FOUR QUARTERS, YOY % CHANGE)



** Las Bambas (USD 10 billion), Cerro Verde expansion (USD 4.6 billion), Toromocho (USD 3.5 billion), Constancia (USD 1.8 billion), and Toquepala expansion(USD 1.2 billion).
** Mainly due to Quellaveco (USD 5.3 billion), Toromocho expansion (USD 1.3 billion), and Mina Justa (USD 1.6 billion).
Source: MINEM, BCRP, and BBVA Research

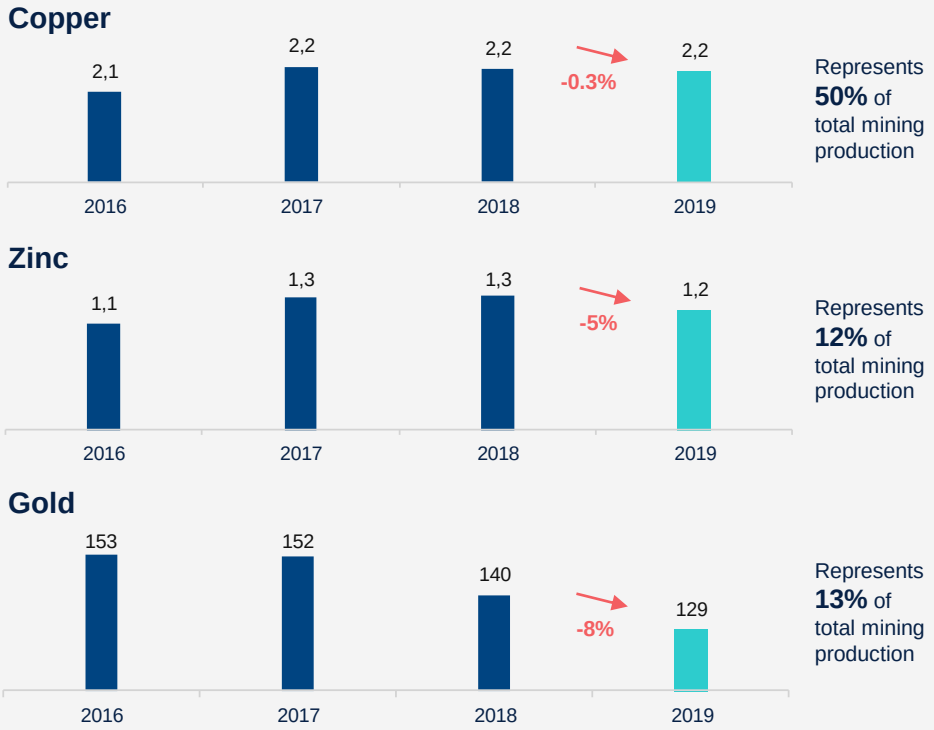
On the mining production side, lower grades of ore, social conflicts, and the depletion of gold units explained its decline

MINING PRODUCTION
(YEAR-OVER-YEAR PERCENTAGE CHANGE, %)



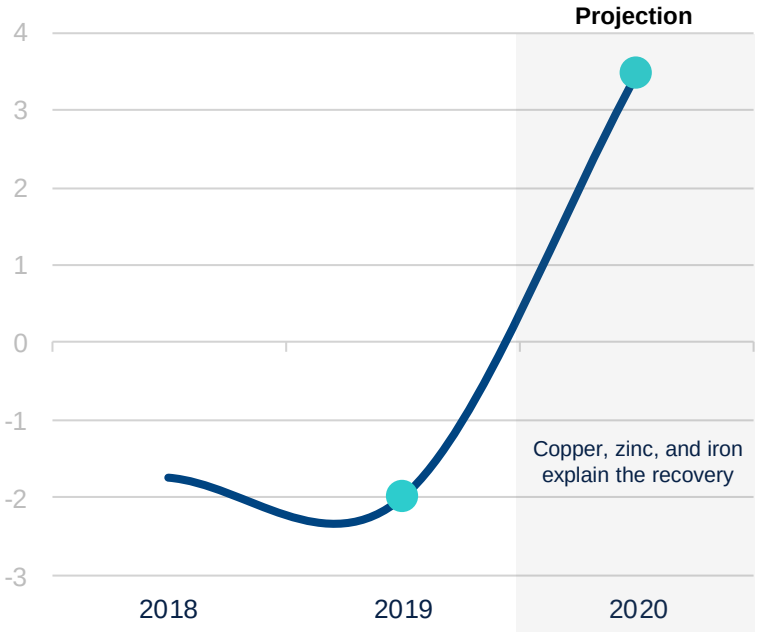
(e) estimated.
Source: BCRP, MINEM and BBVA Research

MINING PRODUCTION BY METAL
(MILLIONS OF MT)



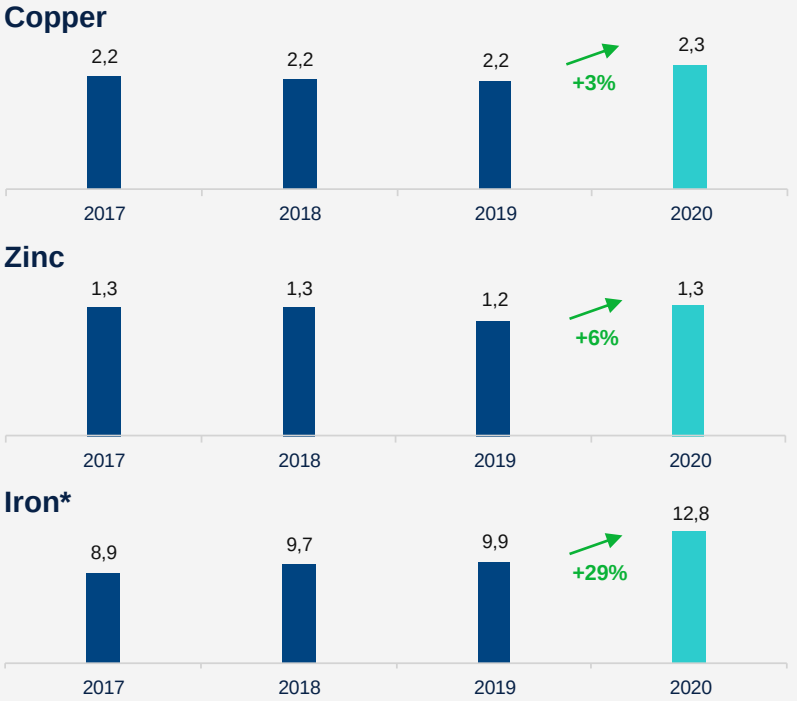
A recovery in mining production is planned for next year

MINING PRODUCTION
(YEAR-OVER-YEAR PERCENTAGE CHANGE, %)



* Figure for 2019 is an estimate.
Source: MINEM, BCRP, and BBVA Research

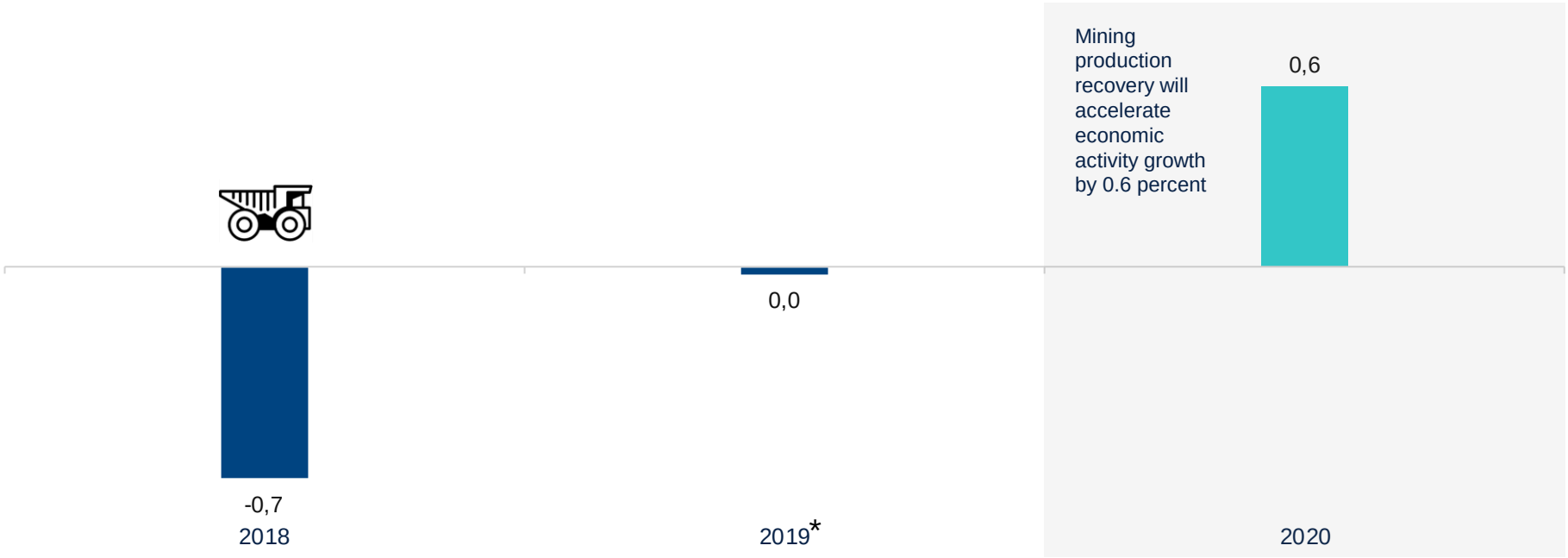
MINING PRODUCTION BY METAL
(MILLIONS OF MT)



*Represents 3% of metal mining production.

The normalization of mining production will have a significant impact on growth in 2020

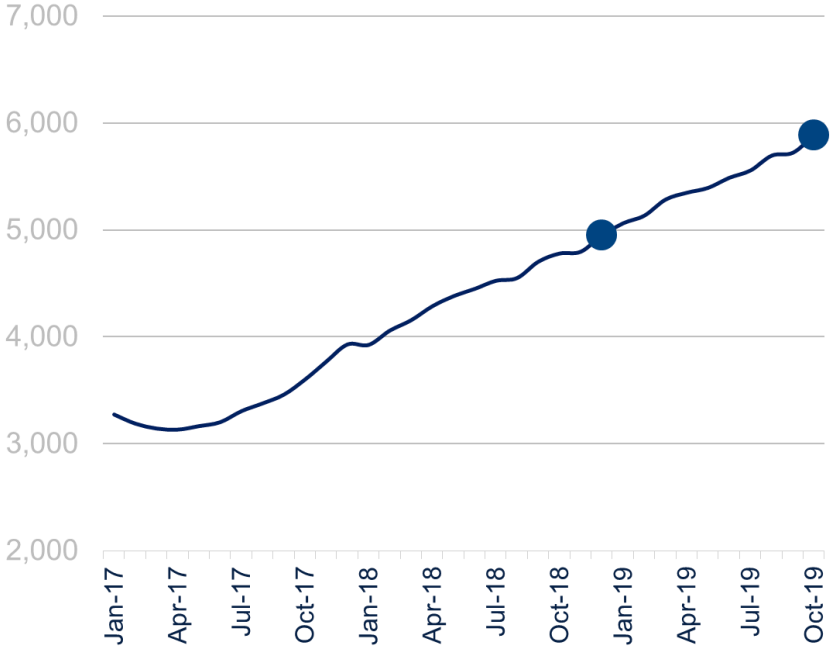
DIRECT IMPACT ON ACCELERATING GDP GROWTH
(PERCENT)



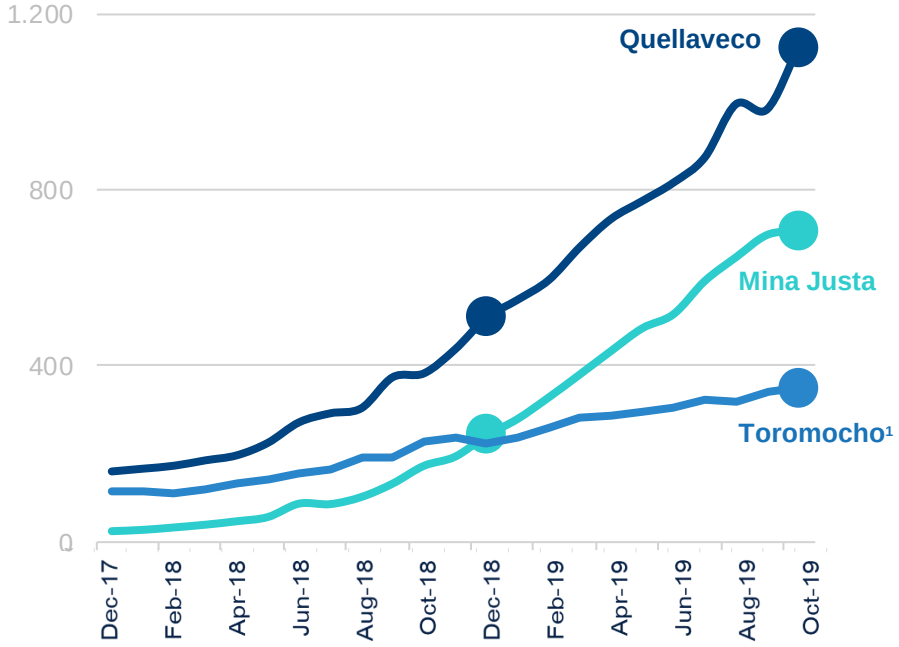
* Figure for 2019 is an estimate.
Source: MINEM, BCRP, and BBVA Research

On the investment side, in 2019, project development totaled about USD 6 billion, with an emphasis in copper

MINING INVESTMENT
(USD MILLIONS, FROM THE LAST TWELVE MONTHS)



MINING INVESTMENT BY PROJECT
(USD MILLIONS, FROM THE LAST TWELVE MONTHS)

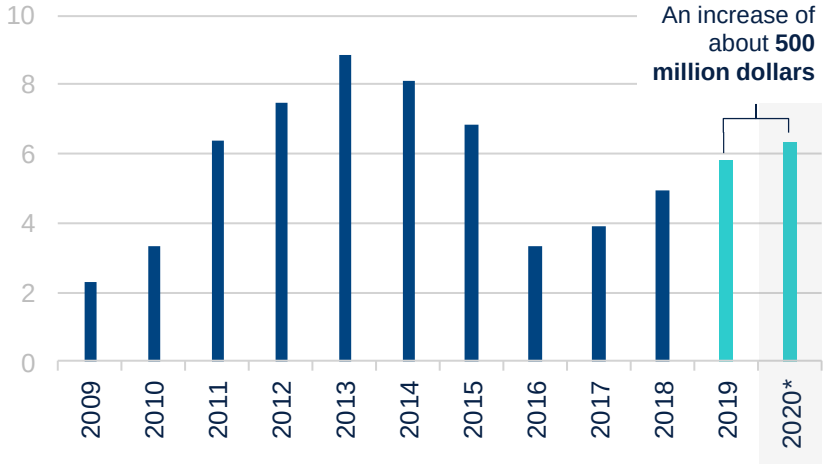


Source: MINEM and BBVA Research

1: Expansion.

By 2020, mining investment is expected to continue to increase, albeit at a slower pace

MINING INVESTMENT
(USD MILLIONS)

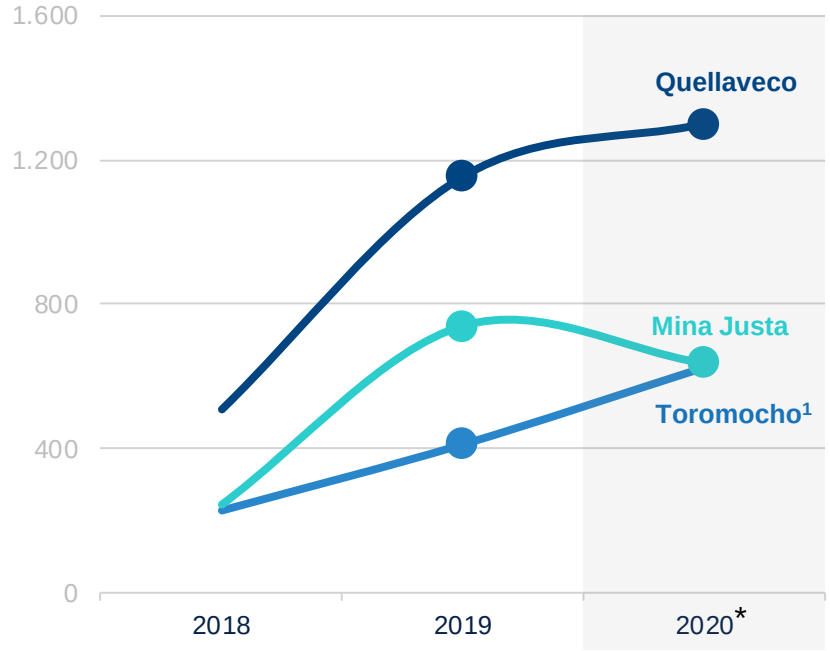


YEAR-OVER-YEAR CHANGE (%)

2017	2018	2019	2020
18%	26%	18%	9%

* Projection. The 2019 data is estimated.
Source: MINEM and BBVA Research

MINING INVESTMENT PER PROJECT
(USD MILLIONS)

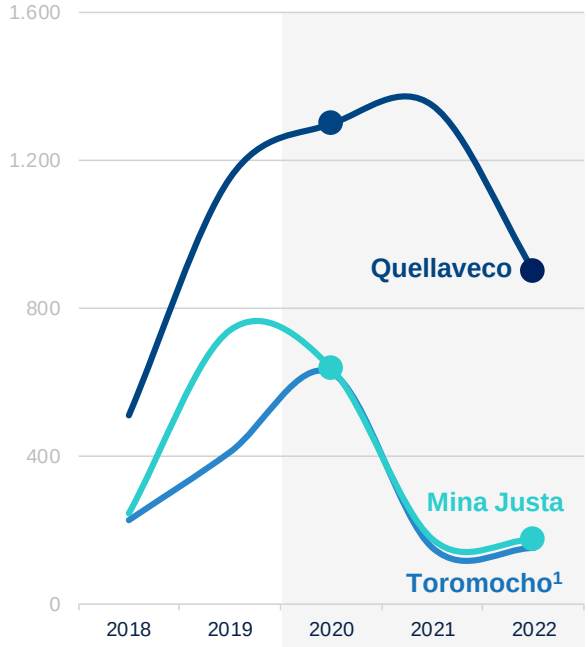


1: Expansion.
* Projection. The 2019 data is estimated.

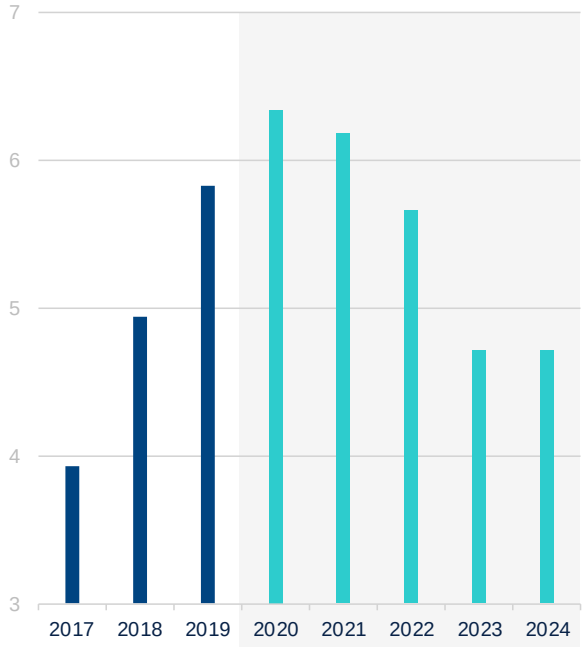
Going forward, mining investment's momentum will become more moderate

- Moderation due to the completion of ongoing new copper projects.
- By 2024, the new copper units will reach maximum production levels (combined, 477 thousand MT will be produced). Copper production is estimated to be about three million metric tons.
- In this way, Peruwill remain the second largest copper producer in the world.

MINING INVESTMENT PER PROJECT
(USD MILLIONS)



MINING INVESTMENT*
(USD MILLIONS)



Source: MINEM and BBVA Research

1: Expansion.
* Projection. The 2019 data is estimated.

* Projection as of 2020. The 2019 value is an estimate.

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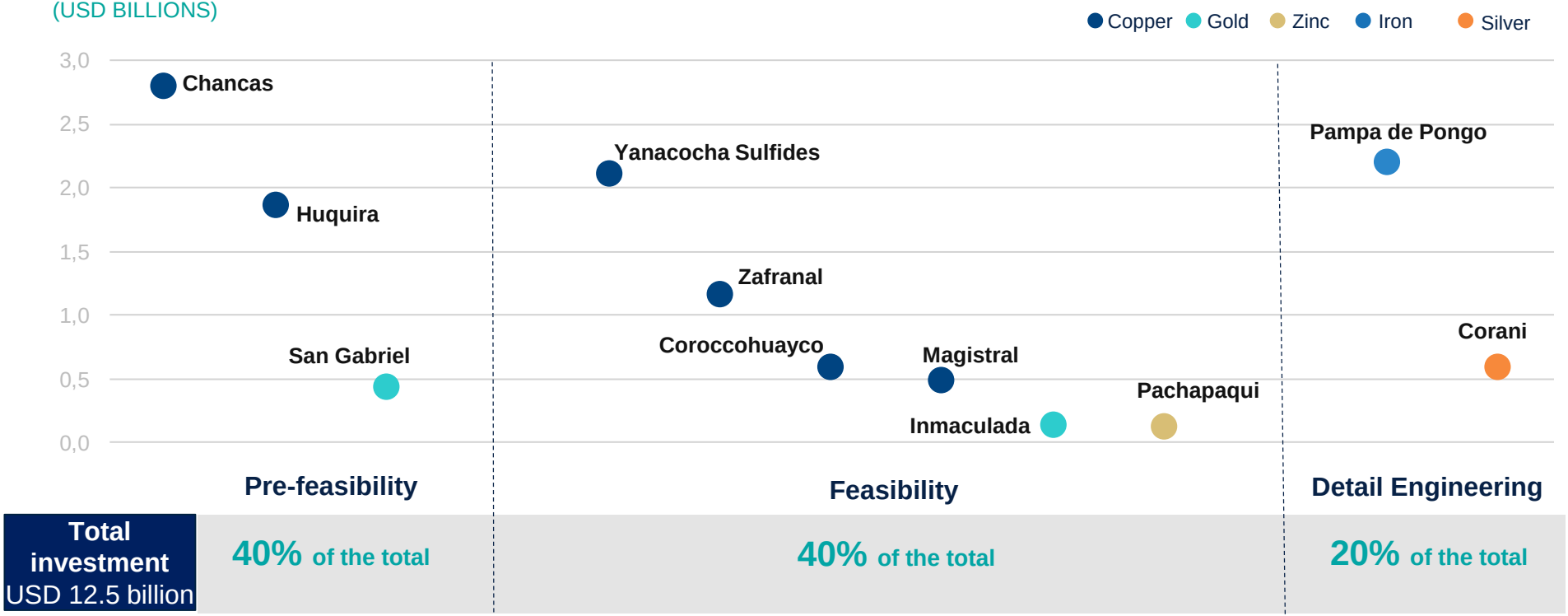
This scenario can be improved by starting construction on concessioned projects, which are in various phases of study

Portfolio of mining projects according to study phase

PORTFOLIO OF MINING PROJECTS ACCORDING TO THEIR STATE OF PROGRESS*

(USD BILLIONS)



Total investment USD 12.5 billion	40% of the total	40% of the total	20% of the total

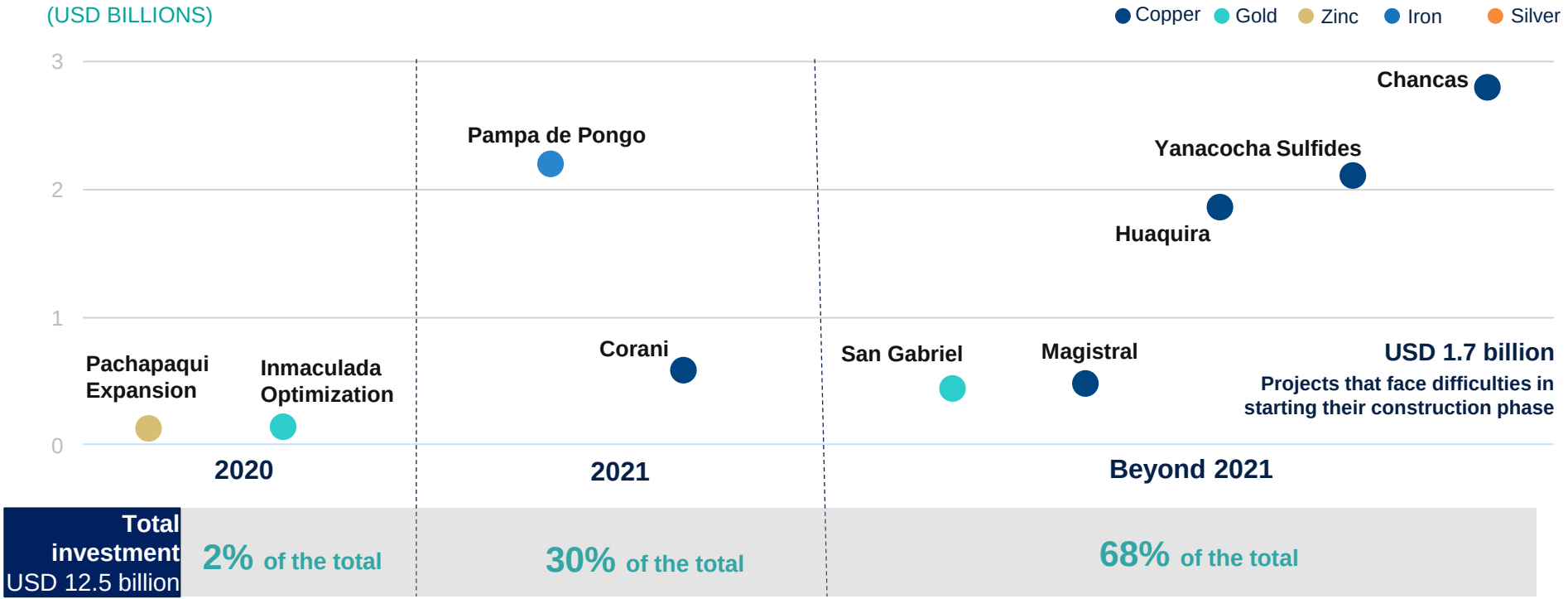
* For more details, see Annex 1.

Source: MINEM and BBVA Research

Portfolio of mining projects according to construction start date

PORTFOLIO OF MINING PROJECTS ACCORDING TO THEIR STATE OF PROGRESS*

(USD BILLIONS)



Total investment USD 12.5 billion

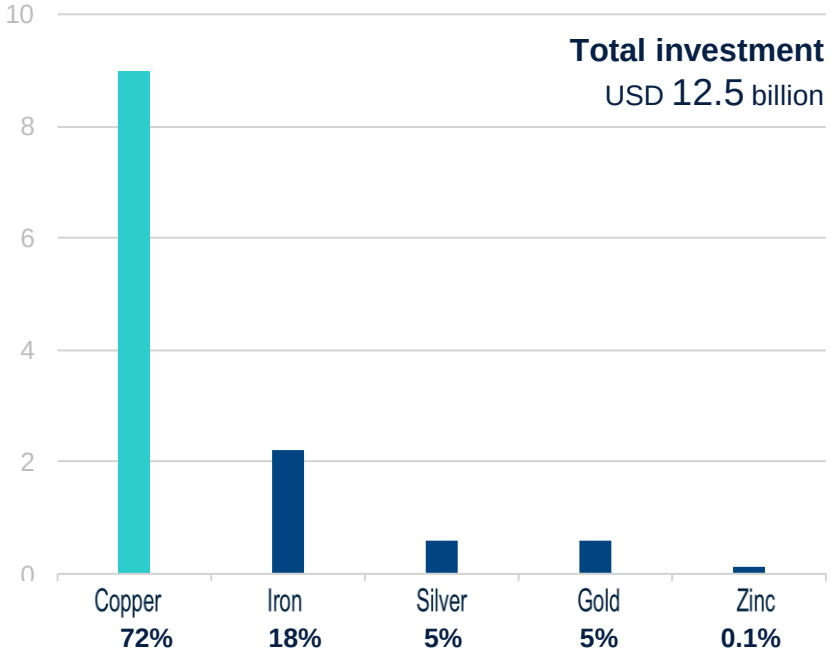
2020	2021	Beyond 2021
2% of the total	30% of the total	68% of the total

* For more details, see Annex 1.

Source: MINEM and BBVA Research

The majority of this portfolio corresponds to copper projects located in central and southern Peru.

PORTFOLIO OF MINING PROJECTS BY METAL*
(% OF TOTAL PORTFOLIO)



*In the portfolio because they have not yet been finished with the required studies.
Source: MINEM and BBVA Research

PORTFOLIO OF MINING PROJECTS BY GEOGRAPHICAL AREA

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02

Analyzing the competitiveness of the metal mining sector in Peru

Main factors that determine the competitiveness of the mining sector

MINING COMPETITIVENESS INDEX (MCI)

01
Mining potential
(availability of the resource)

02
Policy perception
Regulation

Tax regime

Human capital

Infrastructure

Safety

Social conflicts

PRODUCTION COSTS

03
Cost

Source: Fraser Institute, 2018

Competitiveness indicator of the mining sector

MINING COMPETITIVENESS INDEX (MCI)

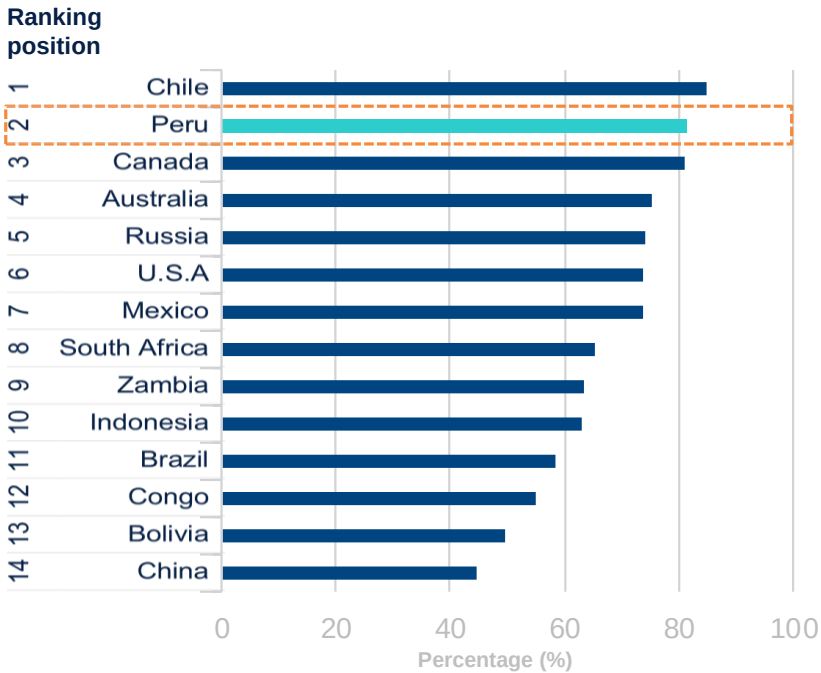
01
Mining potential
(availability of the resource)

02
Policy perception

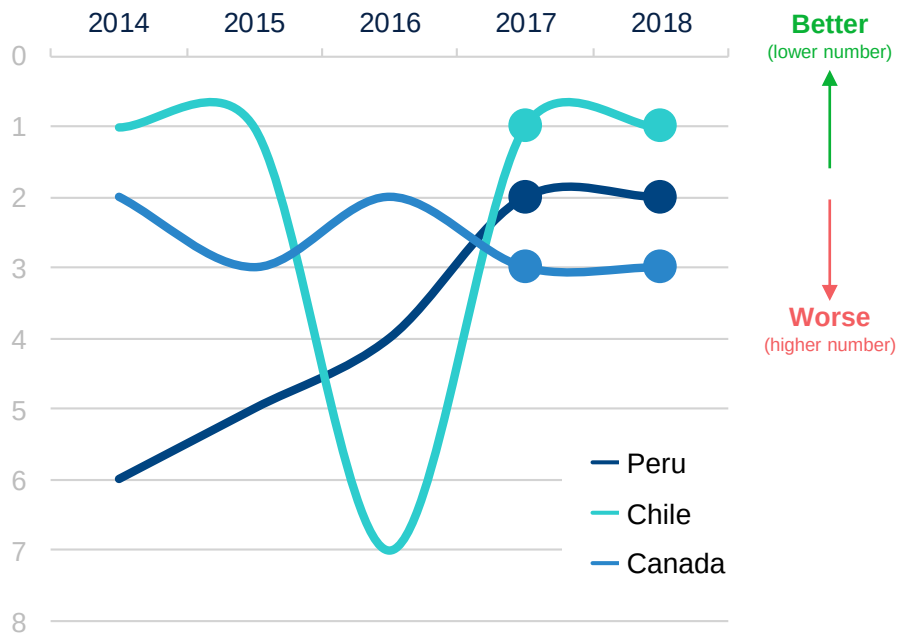
*Prepared by the Fraser Institute. The Mining Competitiveness Index is built on the basis of surveys of executives related to the mining sector. The index corresponds to the percentage of respondents who indicate that it is attractive to invest in mining. The indicator was constructed with a weight of 60% for Mining Potential and 40% for Policy Perception (40% of respondents indicate that their decision to invest is determined by the policies applied in the sector). For our analysis, a sample of 14 top-ranking countries in global copper, gold, and zinc reserves has been collected.
Source: Fraser Institute, 2018

According to the latest MCI, Peru maintains its position in mining competitiveness

MINING COMPETITIVENESS INDEX (MCI)*
(%)



MINING COMPETITIVENESS INDEX (MCI)
(SCORE)



* Corresponds to information from the Fraser Institute, 2018. Next publication February 2019. Corresponds to the percentage of respondents who indicate that it is attractive to invest in the country's mining sector. The indicator was constructed with a weight of 60% for the Mining Potential and 40% for the Policy Perception.
Source: Fraser (BBVA Research preparation)

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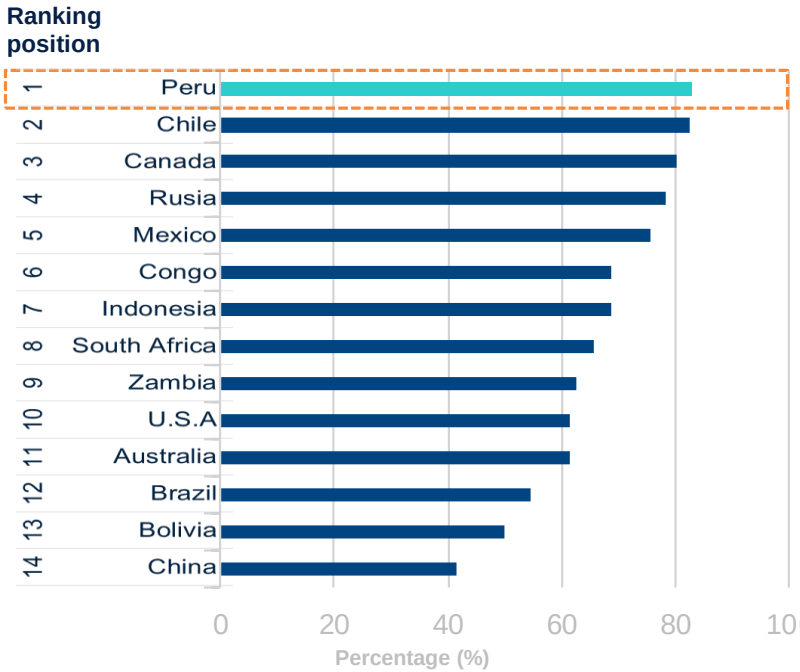
01

In the indicator that measures the availability of the mining resource (geological potential), Peru moved up three positions

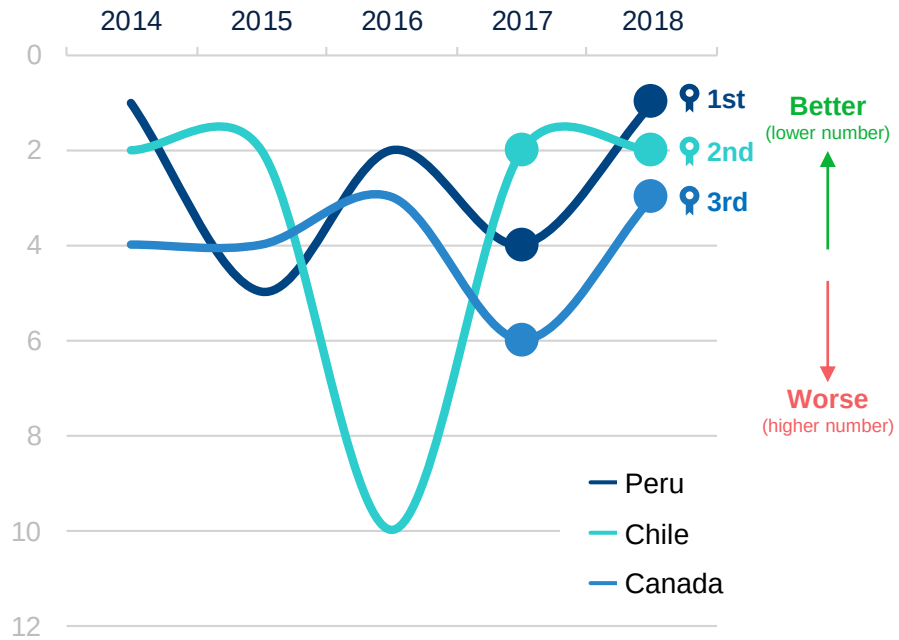
Creating Opportunities

01 / In the indicator that measures the availability of the mining resource (geological potential), Peru moved up three positions

MINING POTENTIAL INDEX*
(%)



MINING POTENTIAL INDEX*
(POSITION)



* Corresponds to information from the Fraser Institute, 2018. Next publication February 2019. Considers the percentage of respondents who indicate that it is attractive to invest in mining when considering the country's mineral resources (geological potential).
Source: Fraser (BBVA Research preparation)

01 / Peru has significant mining resources

PERU: GLOBAL POSITION OF METAL RESERVES*

	Silver	Copper	Zinc	Gold
	1st	3rd	3rd	5th
Estimated reserves	650 million mt	830 million mt	230 million mt	54 million mt

Source: US Geological Survey, 2019 (download here)

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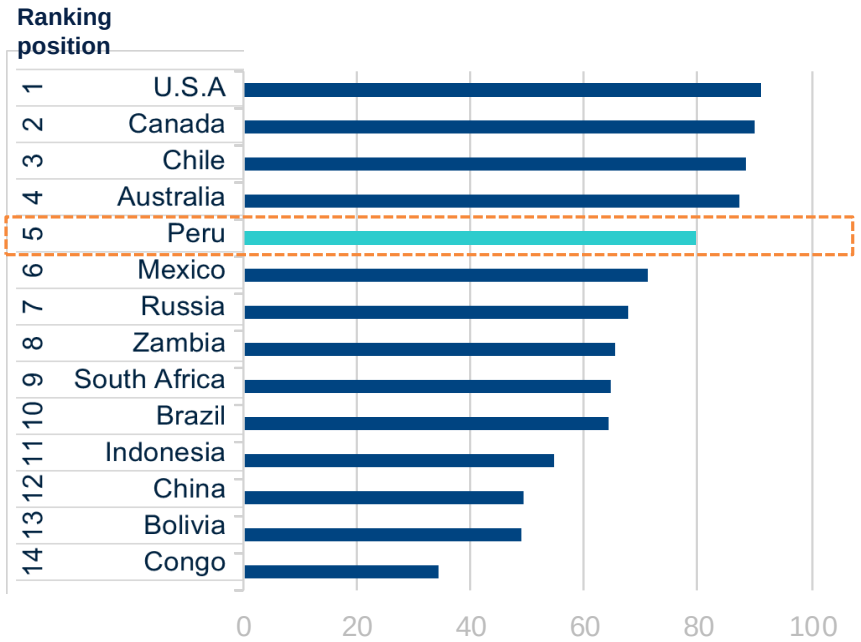
02

Peru did not improve in its perception of policies implemented in the mining sector

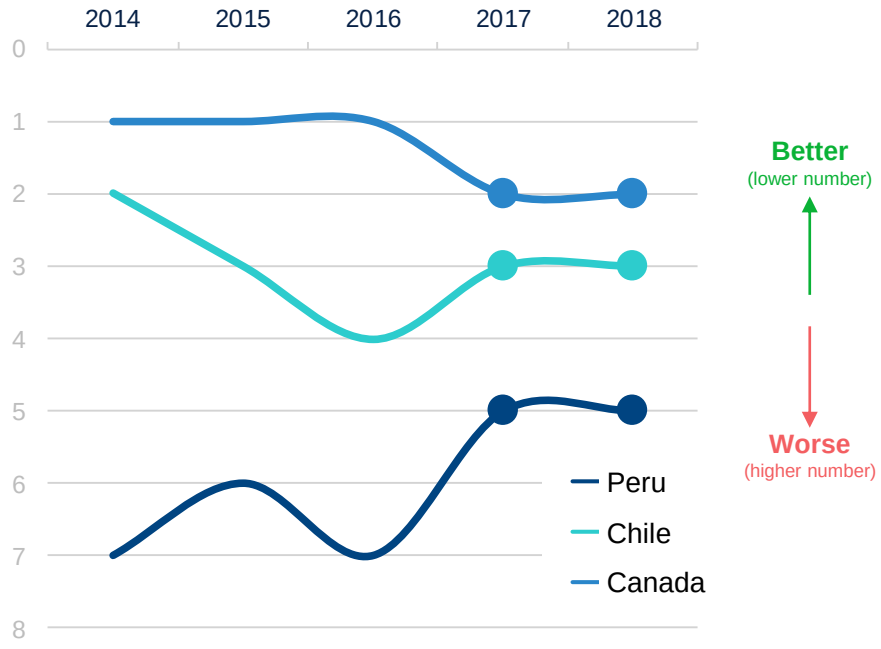
Creating Opportunities

02 / Peru did not improve in its perception of policies that are implemented in the mining sector indicator

POLICY PERCEPTION INDEX*
(%)



POLICY PERCEPTION INDEX
(POSITION)



* Prepared based on surveys carried out by the Fraser Institute (2018). Next publication February 2020. Considers the percentage of respondents who indicate that it is attractive to invest in mining considering the policies implemented in the country's mining sector.
Source: Fraser (BBVA Research preparation)

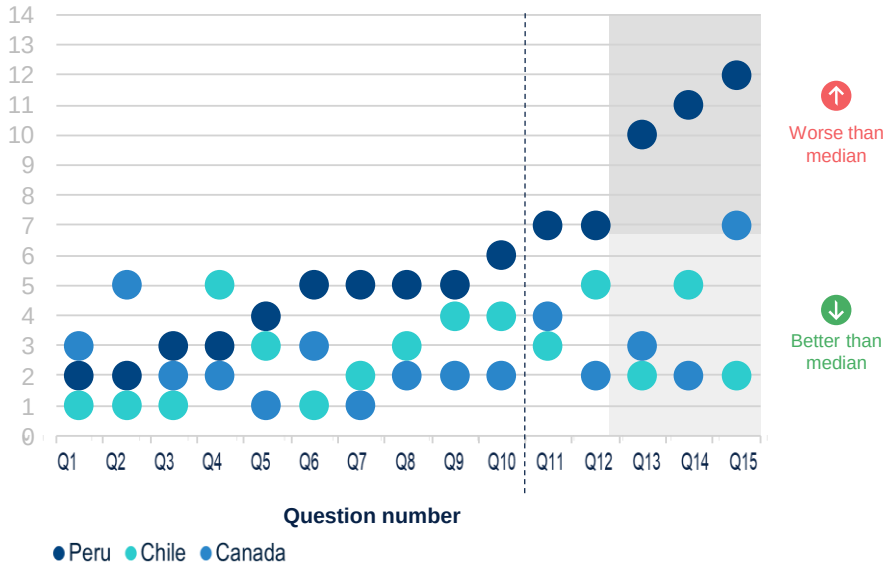
What policies should be improved to make investment in the Peruvian mining sector more attractive?

POLICY PERCEPTION INDEX QUESTIONS*

1. Uncertainty regarding the administration, interpretation or application of existing regulation
2. Human capital
3. Regulatory duplication and inconsistencies
4. Tax regime
5. Quality of geological data
6. Uncertainty regarding environmental regulation
7. Legal system
8. Commercial barriers
9. Political stability
10. Safety level
11. Infrastructure quality
12. Labor regulation/employment agreement and workers' unions
13. Uncertainty regarding disputed land claims
14. Socio-economic agreements with communities
15. Uncertainty about protected areas such as deserts

PERU'S POSITION IN THE RANKING FOR EACH ASPECT EVALUATED WITHIN THE POLICY PERCEPTION INDEX**

(POSITION OUT OF A TOTAL OF 14 COUNTRIES)

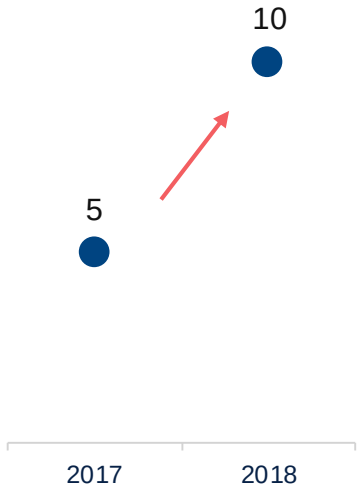


* Prepared based on surveys conducted by the Fraser Institute (2018). Considers the percentage of respondents who answered "Yes, it encourages investment" in each of the aspects evaluated (15 questions).
** Sample of 14 countries that rank at the top in the global copper, gold and zinc reserves share.
Source: Fraser (BBVA Research preparation)

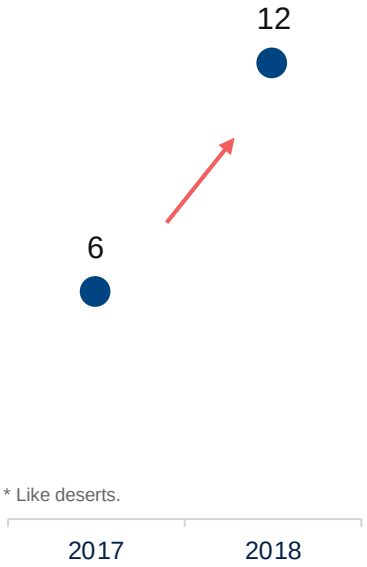
The main concerns for investors in the mining sector are related to agreements with communities and land management…

SOCIO-ECONOMIC AGREEMENTS WITH COMMUNITIES
(POSITION AMONG A TOTAL OF 14 COUNTRIES)

UNCERTAINTY REGARDING DISPUTED LAND CLAIMS
(POSITION AMONG A TOTAL OF 14 COUNTRIES)



UNCERTAINTY REGARDING PROTECTED AREAS*
(POSITION AMONG A TOTAL OF 14 COUNTRIES)



* Prepared based on surveys conducted by the Fraser Institute (2018). Considers the percentage of respondents who answered “Yes, it encourages investment” in each of the aspects evaluated (15 questions).
** Sample of 14 countries that rank at the top in the global copper, gold and zinc reserves share.
Source: Fraser (BBVA Research preparation)

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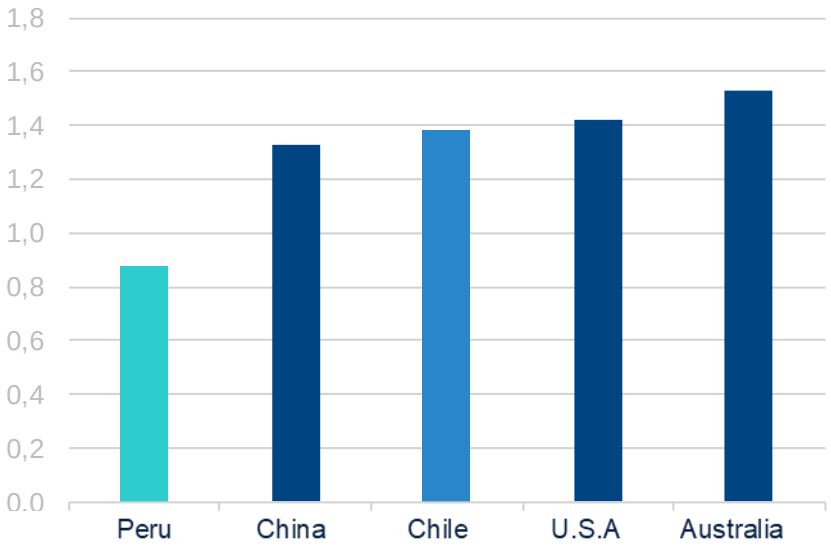
03

Low production costs favor investment in Peru

Creating Opportunities

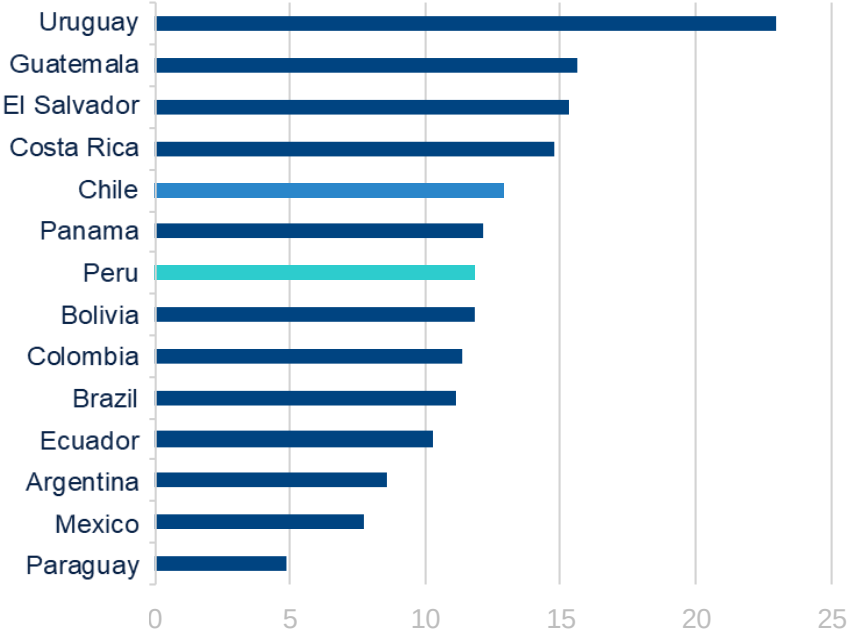
03 / Low costs favor mining investment in Peru

CASH COST OF THE MAIN COPPER-PRODUCING COUNTRIES*
(USD PER POUND)



* 2017. In the case of Chile, in particular, the data is from 1Q.19 and includes a sample of 21 operations, representing 90% of the country's mining production. The *cash cost* includes costs related to extraction, crushing, concentration, administrative costs, energy, fuel and freight; it does not include financial costs.
Source: Cochilco, Wood Mackenzie.

ELECTRICITY RATES FOR INDUSTRIAL CUSTOMERS*
(CUSD/KWH)



* 4Q18.
Source: OSINERMING

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What is the State doing to increase attraction to mining?

Creating Opportunities

Government objectives for the mining sector by 2021

01 Encourage new explorations

02 Make upcoming projects viable through joint work with the communities

03 Ensure continuity of current operations

04 Promote mining formalization

05 Manage mining environmental liabilities in their entirety

Source: MINEM

Recent initiatives to achieve the objectives by 2021

CENTER OF CONVERGENCE AND BEST PRACTICES MINING – ENERGY (RIMAY)

- Space that functions as a platform for dialog and technical discussion to reach consensus for better sustainable use of mining resources with participation from the State, the private sector, civil society and the academic world.

CREATING THE DIRECTION FOR MINING'S ADVANCEMENT AND SUSTAINABILITY

- With the aim of promoting project accompaniment, identifying improvements in mining regulations and promoting sustainable development in the territories in which mining occurs.

CREATION OF MINING–ENERGY INFORMATION COMMITTEES.

- A regional coordination and organization mechanism, in relation to the sustainable development of energy mining activities. They established themselves in Moquegua, Cajamarca, Arequipa and Apurímac.

CREATING THE ENERGY MINING EXECUTIVE BOARD

- Aims to organize direct dialog between the public, private, and academic sectors to jointly identify, promote and propose actions to eliminate bottlenecks that limit growth and productivity.

INITIATIVES SUCH AS THE VIRTUAL ONE-STOP SHOP

- Seeks to identify all the procedures that a company has to follow leading up to the start of its operations, and will indicate the bottlenecks and how long they take.

Source: MINEM

2030 Mining Vision

Inclusive and socially and territorially integrated

Environmentally sustainable

Competitive and innovative

Operates within a framework of good governance

Transverse actions

Source: MINEM

What are the strategies to reach them?

- Strengthen the capacities of regional and local governments to improve participatory management of canon resources, concerted development plans, and land management.
- Disseminate and adopt national and international water management best practices throughout the mining value chain, adopting the highest environmental standards.
- Drive R&D+i across the entire production cycle and value chain of mining activity.
- The State must strengthen the process of implementing the comprehensive plan to eradicate illegal mining.
- Promote clusters, linkages and productive diversification.
- Design and implement a pilot plan to ensure permanent organization spaces, where the public and private sectors organize with a related purpose, the productive development of the region and the territory.

These strategies are added to the current legal framework for the promotion of the mining sector.

Tax stability contracts

- Companies may enter into legal stability agreements with the State in order to maintain the validity of a certain regulatory regime for as long as it is agreed in that agreement.
- The enjoyment of the stability benefit applies under the following conditions: (i) 10 years for a minimum investment of USD 20 million; (ii) 12 years for an investment of USD 100 million (USD 250 million for ongoing operations); and (iii) 15 years for a minimum investment of USD 500 million.

Definitive return of the general sales tax (IGV)

- It is a tax benefit to the holders of the mining activity during the exploration phase.
- To this end, mining concessions must enter into an exploration investment contract with the State.
- Repayment includes all imports or purchases of goods, loans or use of services and construction contracts.
- Mining and hydrocarbon companies will continue to receive this tax benefit until Saturday, December 31, 2022.

Early recovery of the IGV*

- It is a tax benefit during the pre-productive stage.
- It consists of the return of the IGV that taxed local imports or purchases of new capital goods, intermediate goods, services and construction contracts.
- The scheme is open to natural or legal persons investing in any economic sector.
- They must meet the following requirements: (i) the project must generate third category income; (ii) the investment in the project must be at least USD 5 million; and (iii) the project must require a pre-productive stage of at least 2 years.

* Law 1423.
Source: MINEM

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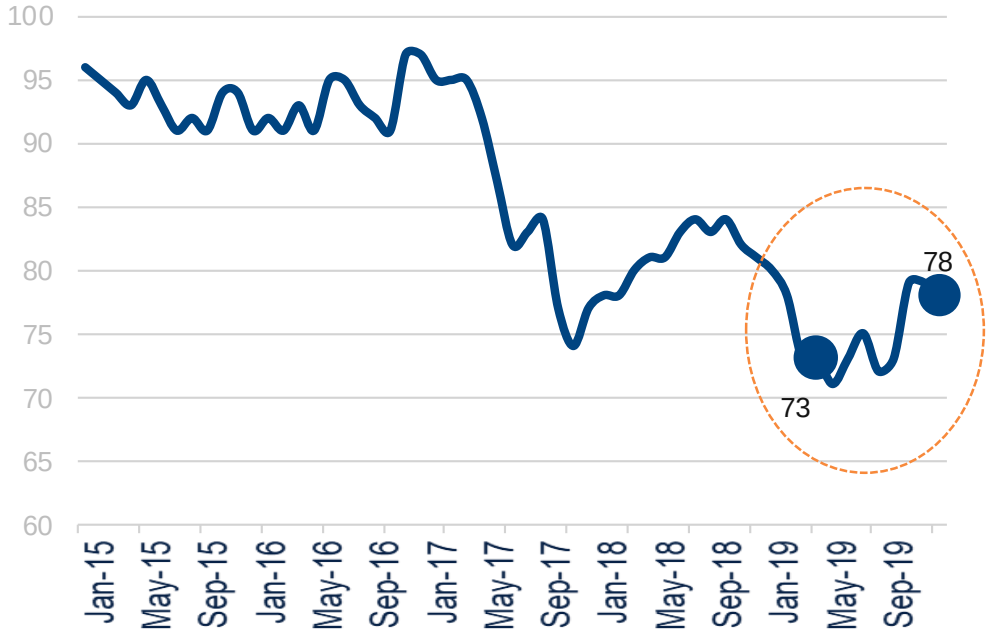
03

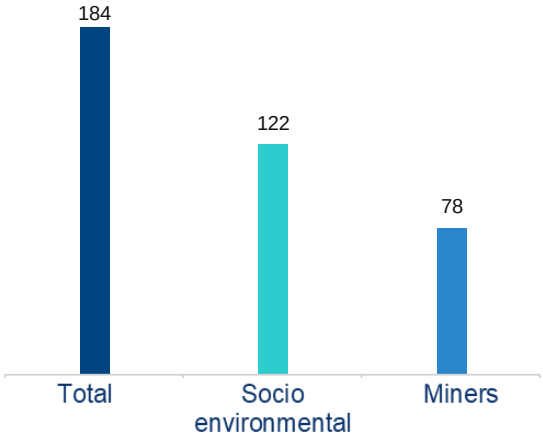
Social conflicts

In 2019, the number of social conflicts rose

NUMBER OF ACTIVE SOCIAL CONFLICTS IN THE MINING SECTOR
(ACTIVE IN THE CURRENT MONTH)



Social conflicts related to mining account for 42% of social conflicts in the country



Source: Ombudsman

Geographically, the southern part of the country has the largest number of social conflicts in the mining sector

Northern region 21%

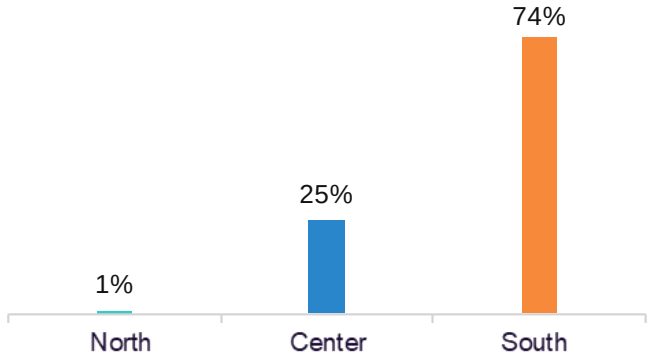
Central region 36%

Southern region 43%

Department No.	
Cajamarca	8
La Libertad	3
Amazonas	2
Piura	2
Áncash	10
Pasco	6
Junín	3
Lima	3
Huánuco	2
Cusco	8
Tacna	6
Pasco	6
Apurímac	5
Moquegua	4
Puno	4
Arequipa	1
Ayacucho	1
Huancavelica	1

Participation from each area of the country in all social mining conflicts generally coincides with the relative participation by each geographical area in total mining production*.

METAL MINING PRODUCTION
(MT)

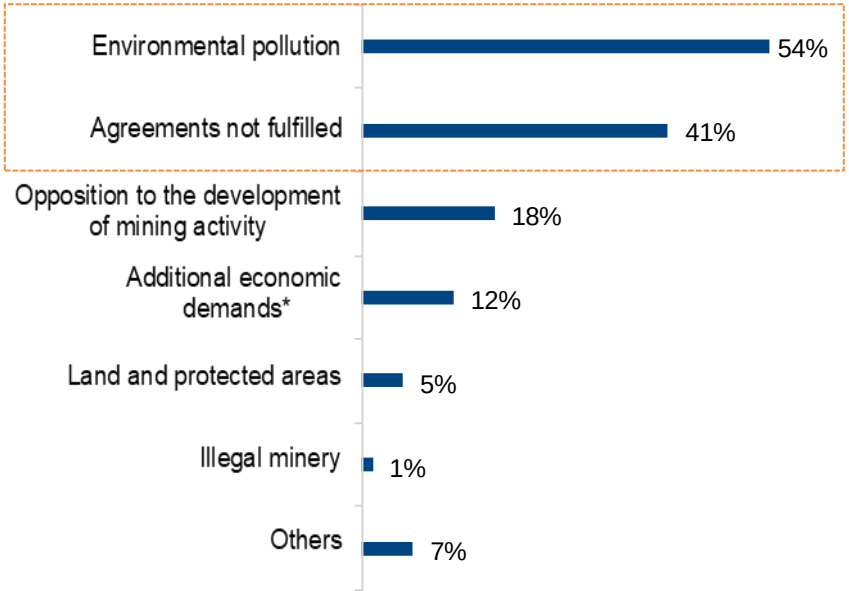


Source: Ombudsman and MINEM

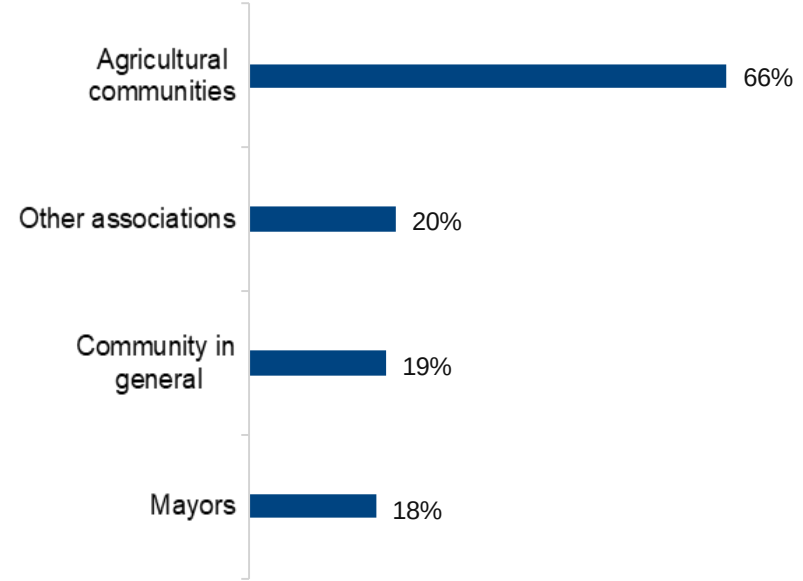
* Total social conflicts also includes those that are not related to production companies, but, for example, to projects.

Environmental pollution and unfulfilled agreements are the main mining conflict disputes

REASONS WHY MINING SOCIAL CONFLICTS ARE JUSTIFIED
(MULTIPLE CHOICE)



REPRESENTATIVES INVOLVED WHO SUPPORT THE PROTESTS
(MULTIPLE CHOICE)



* Compensation, Canon, Area of influence.
Source: Ombudsman and BBVA Research

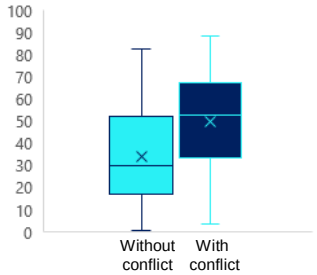
BBVA Research

What are the characteristics of districts with social conflicts related to mining?

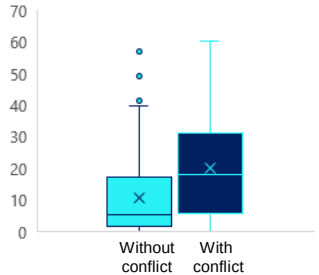
Creating Opportunities

Districts with mining conflicts have different socio-economic characteristics than other mining districts*

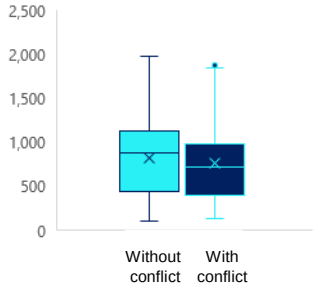
INCIDENCE OF POVERTY
(% OF POPULATION)

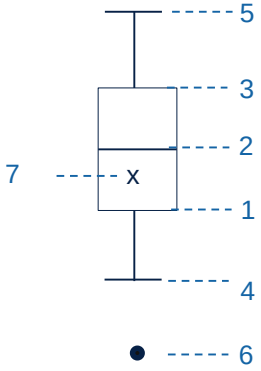


INCIDENCE OF EXTREME POVERTY
(% OF POPULATION)

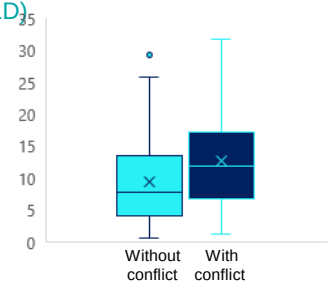


INCOME PER PERSON
(2019 SOLES)

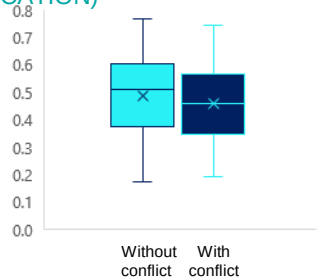




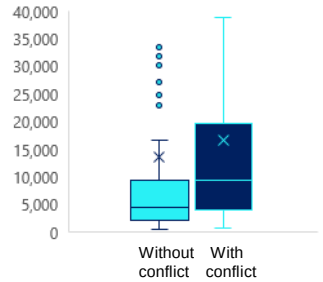
ILLITERACY
(% OF THE POPULATION OVER 15 YEARS OLD)



HUMAN DEVELOPMENT INDEX
(HDI MEASURES INCOME, HEALTH AND EDUCATION)



POPULATION
(NUMBER OF PEOPLE)



1. First quartile
2. Second quartile or median.
3. Third quartile
4. Lower limit, below this value is considered atypical.
5. Upper limit, above this limit is considered atypical.
6. Atypical values:
7. Arithmetic mean (average)

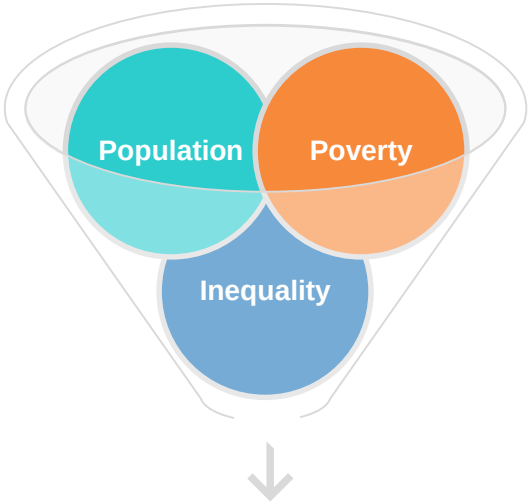
* Includes mining production districts and where socio-environmental mining conflicts have occurred in 2019.
Source: Ombudsman, INEI, UNDP and BBVA Research

BBVA Research

What factors make a mining-related conflict more or less likely?

Creating Opportunities

Our estimates suggest that there is an increased likelihood of conflict in districts with a higher incidence of poverty, high income inequality, and a larger population



Increased likelihood of mining social environmental conflict

Larger districts appear to be more likely to have a mining social environmental conflict, possibly because they have greater bargaining power.

While these characteristics may increase the likelihood that a district with mining interests will have a social environmental conflict, it will depend on dialog, agreements, and compliance between the communities involved, the State, and the mining company.

* Includes districts without mining conflicts. See details in Annex 3.
Source: Ombudsman, INEI, UNDP and BBVA Research

BBVA Research

04

Copper Price Outlook

Later in the year, copper prices rebounded due to a more favorable foreign environment

The US and China agree to a "Phase one" trade agreement

Global growth

Activity data was surprisingly positive in major economies.

FED

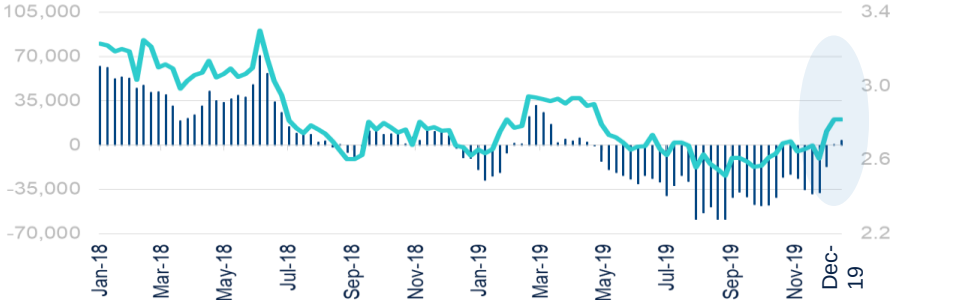
The rate will remain unchanged going forward (strong labor market performance and moderate economic growth).

Source: Bloomberg and BBVA Research

AVERAGE COPPER PRICE

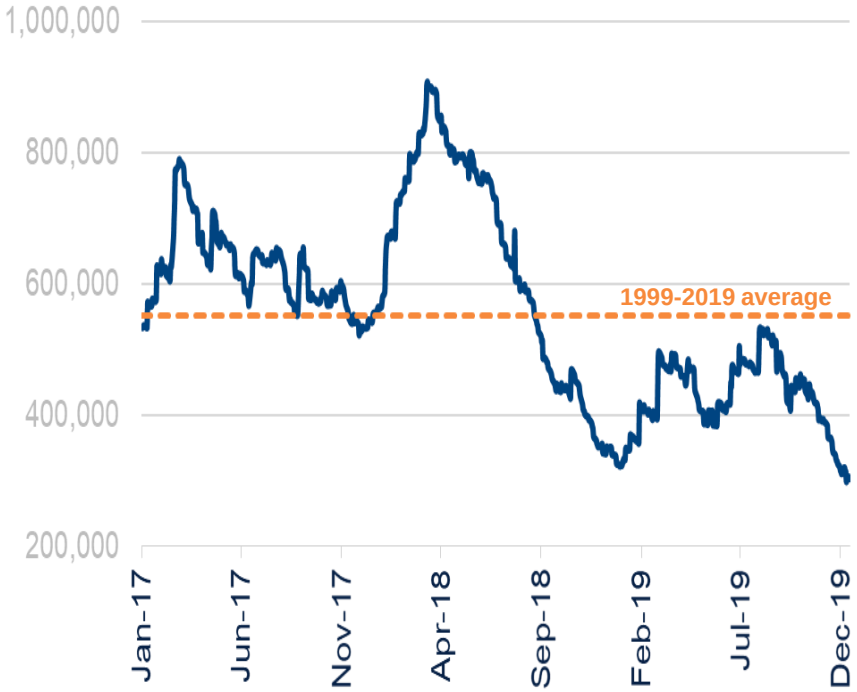
(USD/LB)

COPPER PRICE AND NON-COMMERCIAL NET POSITIONS

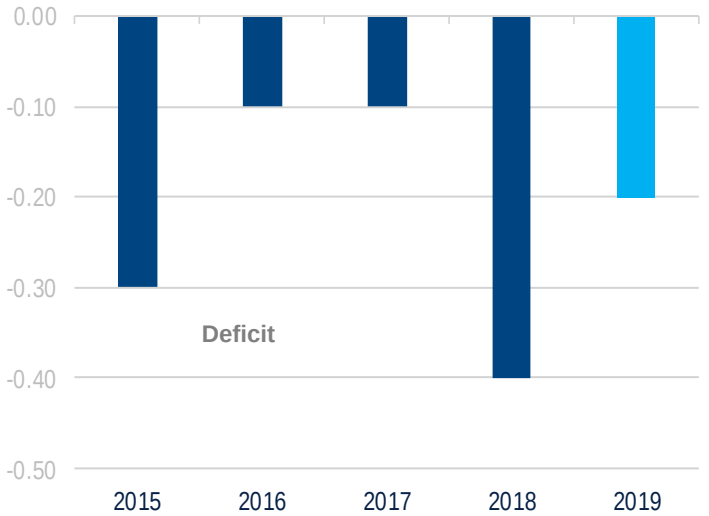


Moreover, market fundamentals have tolerated the price

COPPER INVENTORIES
(MT)



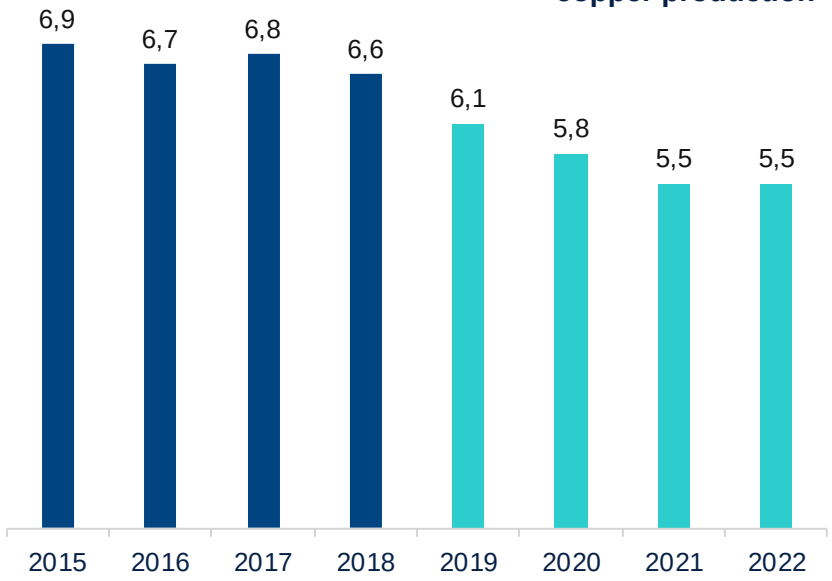
COPPER: GLOBAL SCALE
(MILLION MT)



Source: Bloomberg and BBVA Research

What elements affect our forecasts for the price of copper in the short term?

CHINA: GDP
(YoY change)



China demands
50% of global copper production

FED
An expansionary monetary policy will be maintained

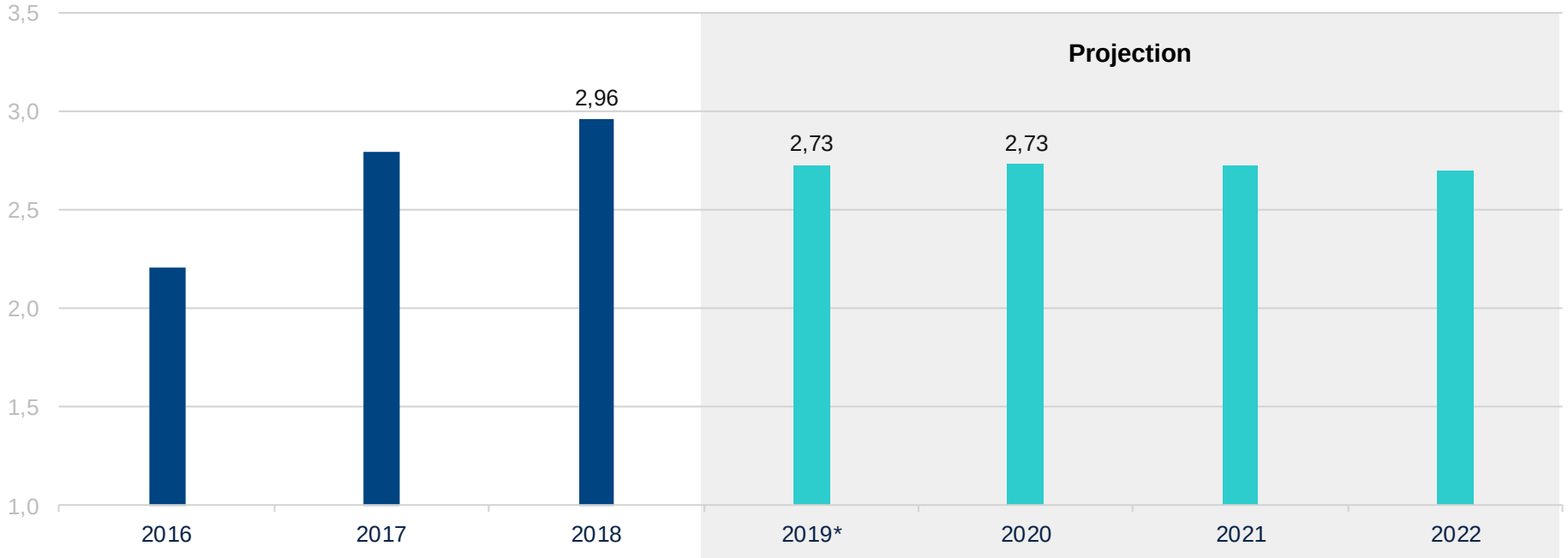
Trade tensions
More contained after the “Phase one” agreement.

More mild risk balance
Lower probability of recession in the US and lower Brexit risks will offset greater social unrest in Latam.

Balance of physical supply/demand
Equilibrium in 2020
(Energy & Metals consensus Forecasts).

In this environment, we estimate that the average copper price in 2020 will remain at a level similar to that of 2019

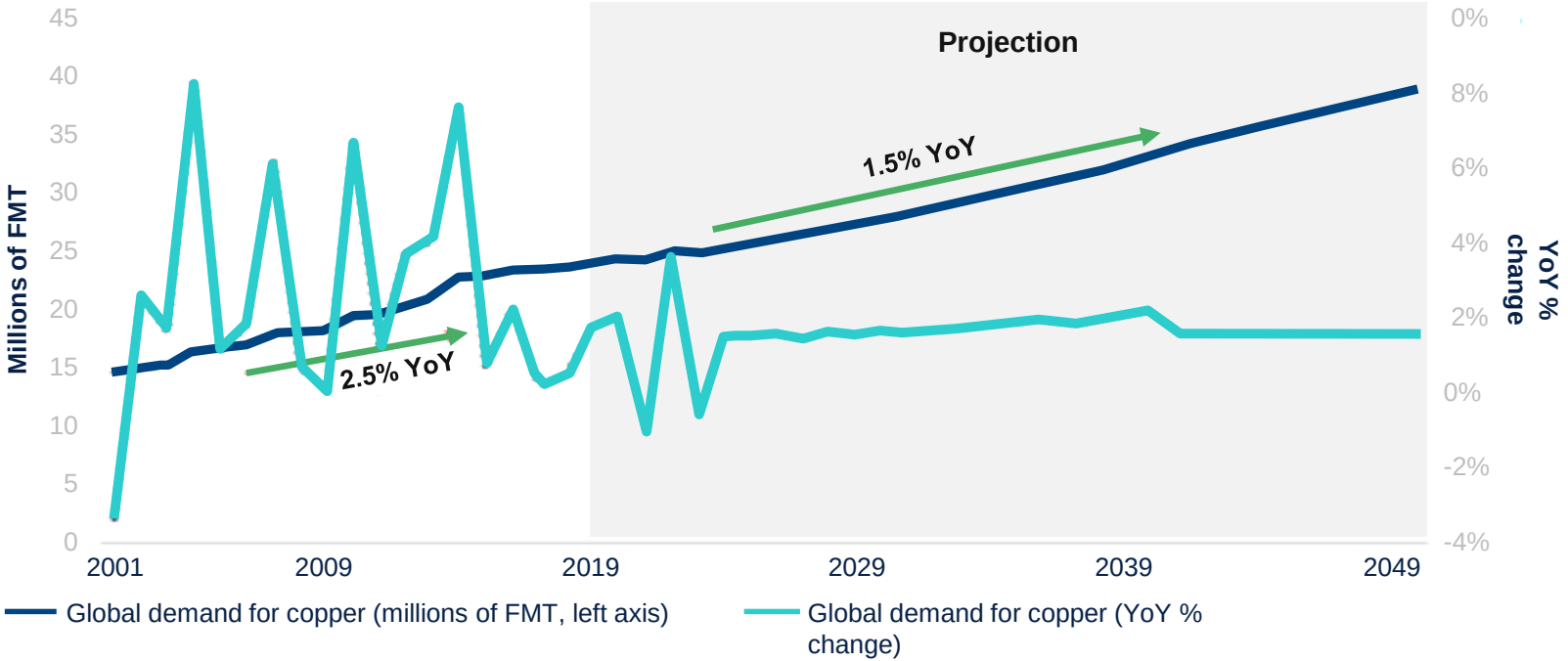
AVERAGE COPPER PRICE
(USD/LB)



*Estimated.
Source: Bloomberg and BBVA Research

Going forward, the price of copper will be supported by increased demand…

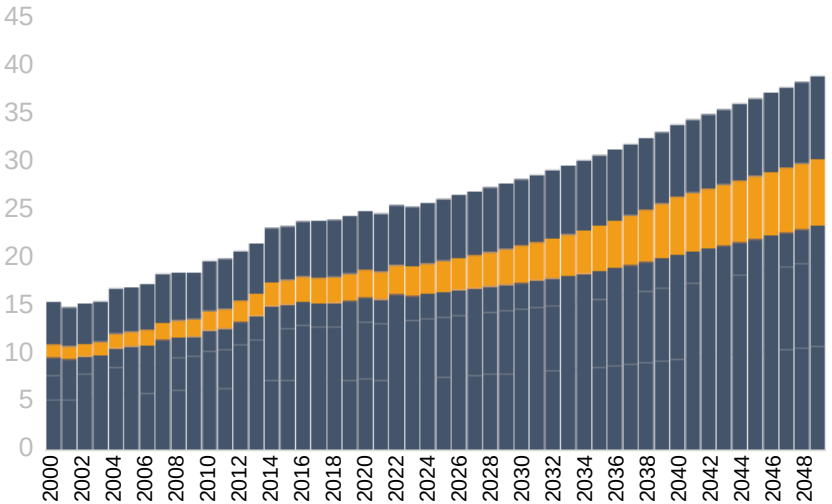
PROJECTED GLOBAL DEMAND FOR REFINED COPPER BY 2050 (MT)



Source: Cochilco

…linked to electric cars and…

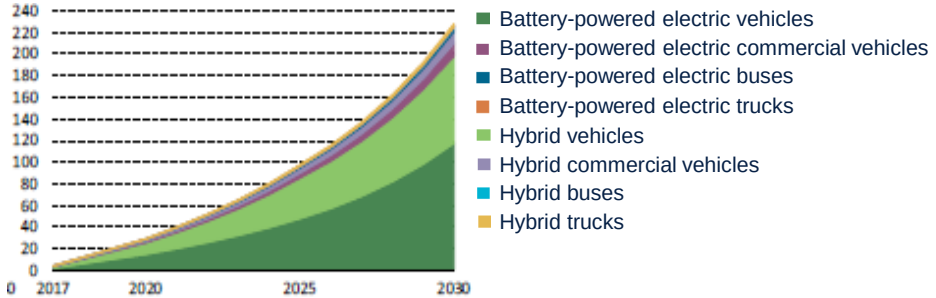
PROJECTED GLOBAL DEMAND FOR REFINED COPPER BY 2050
(MT)



USE OF COPPER BY VEHICLE TYPE

Type of vehicle	**Use of copper** (kilograms)
Conventional vehicle	**23**
Hybrid electric vehicle	40-60
Hybrid electric bus	89
Battery-powered electric bus	224-369

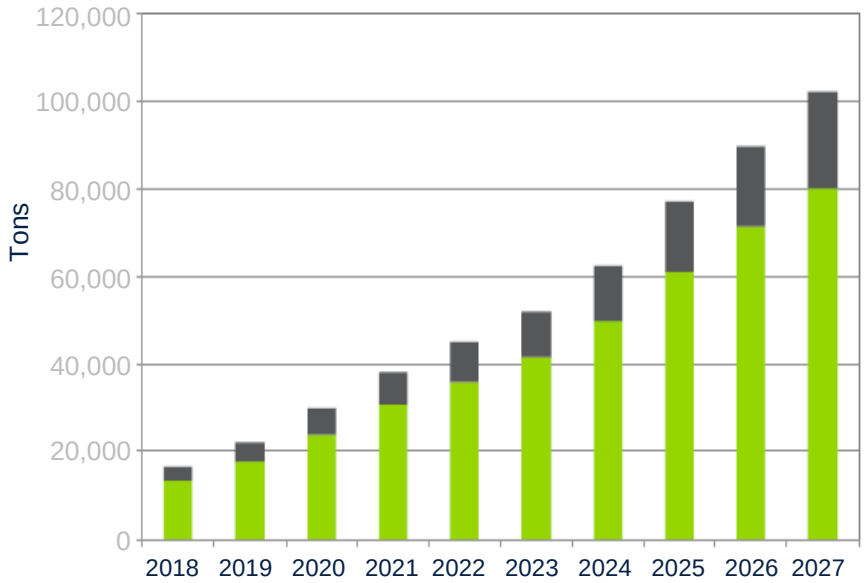
NUMBER OF ELECTRIC VEHICLES IN THE WORLD
(MILLIONS OF UNITS)



Source: Cochilco and International Energy Agency (IEA)

…the infrastructure required for this type of vehicle

ANNUAL DEMAND FOR COPPER FOR ELECTRIC VEHICLE POWER CHARGING FACILITIES
(MT)



Source: Navigatan Research

- Car manufacturers and public agencies plan to build networks of fast-charging stations, many of them with chargers over 100 kw and up to 350 kw
- More power promotes further demand for copper due to the need for larger wire sizes.

BBVA Research

05

Annexes

Annex 1. Concessioned projects portfolio

CHANCAS

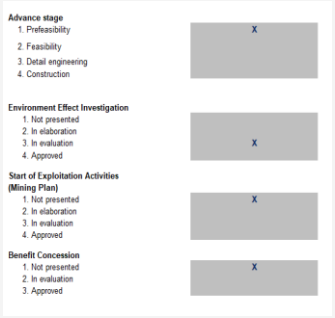
Investment: USD 2.8 billion

Company: Grupo México (89%) and Others (11%)

Location: Apurímac

Metals: Copper (130,000 FMTper year)

Start of construction: 2022



Current situation:

- They are analyzing if it is advisable to carry out the processing of the minerals by leaching, which is a more affordable process and requires less initial capital, where molybdenum or gold is not recovered. If the flotation alternative is chosen where the 3 metals can be recovered, the initial capital will be greater.
- In 2018, Southern continued to develop social and environmental improvements for local communities. The company is currently carrying out complementary explorations to complete the Environmental Impact Study (EIA) in 2020.

HUAQUIRA

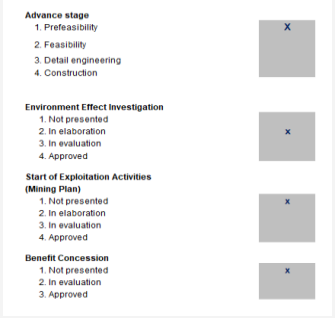
Investment: USD 1.860 billion

Company: Minera Antares Perú S.A.C.

Location: Apurímac

Metals: Copper (337,790 thousand FMT per year)

Start of construction: 2022



Current situation:

- In the second quarter, it offered an awareness-raising program on land purchasing.
- By the end of the year, land purchase negotiations are expected to start, with letters of intent to purchase land to the surrounding communities being handed over to 800 families from 4 communities (Huánuco, Pampa, Lahuain, Llamnguire and Rarachi).
- The mine is carrying out the Environmental Impact Study (EIA) baseline.

Source: MINEM

Annex 1. Concessioned projects portfolio

SAN GABRIEL

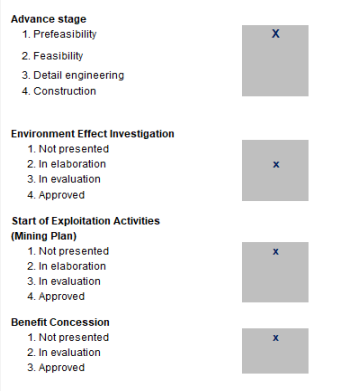
Investment: USD 431 million

Company: Grupo Buenaventura

Location: Moquegua

Metals: Gold (120,000 to 150,0000 ounces)

Start of construction: 2020



Current situation:

- The company is preparing the pre-feasibility study, which is expected to wrap up in the second half of 2019.
- The Environmental Impact Study was conducted in 2017.
- The Mining Plan was submitted two years ago for approval by the Ministry of Energy and Mines for reporting and development activities.

YANACOCHA SULFIDES

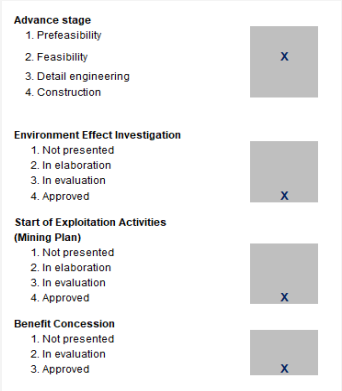
Investment: USD 2.1 billion

Company: Newmont Mining Corporation (51%)
Grupo Buenaventura (44%)
Sumitono Corporation (5%)

Location: Cajamarca

Metals: Gold (6.5 million ounces)
Copper (1,200 million pounds)

Start of construction: 2022



Current situation:

- The Environmental Impact Study (EIA) was approved in March.
- The project is currently in a feasibility phase, expecting that it will likely be able to request funds to start construction in the last quarter of 2020.

Source: MINEM

Annex 1. Concessioned projects portfolio

ZAFRANAL

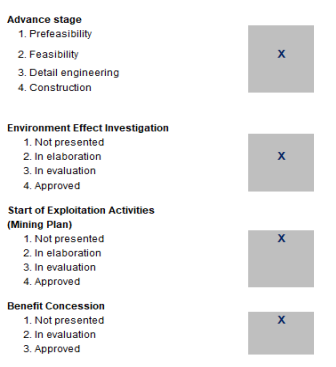
Investment: USD 1.157 billion

Company: 80%: Teck Resources Copper
20%: Mitsubishi Materials Corporation (Japan)

Location: Arequipa

Metals: Copper (75,000 FMT and 120,000 FMT for the first 5 years)

Start of construction: 2021



Current situation:

- Approved for a temporary concession to carry out Feasibility Studies related to electric power transmission activity for the future 220 kV transmission line.
- Citizen participation workshops have been held with the population involved in the mining project's areas of influence to obtain social license. This is a requirement to prepare for the Detailed Environmental Impact Study (EIA – d).
- The project proposes the strip mining of two work sites (Zafranal and Victoria) from which copper sulfides will be extracted. A conveyor belt installed inside a tunnel will transport the ore from the primary crusher to the crushed ore stockpile.

COROCCOHUAYCO

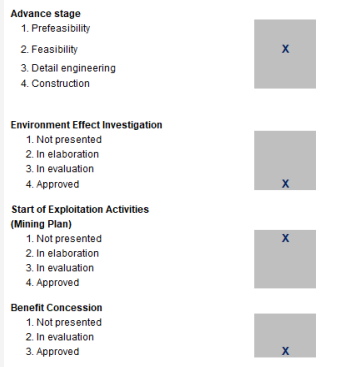
Investment: USD 590 million

Company: Glencore

Location: Cusco

Metals: Copper (105,000 FMT)

Start of construction: 2020



Current situation:

- The company completed feasibility studies and is conducting technical studies on hydrogeology, geotechnics and geometallurgy.
- The Environmental Impact Study (submitted in March 2018) is under evaluation by SENACE.

Source: MINEM

Annex 1. Concessioned projects portfolio

MAGISTRAL

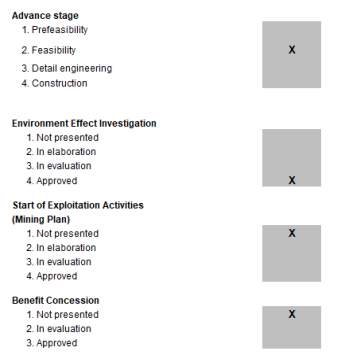
Investment: USD 480 million

Company: 80%: NexaResources S.A. (Brazil)
20%: Other shareholders

Location: Áncash

Metals: Copper (40,000 FMT)

Start of construction: 2022



Current situation:

- The project has a Preliminary Economic Survey that was published in August 2017. Pre-feasibility studies were completed in the second quarter of 2019. The company is currently conducting feasibility studies for the project. The company expects to have a new Technical Report for the project at the end of 2019.
- The Environmental Impact Study was approved in 2016.
- The operator has not submitted an application for an Operating Permit.

INMACULADA OPTIMIZATION

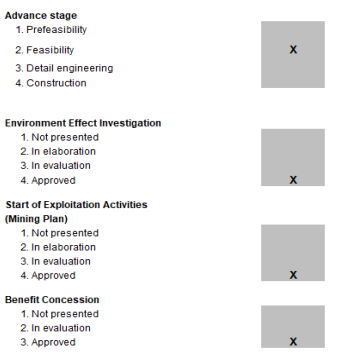
Investment: USD 136 million

Company: Hochschild (United Kingdom)

Location: Ayacucho

Metals: Gold (250,000 ounces)

Start of construction: 2020



Current situation:

- The Inmaculada mining unit is already in operation, however, it requires approval on its second Environmental Impact Study, submitted in July 2019, to build and modify components.
- The mining unit submitted its mining plan for approval in April 2019.

Source: MINEM

Annex 1. Concessioned projects portfolio

PACHAPAQUI EXPANSION

Investment: USD 117 million

Company: Korea Zinc Company (Korea)

Location: Áncash

Metals: Zinc (29,750 FMT)

Start of construction: 2020

Advance stage	
1. Prefeasibility	
2. Feasibility	x
3. Detail engineering	
4. Construction	
Environment Effect Investigation	
1. Not presented	
2. In elaboration	
3. In evaluation	
4. Approved	x
Start of Exploitation Activities (Mining Plan)	
1. Not presented	
2. In elaboration	
3. In evaluation	
4. Approved	x
Benefit Concession	
1. Not presented	
2. In evaluation	
3. Approved	x

Current situation:

- Progress has been made in infrastructure, specifically in communication and peripheral components of the project.
- The project has an approved Environmental Impact Study.

PAMPA DE PONGO

Investment: (USD 2.2 billion)

Company: Zhongrong XindaGroup (China)
JiangtongGroup (China)

Location: Arequipa

Metals: Iron (28.19 million FMT)

Start of construction: 2021

Advance stage	
1. Prefeasibility	
2. Feasibility	x
3. Detail engineering	
4. Construction	
Environment Effect Investigation	
1. Not presented	
2. In elaboration	
3. In evaluation	
4. Approved	x
Start of Exploitation Activities (Mining Plan)	
1. Not presented	
2. In elaboration	
3. In evaluation	
4. Approved	x
Benefit Concession	
1. Not presented	
2. In evaluation	
3. Approved	x

Current situation:

- Currently seeking funding. As an initial step, it signed a Strategic Agreement with Jiangxi Cooper Group on July 20, 2018.
- The project has an Environmental Impact Study (EIA) that was approved in 2015. Then in 2018, the company submitted the First Amendment to the EIA-d, which is now approved.
- In February 2019, the mining unit submitted a drilling request consisting of the execution of 142 platforms to find copper content in Pampa de Pongo.

Source: MINEM

Annex 1. Concessioned projects portfolio

CORANI

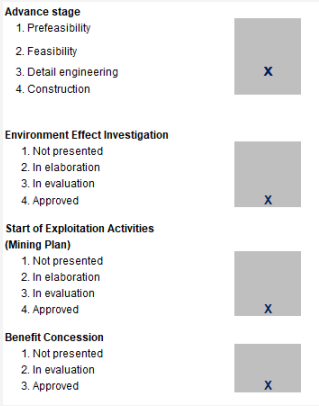
Investment: USD 585 million

Company: Bear Creek Mining S.A.C.

Location: Puno

Metals: Lead and silver (110,000 FMT)

Start of construction: 2020



Current situation:

- In September 2018, the company informed MINEM of the start of initial work (phase 1).
- In 2018, access roads and infrastructure were built using local labor. In September of the same year, the company began construction of the Antapaca electrical substation.
- Financial closure is pending. The project operator is conducting an evaluation of capital and operational savings, as well as time reduction.

Source: MINEM

Annex 2. Districts with mining social environmental conflicts in 2019

District	Incidence of Poverty	EAP working in the agricultural sector (% EAP working total)	Years of education	Cluster
Espinar	23	16%	9	1
Huaral	15	23%	9	1
Huayllay	21	5%	10	1
Ilabaya	3	16%	11	1
Morococha	39	3%	10	1
Oyón	18	12%	10	1
Pacllon	24	43%	8	1
San Marcos	32	17%	8	1
Simon Bolívar	40	9%	10	1
Torata	13	20%	10	1
Yauli	6	3%	11	1
Camanti	17	38%	8	1
Cocachacra	15	38%	9	1
Dean Valdivia	21	55%	8	1
Punta de Bom	23	50%	8	1

District	Incidence of Poverty	EAP working in the agricultural sector (% EAP working total)	Years of education	Cluster
Buena Vista Alt	33	76%	6	2
Cachachi	84	69%	4	2
Hualgayoc	64	45%	5	2
Marcara	42	55%	5	2
Pias	82	41%	5	2
Pira	74	76%	5	2
Quiñota	59	79%	4	2
Santa Ana De T	72	80%	8	2
El Cenepa	88	59%	5	2
Encañada	77	81%	4	2
Las Lomas	62	61%	6	2
Paimas	62	69%	5	2
Rio Santiago	69	64%	5	2
San Javier de Al	53	69%	6	2
Sorochuco	86	79%	3	2
Suyo	49	69%	6	2
Tambo Grande	54	63%	6	2
Huancabamba	63	55%	5	2
Ayabaca	66	67%	5	2
Bambamarca	60	59%	4	2

District	Incidence of Poverty	EAP working in the agricultural sector (% EAP working total)	Years of education	Cluster
Antauta	62	19%	8	3
Canaria	62	30%	7	3
Cayarani	74	33%	8	3
Caylloma	50	18%	7	3
Challhuahua	77	10%	8	3
Chaviña	70	32%	7	3
Cotaparaco	38	55%	8	3
Huamachuc	35	32%	6	3
Huaylillas	68	35%	5	3
Jangas	34	43%	6	3
Ocuviri	50	41%	8	3
Oyolo	72	23%	8	3
Parcoy	58	11%	8	3
Quiruvilca	52	33%	6	3
San Francisc	58	26%	9	3
San Miguel D	58	29%	8	3
San Pedro D	45	27%	7	3
Sancos	38	36%	8	3
Velille	38	33%	7	3
Celendín	58	26%	7	3

Incidence of poverty: District information from 2013, Peru data from 2018.
EAP working in the agricultural sector: Information from 2017.
*EAP: Working age population that is working or looking for a job.
Years of education: Information from 2019.
Source: Ombudsman, INEI, UNDP and BBVA Research

Annex 3. Approximation of the determinants of social environmental mining conflicts

The database

1. **All districts that had a mining social environmental conflict in 2019 are included.**
2. **All districts with mining production are included.**
3. **These districts are characterized by socioeconomic variables.**
4. **The variables that determine whether or not a district is likely to have a conflict are sought.**

Methodology

LOGISTIC REGRESSION MODEL

- Used when the dependent variable is dichotomous (y_i).
- Provides the probability of belonging to one of the two defined groups, using a set of repressors (dependent variables) (x_i).

$$y_i = \begin{pmatrix} 1 \text{ when there is conflict in the district} \\ 0 \text{ when there is no conflict} \end{pmatrix}$$

- The probability that a mining conflict will occur:

$$p(x_i) = \frac{1}{1 + e^{-(B_0 + B_1 x_1 + B_2 x_2 + B_3 X_3)}}$$

DESCRIPTION OF VARIABLES

	Categories
Characteristic of the dependent variable	
Mining districts	0 There is no mining conflict. 1 There is a conflict.
Individual characteristics (independent variables)	
Incidence of poverty	Population rate. Information from 2013.
Inequality	Higher Gini Coefficients [0-1] = more inequality. Information from 2013.
Years of education	Average number of years of education for people over 25 years old. Information for 2019.

Annex 4. Mining Sector File

2019 economic activity: Mining sector [1]

Mining GDP

- S/ 49 billion (at 2007 prices)
- 12.2% of total GDP

Mining Investment

- S/ 19.5 billion
- USD 5.8 billion
- 14.1% of total Private Investment

2019 tax collection: Mining sector [2]

Income Tax Category 3

- S/ 1,864 million
- USD 558 million
- 11.5% of Income Tax Category 3

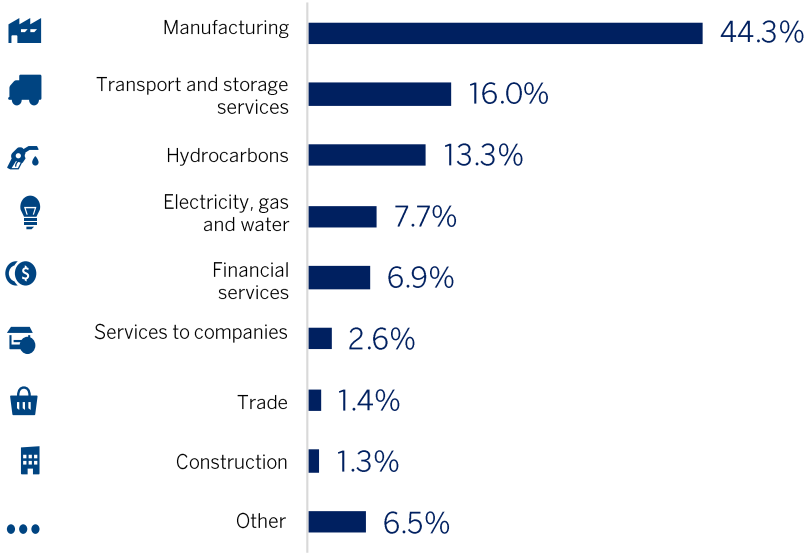
General Sales Tax (IGV)

- S/ 1,033 million
- USD 310 million
- 3.0% of IGV

1 2019 Estimate
2 Information from November 2019, no refunds are deducted

Source: SUNAT, BCRP, MINEM

MINING ACTIVITY: DEMAND FOR GOODS AND SERVICES TO OTHER PRODUCTION SECTORS (% OF THE TOTAL MINING ACTIVITY DEMAND FROM OTHER SECTORS)



Source: 2007 Input-Output Table, INEI

The extraction of minerals demands goods and services from other economic sectors, which in turn require goods and services from other productive activities.

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