



CONSEJO  
MINERO

# MINING *in* NUMBERS

6th EDITION



Consejo Minero is the trade association that brings together the large scale mining companies operating in Chile. Its main objective is promoting the competitive and sustainable development of chilean mining.

We present **Mining in Numbers**, a book that shows the main figures of the mining industry in Chile in a different, simple and entertaining way.

Find updated figures and learn more about mining in Chile on our website: **[www.consejominero.cl](http://www.consejominero.cl)**



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*Currency:*  
Chilean Peso.



*Capital:*  
Santiago.





*Density:*

26 P/km<sup>2</sup>.

*Population:*

19,458,000 people.

*GDP Per Capita:*

US \$26,713.25 (PPP).

*Surface:*

Continent and islands: 756,102 km<sup>2</sup>.  
Antarctic Territory: 1,250,000 km<sup>2</sup>.  
Total: 2,006,102 km<sup>2</sup>.

Large-scale mining  
takes place in  
7 regions.



TARAPACÁ

ANTOFAGASTA

ATACAMA

COQUIMBO

VALPARAÍSO

METROPOLITANA

O'HIGGINS





Participation of  
large companies in  
the Chilean mining  
production:

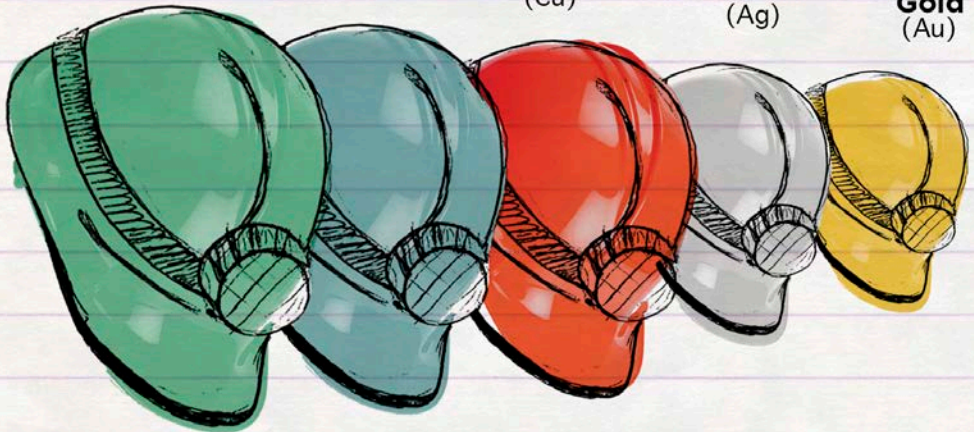
**99%**  
Molybdenum  
(Mo)

**96%**  
Iron  
(Fe)

**95%**  
Copper  
(Cu)

**66%**  
Silver  
(Ag)

**59%**  
Gold  
(Au)



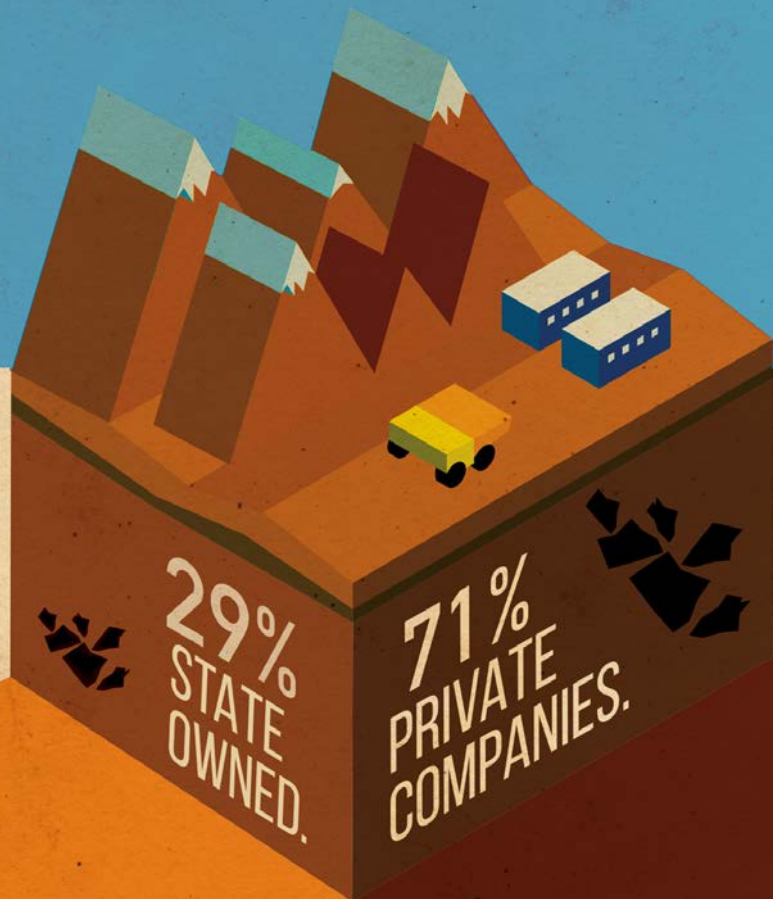
# CHILE A LEADER



SHARE OF GLOBAL PRODUCTION



# COPPER PRODUCTION IN CHILE:

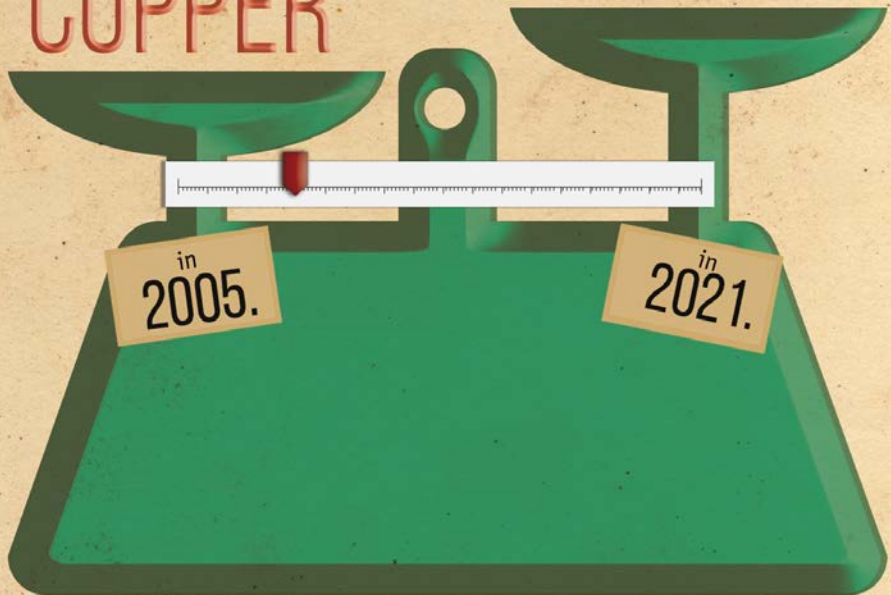




Copper extracted per ton of  
rock processed:

10 KG  
COPPER

6 KG  
COPPER





# METAL PRODUCTION 2021:

5.6 million metric tons copper.

**33.57**  
metric tons of  
**GOLD.**



**12**  
MILLION  
tons of  
**Iron.**

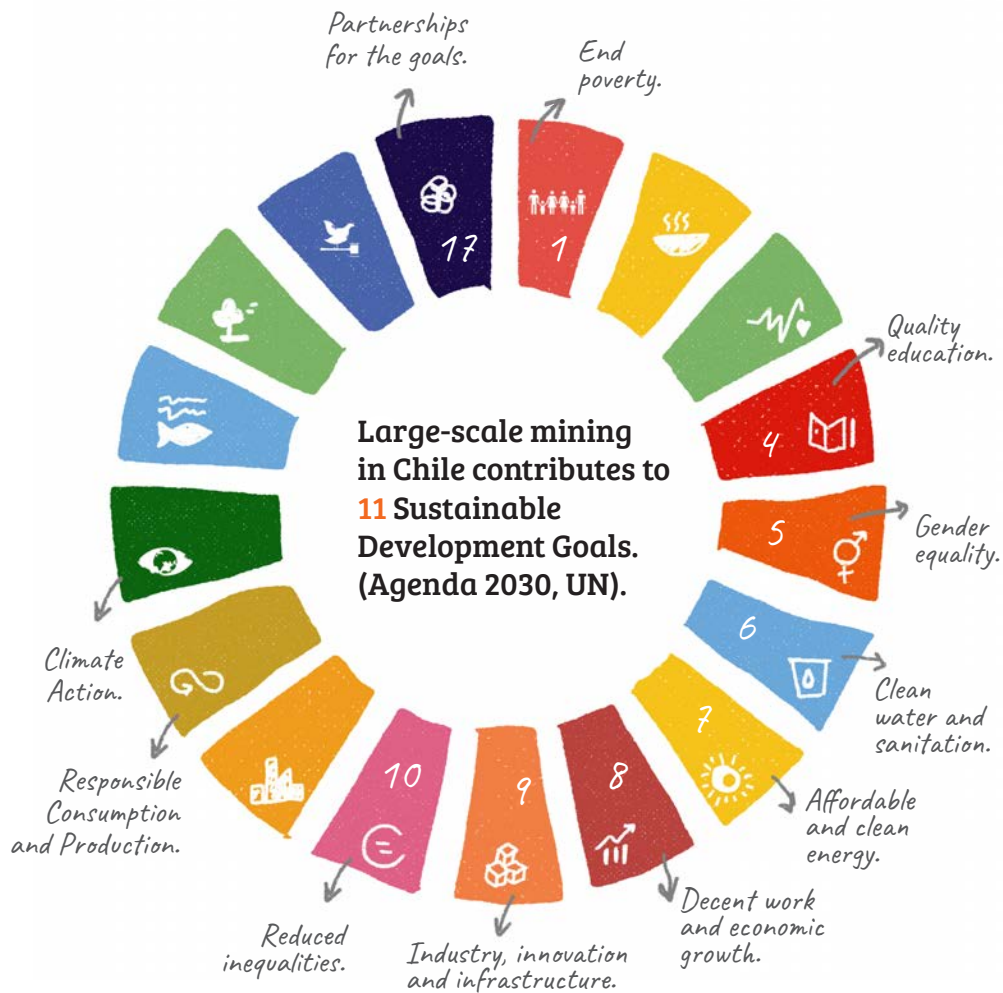


**49,427**  
metric tons of  
**Molybdenum.**



**1,280**  
metric tons of  
**Silver.**



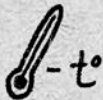




# LARGE-SCALE MINING HAS

# 10 PRINCIPLES

ON CLIMATE CHANGE,  
INCLUDING:



Support global commitments that avoid global temperature increases above the levels recommended by science.

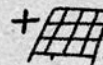


Disseminate the contribution of mining to the reduction of emissions, by producing metals that allow to generate, transmit and store electricity more efficiently.



Incorporate the need to adapt to climate change in the design and operation of mine sites.

Promote the use of renewable resources and other low-emission technologies for electricity generation.



*Mining represents 12% of Chile's GDP. But  
adding the economic activity it generates in  
other sectors, the industry's contribution to  
GDP is over*

20%

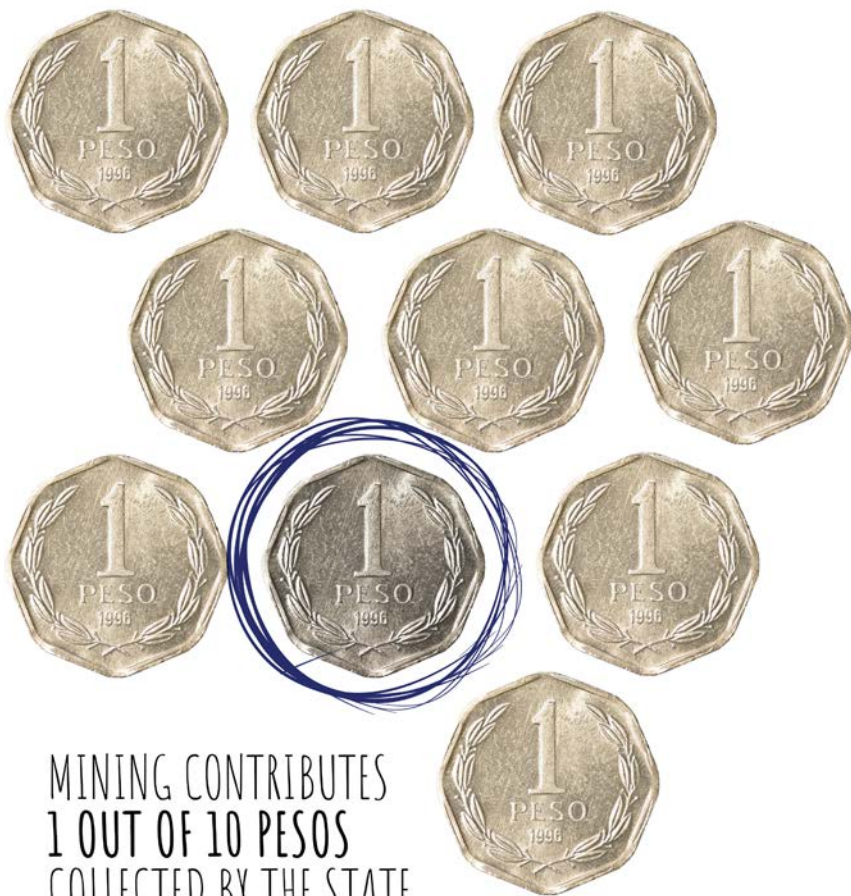


The background of the image features a stylized map of the Antofagasta region. The map is composed of two main colors: a light blue on the left and a light orange on the right. The orange area is shaped like the map of the region and has a torn-paper edge effect. The entire background is overlaid with a fine, light-colored grid pattern.

It contributes

**52%**

of the GDP of the Region of Antofagasta.



MINING CONTRIBUTES  
1 OUT OF 10 PESOS  
COLLECTED BY THE STATE.

90%  
OF MINING INDUSTRY REVENUE GOES TO:





# 5%

of the world's metal  
exploration is carried  
out in Chile.



Chile is the country that invests the most in mining exploration by land area:

Chile:  
USD 762/Km<sup>2</sup>.

Perú:  
USD 474/Km<sup>2</sup>.

México:  
USD 310/Km<sup>2</sup>.

Australia:  
USD 172/Km<sup>2</sup>.

Canadá:  
USD 144/Km<sup>2</sup>.



# China

is the biggest consumer of:

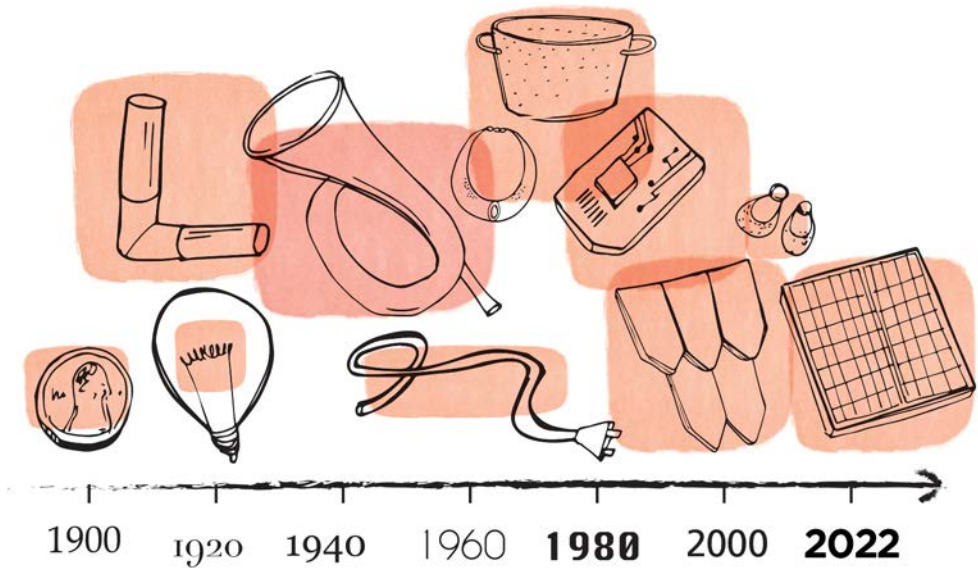
54%



30%







2/3 OF THE 550 MILLION METRIC TONS OF COPPER PRODUCED  
SINCE 1900 ARE STILL IN PRODUCTIVE USE.

COPPER IS A  
100%  
RECYCLABLE  
MINERAL .



Approximately  
**9** million  
METRIC TONS OF  
copper  
are recycled  
**per year**

*(35% of the global demand for copper is from recycled material).*

Mining generates  
**94%**  
of exports

from the

Iquique

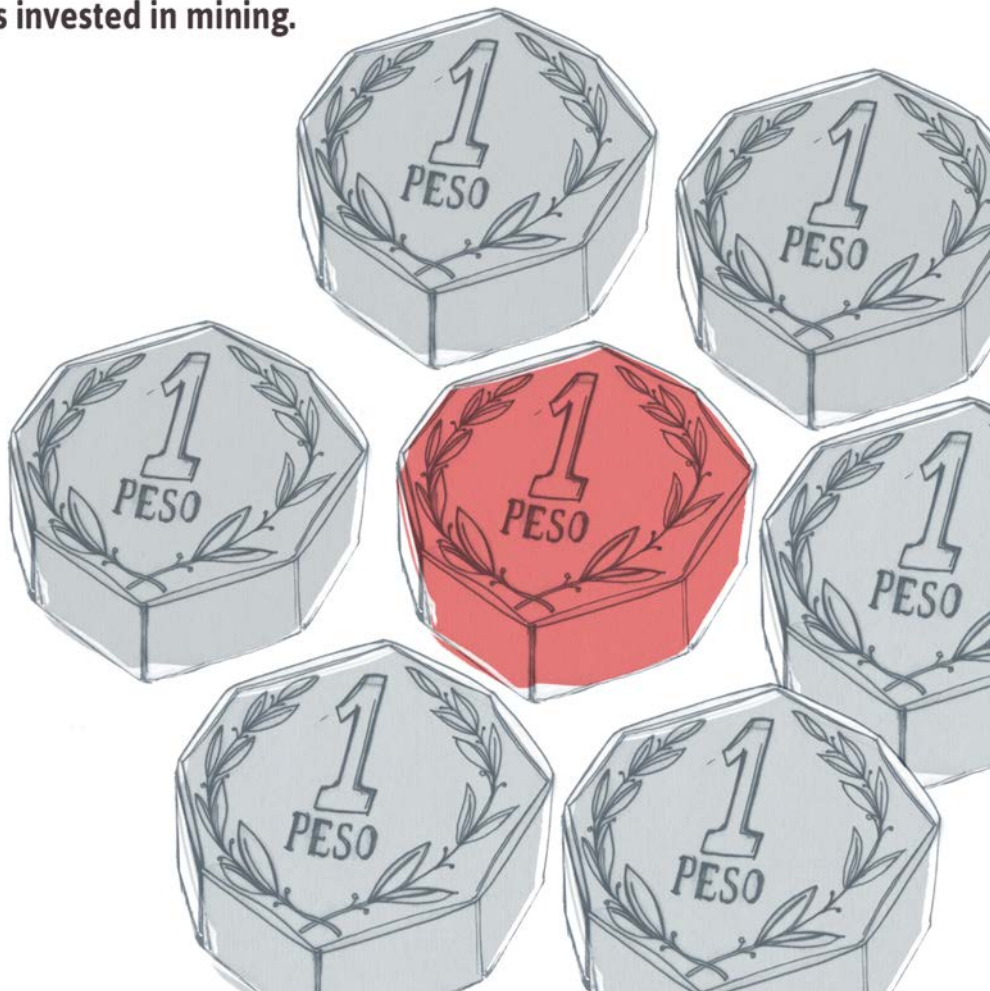
Region  
of  
**Tarapacá.**



*COPPER ACCOUNTS FOR MORE THAN  
90% OF THE COUNTRY'S MINING  
EXPORTS.*



In the country **1 out of 7 pesos,**  
**is invested in mining.**







A big challenge

IF ALL MINING PROJECTS IN THE  
PIPELINE ARE IMPLEMENTED, THE  
ANNUAL PRODUCTION OF COPPER  
IN CHILE COULD INCREASE FROM 5.6  
MILLION METRIC TONS IN 2021  
TO MORE THAN 8 MILLION METRIC  
TONS AS OF 2026.

Chile exports  
copper in two  
ways

44%



Refined

mostly cathodes,  
which have a purity  
of 99.99% copper.

56%



Concentrate

has a purity of  
30% copper.

Mining products represent

**55%**

of exports.





# 30

ports handle and  
unload mining  
products.



The discovery of Chañarcillo in 1832  
produced an explosive growth in  
silver production.



Chile, Year 2005

## Chilean Lay

Establishes A Specific Tax on Mining Activity,  
"Royalty".

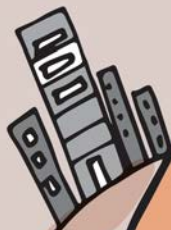
To this day, more than USD 10,000 million has  
already been raised.



# Uses of **copper** worldwide

**28%**

CONSTRUCTION



**31%**  
OTHERS

(COINS,  
ELECTRONIC  
DEVICES  
AND  
OTHERS)

**12%**

INFRASTRUCTURE



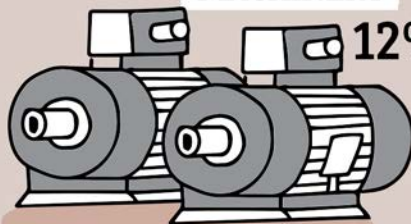
**13%**

TRANSPORTATION

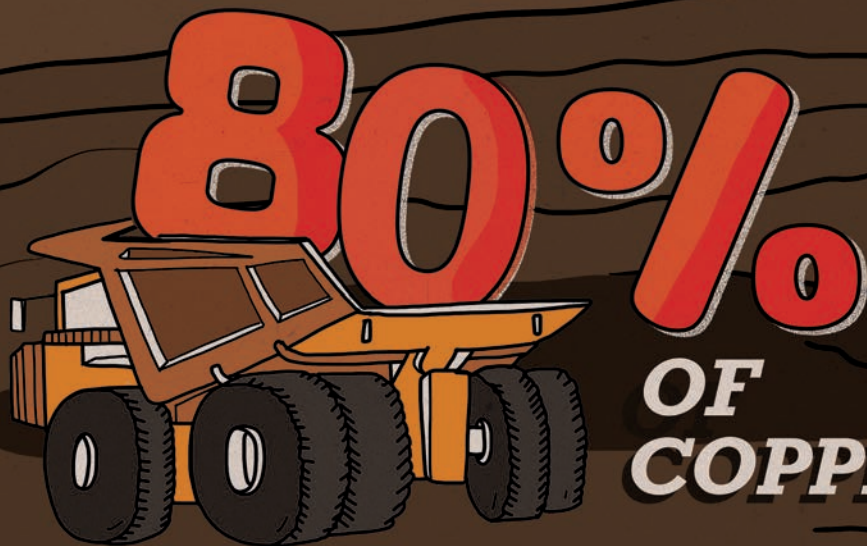


MACHINERY

**12%**







***IS EXTRACTED FROM OPEN PIT MINES.***

Chile has 5 sites declared as World Heritage by Unesco.  
The mining city of Sewell is one of them (2006).



# "Gold"

ITS CHEMICAL  
SYMBOL  
IS



THAT COMES FROM "AURUM", A LATIN WORD  
THAT MEANS "BRIGHT SUNRISE".



The development of a new mining project  
can easily take:







# THE MINISTRO HALES PROJECT HAD TO PROCESS

**645 PERMITS**

FOR ITS START UP.

*A large-scale*

**COPPER**

**MINE PROJECT**

**HAS AN** *average*

*lifespan of 20 years and produces*

*100,000 metric tons annually.*



# 6 of the 10

most important copper mines in the world are in Chile (Escondida, Collahuasi, El Teniente, Pelambres, Radomiro Tomic and Los Bronces).





THERE ARE

COPPER  
SMELTERS.



Salaries in the mining sector are  
70% higher than the country  
average.






MINING  
DIRECT JOBS  
REPRESENT  
3% OF THE  
COUNTRY'S  
EMPLOYMENT.

BUT IT IS  
ESTIMATED THAT  
FOR EVERY DIRECT  
JOB, 2.55 INDIRECT  
JOBS ARE  
GENERATED. AS A  
WHOLE, MINING  
REPRESENTS 10%  
OF CHILE'S  
EMPLOYMENT.



A stylized, artistic representation of the Statue of Liberty. The statue is depicted in a dark, monochromatic palette with a halftone dot pattern overlaid on its form. The background is a textured, mottled blue-grey. The text is positioned in the upper right quadrant.

Did you know that the Statue  
of Liberty is covered with

**28,117**  
kilos of copper?





HELMET  
WITH  
LANTERN



SAFETY  
SHOES



SAFETY  
GLOVES



SAFETY  
GLASSES



RESPIRATOR



HEARING  
PROTECTION  
DEVICE



SELF  
RESCUER



REFLECTIVE  
JACKET

Underground  
mining requires  
**8 elements of  
personal  
protection:**



*mining has the lowest accident rate  
per economic sector in the country.*

*1.0% v/s 2.6%*  
*(country average).*



The mining industry  
has seen its production  
costs double in the last  
15 years.

1 TO 2

DOLLARS  
PER POUND  
OF COPPER.



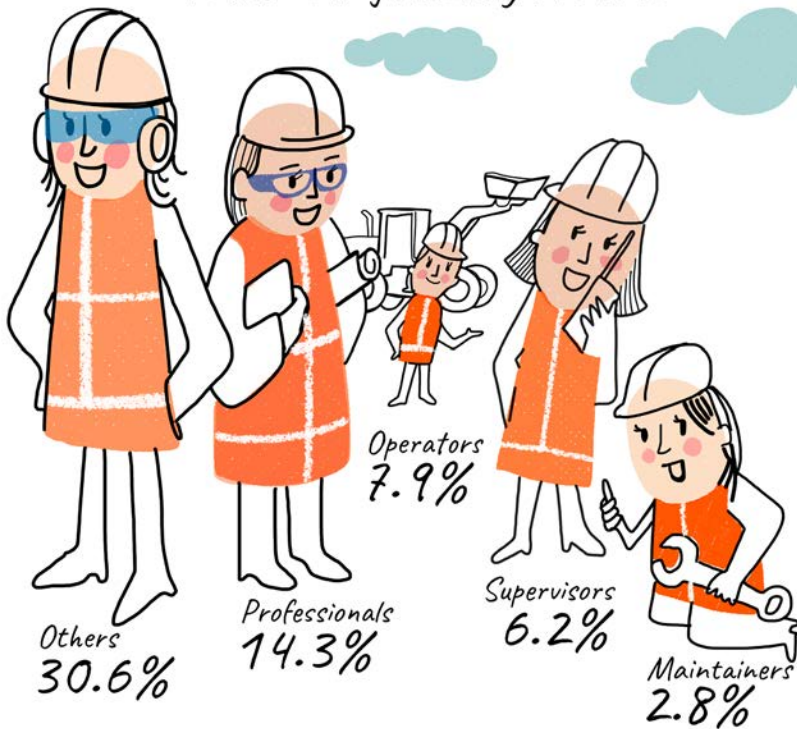
Women's participation  
has grown steadily.  
Today it reaches

**15%.**



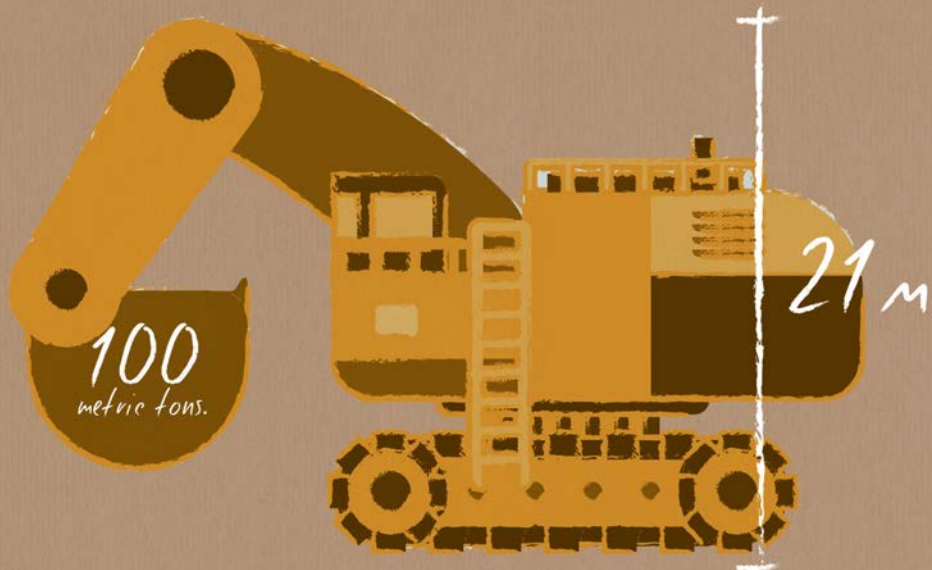


*Female participation  
in the mining industry in 2021:*



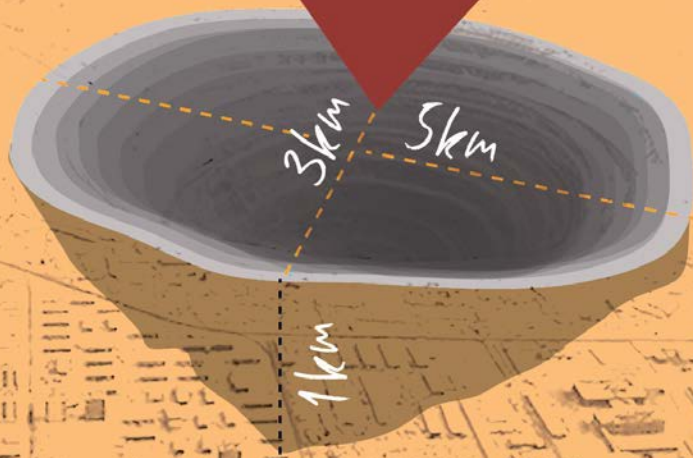
300  
metric tons  
of cargo





Electromechanical shovel  
weighs 1,000 metric tons.

CHUQUICAMATA



IT WAS ONCE THE WORLD LARGEST OPEN PIT MINE.



El Teniente is the largest underground mine in the world. Measured in a straight-line, its tunnels are approximately equivalent to the distance between Santiago and Lima.

**3,000**  
*KM OF TUNNELS.*



Lima



Santiago



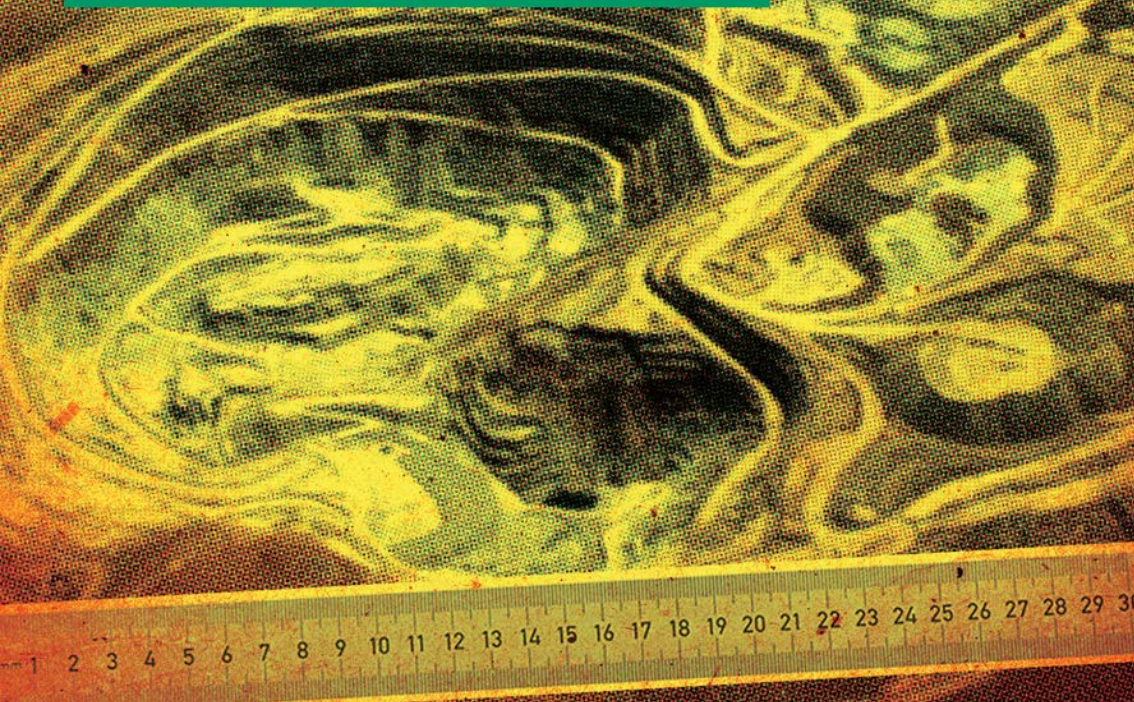
Caserones is the mine located at the highest altitude:  
4,600 meters above sea level.



ESCONDIDA MINE IS THE  
WORLD'S LARGEST COPPER  
PRODUCER IN THE WORLD.

**1,000,000**

METRIC TONS ANNUALLY.



# 1/3



of the copper in the world has already been processed.



In

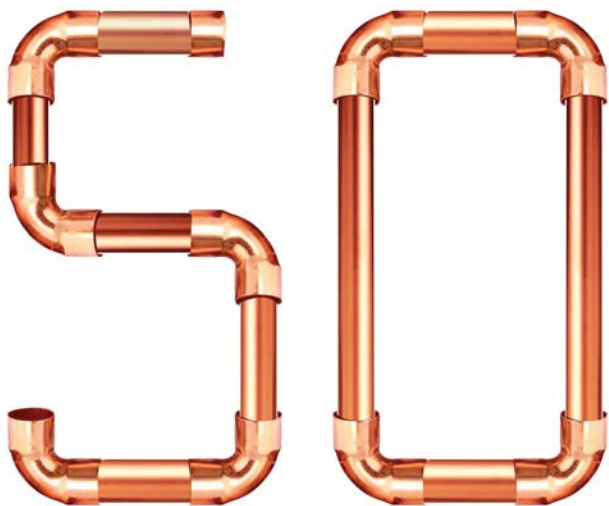
# 25

years,

we will have to  
produce the same  
as in the last 100  
years due to  
increasing  
consumption.



*Copper pipes in  
buildings can last*



*years.*

The Ministry of Mining was  
founded in 1953.





*San Lorenzo, patron saint of mining,  
is celebrated on August 10<sup>th</sup>.*



*Compromiso Minero is a network created in 2021 to work hand in hand with other organizations in order to promote knowledge, dialogue, innovation, gender equality, and sustainable development of the mining industry to increase and expand our contribution to Chile.*

*More than*



*Universities*



*Regional  
associations*



*Professional groups*



*Entrepreneurs*



*ONG's*



*Providers*



*Startups*



*Business  
associations*



*Study  
Centers*

*organizations of the entire mining ecosystem  
are part of Compromiso Minero.*



UNION WORKERS:  
OVER 70%.



A mining project in Chile has a tax burden of 38.4%, a similar level to that of benchmark countries.

Australia



Canada

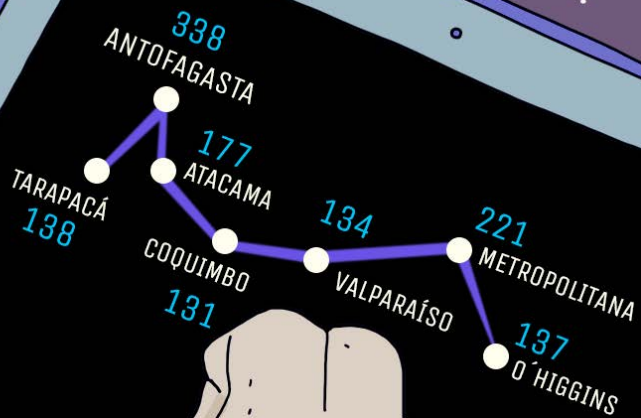


Perú





How many technology  
companies supplying mining  
operate in the north-central  
zone of Chile?





More than

500

companies supplying the  
mining industry export more  
than 500 million dollars  
a year.

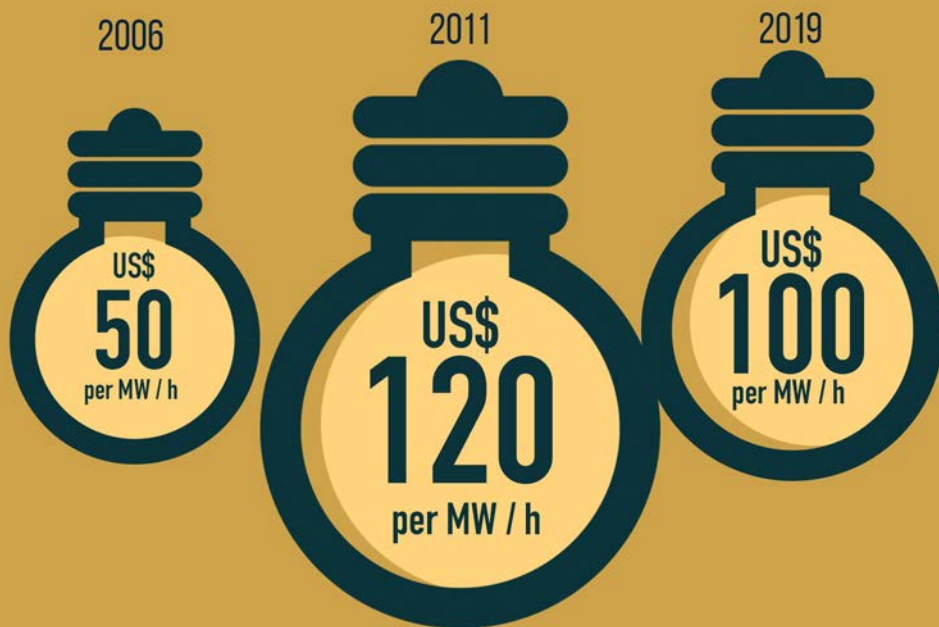


OVER

**3,500**

**CHILEAN COMPANIES**

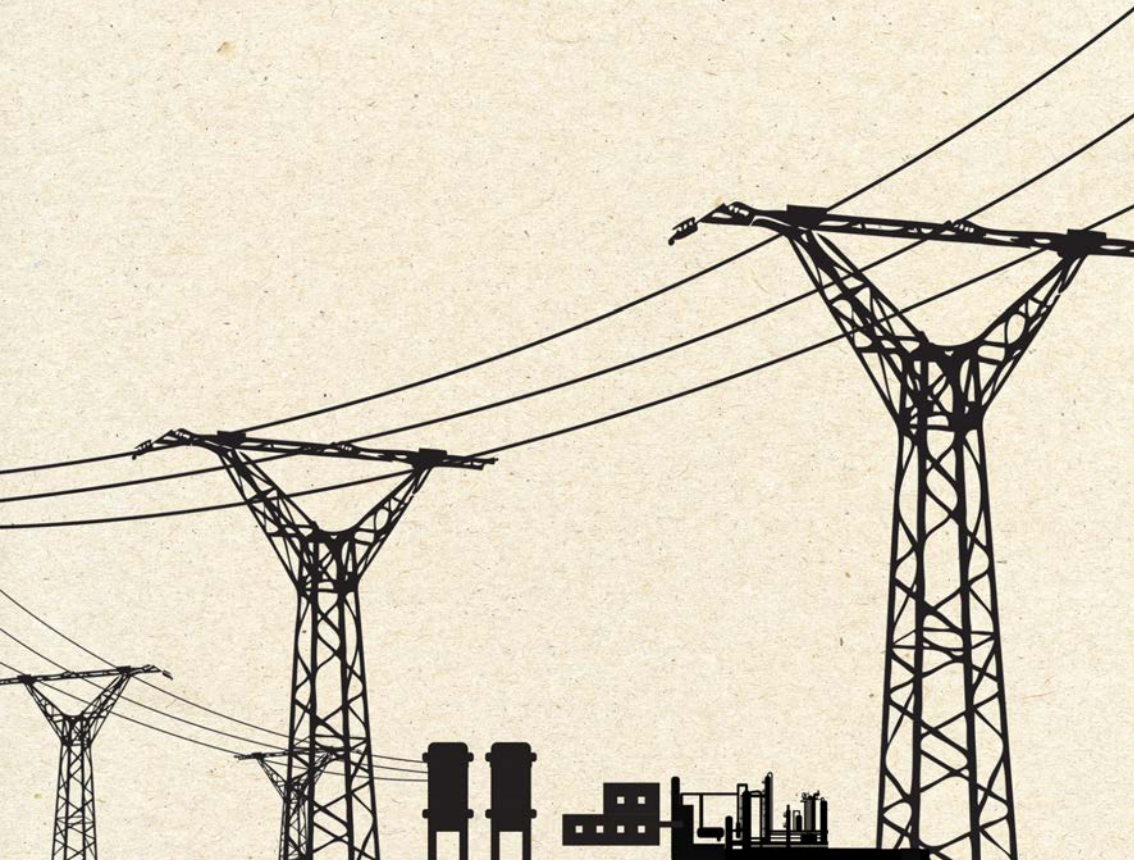
**ARE MINING  
SUPPLIERS.**



Evolution of electricity costs for the mining industry.



Electricity consumption in mining has been steady  
at  $\frac{1}{3}$  of the country total.

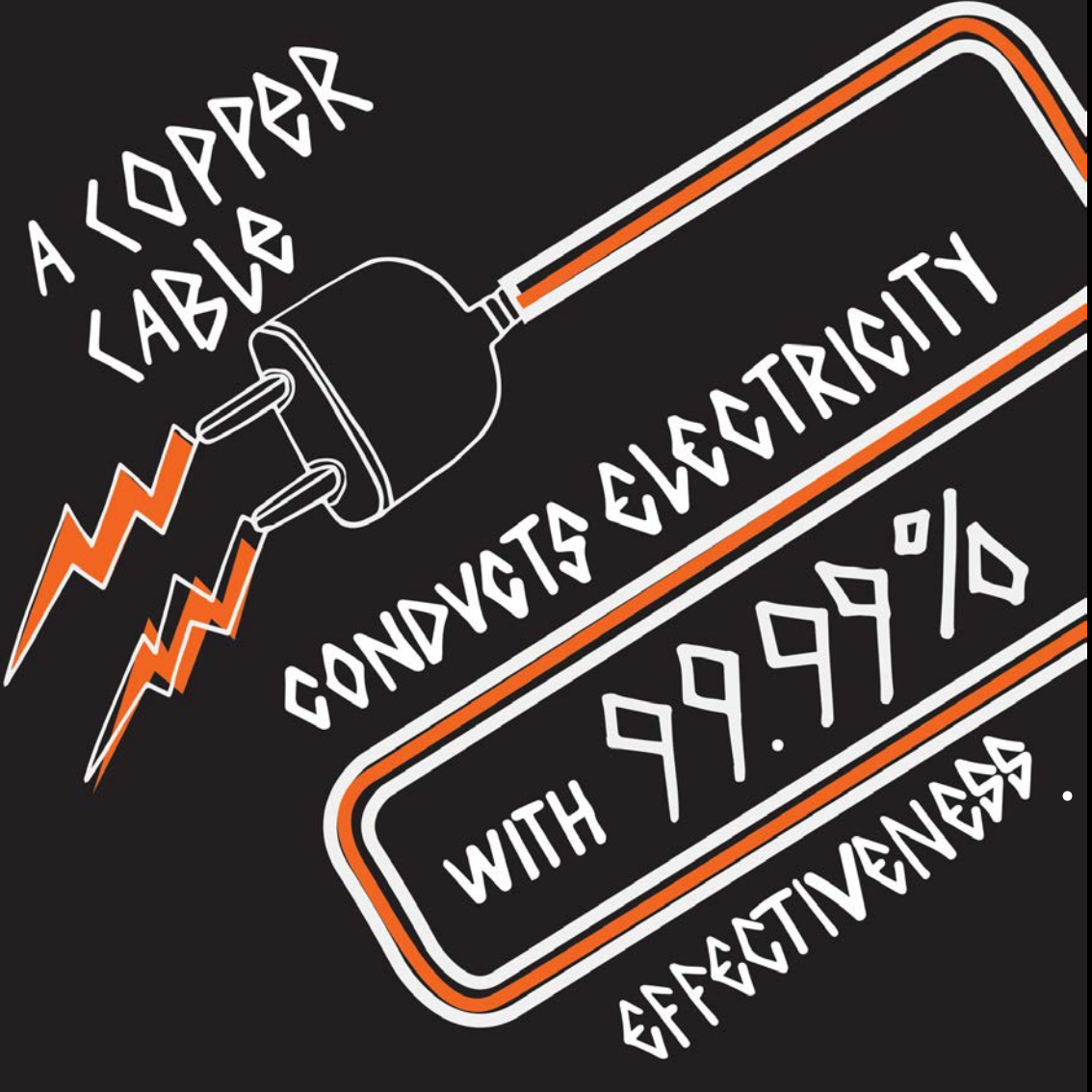




It is estimated that,  
BY 2023

50  
of the mining industry's  
electricity supply will come  
from clean sources.

%



A COPPER  
CABLE

CONDUCTS ELECTRICITY

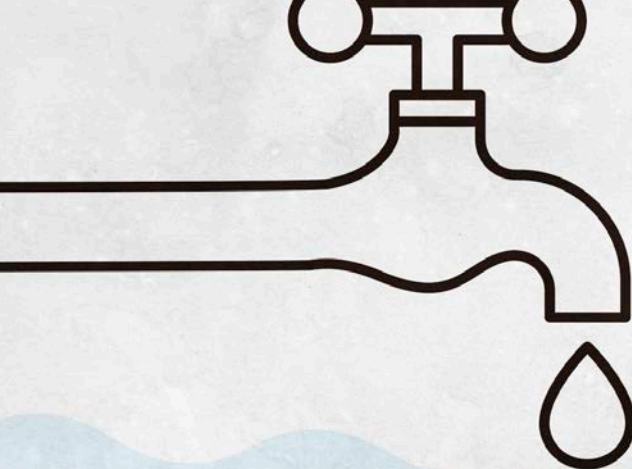
WITH 99.99%

EFFECTIVENESS.

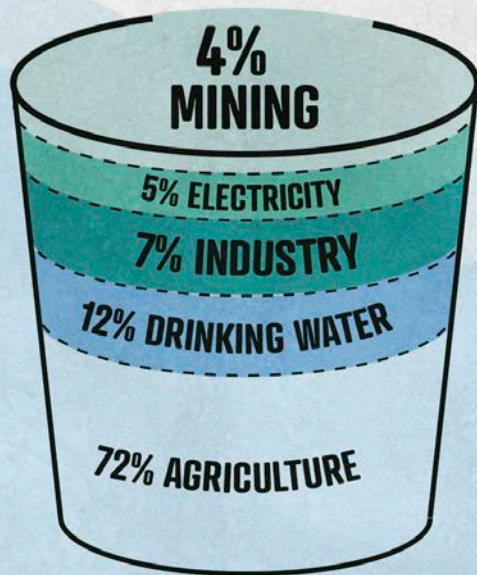


Copper carries up to 8 times more heat  
than other materials.

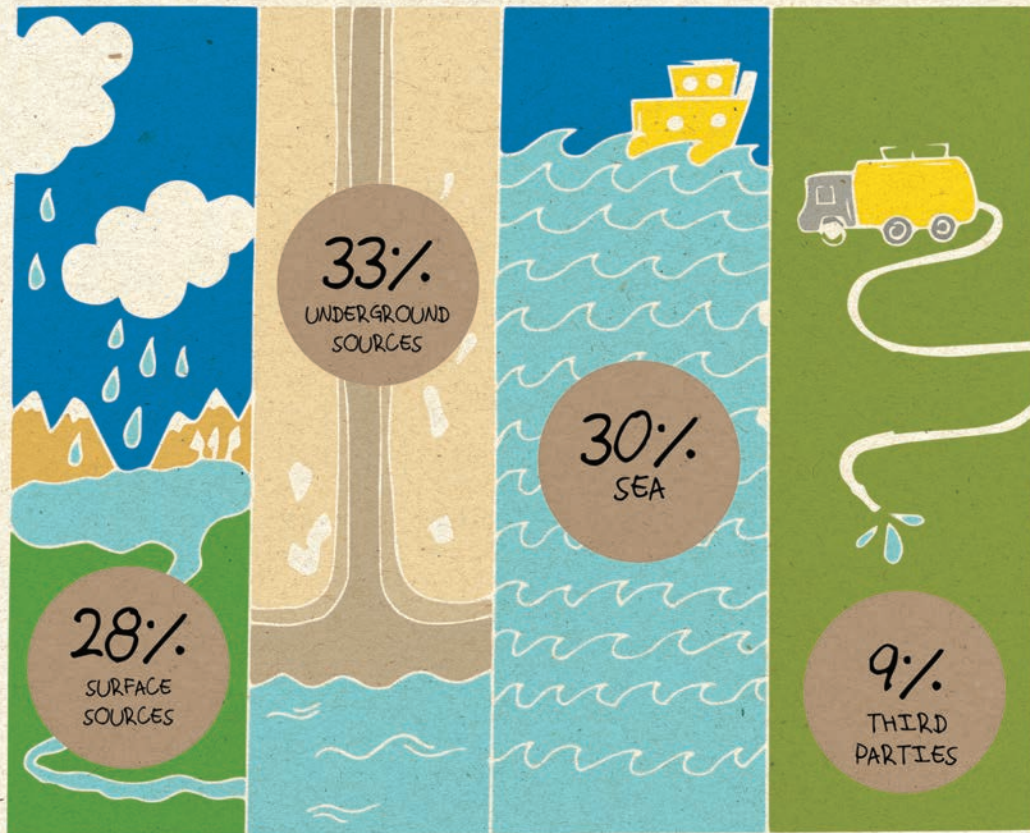


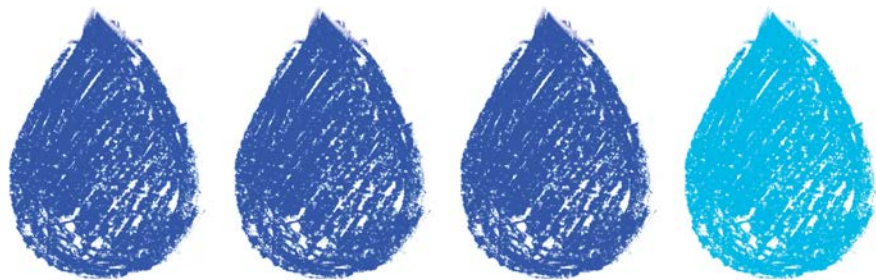


**Water consumption**  
by economic sector



The water supply of mining comes from:





$\frac{1}{4}$   
new  
water

$\frac{3}{4}$

OF THE WATER USED IN  
MINING PROCESSES  
IS RECIRCULATED WATER.

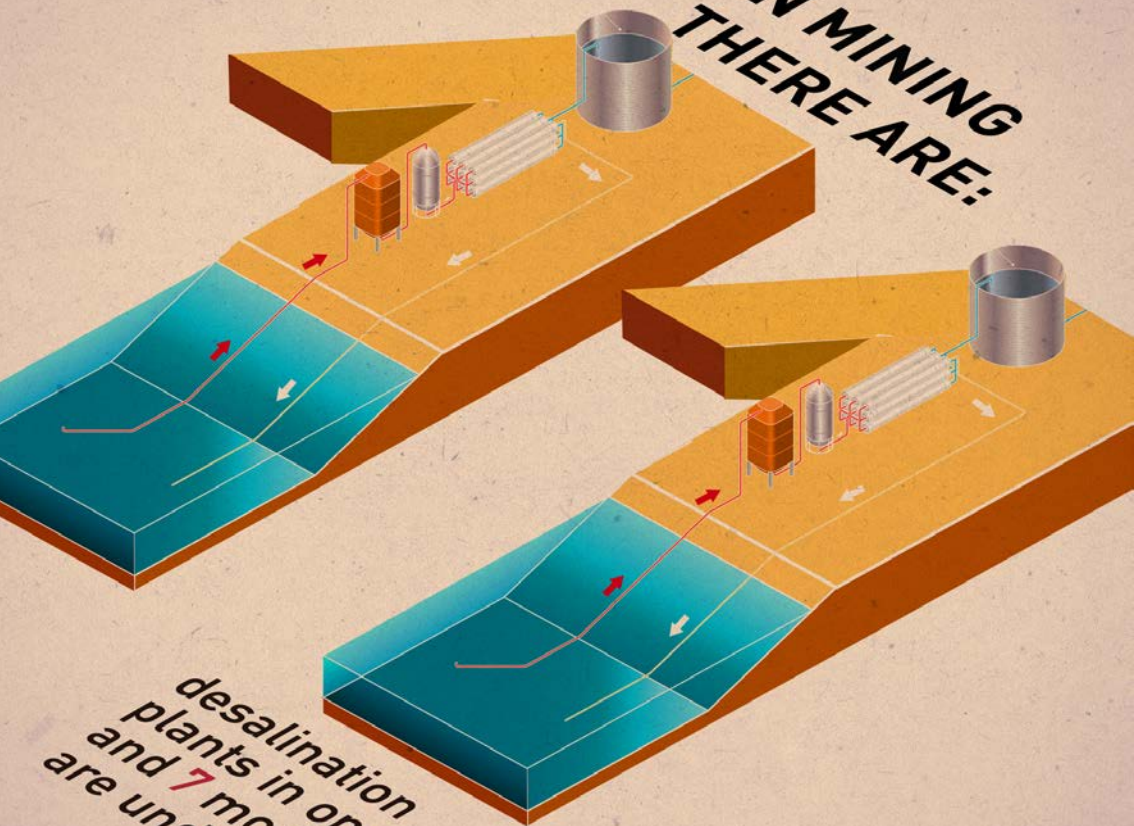


Today 30% of mining's water consumption comes from sea water, whether desalinated or not, and by 2029 this consumption will reach 50%.

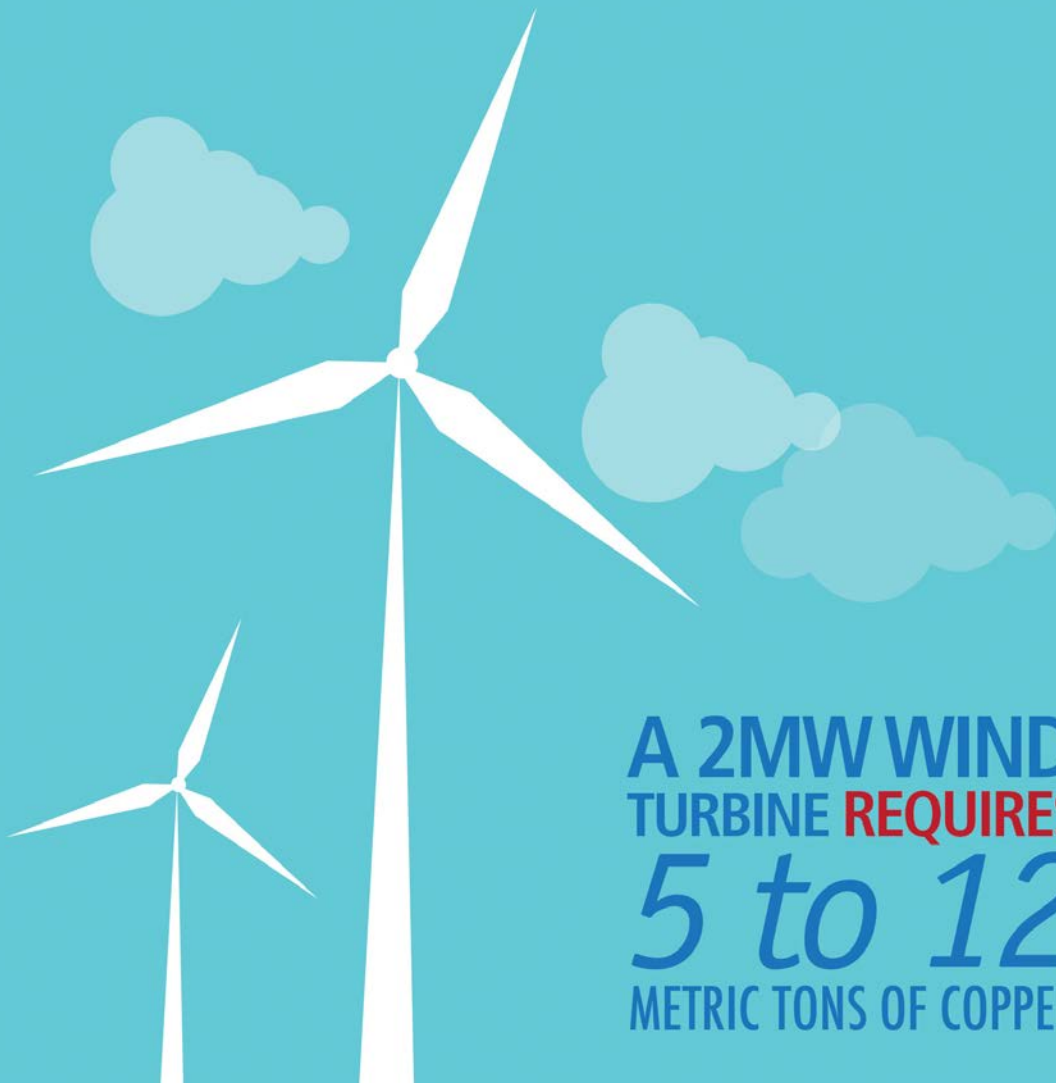




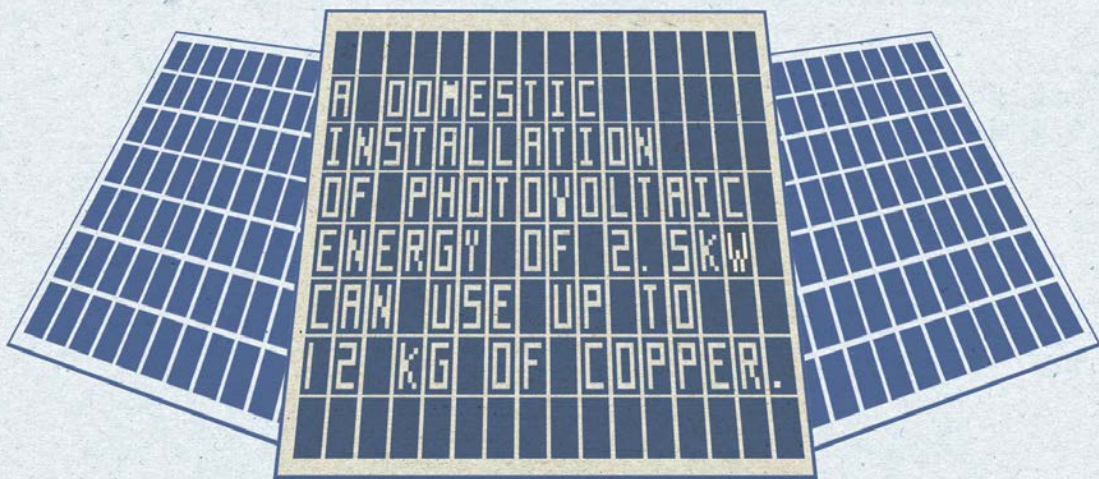
IN MINING  
THERE ARE:



desalination  
plants in operation  
and 7 more  
are under project.

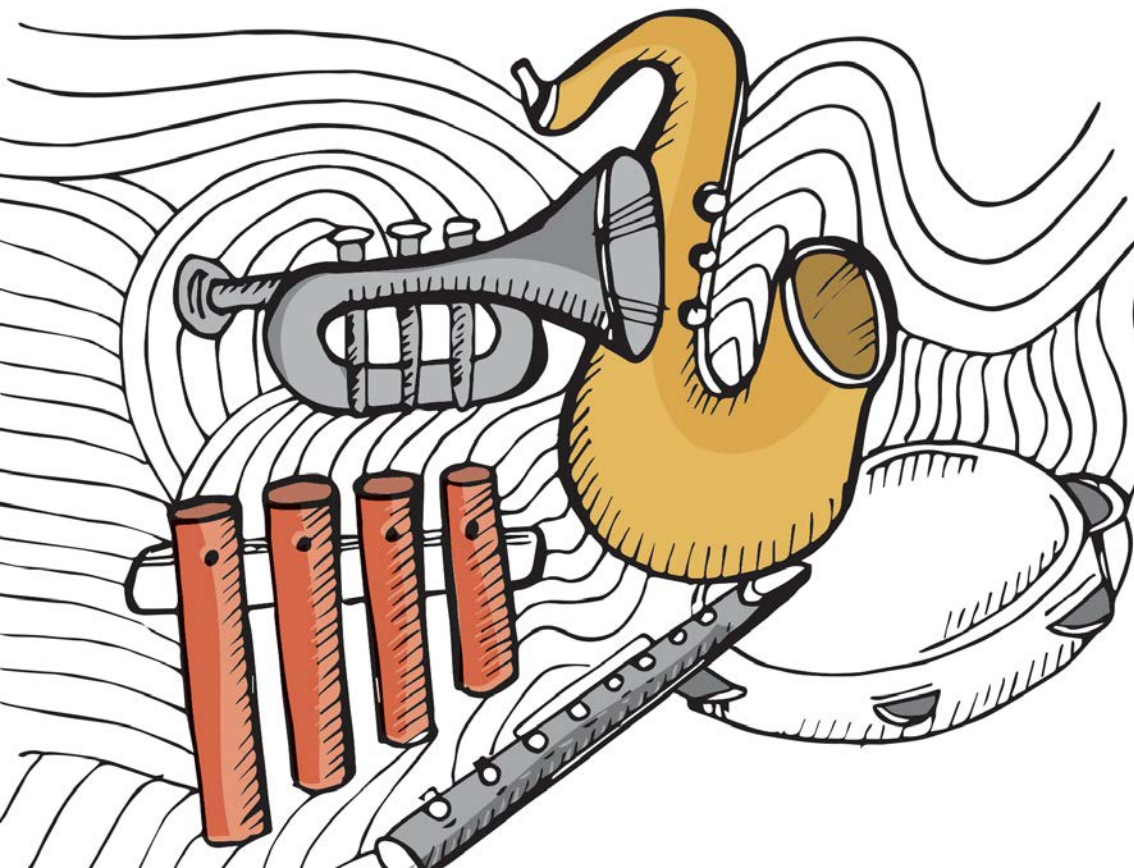


A 2MW WIND  
TURBINE **REQUIRES**  
*5 to 12*  
METRIC TONS OF COPPER.





*Most of the 80 instruments that make up a symphony orchestra use copper, brass and bronze as raw material to be elaborated, offering a great musical resonance.*





A modern house has **200 KG**

of  
≡

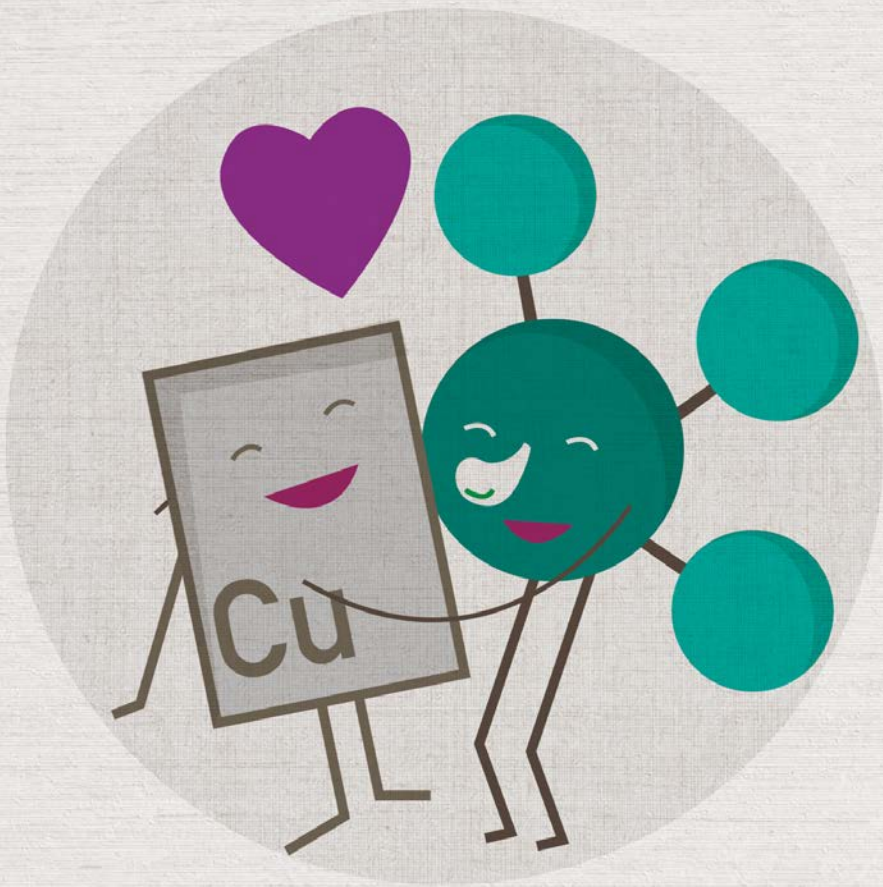


**twice as much as 40 years ago.** We can find it in our toilets, electrical appliances, telephones, and computers.

TO PRODUCE  
A MOBILE  
PHONE



ARE NEEDED.



There are at least 12 enzymes that need copper to perform their functions in the human body.

According to a study by the New England Journal of Medicine,  
**the time that Coronavirus survives on different  
surfaces is:**





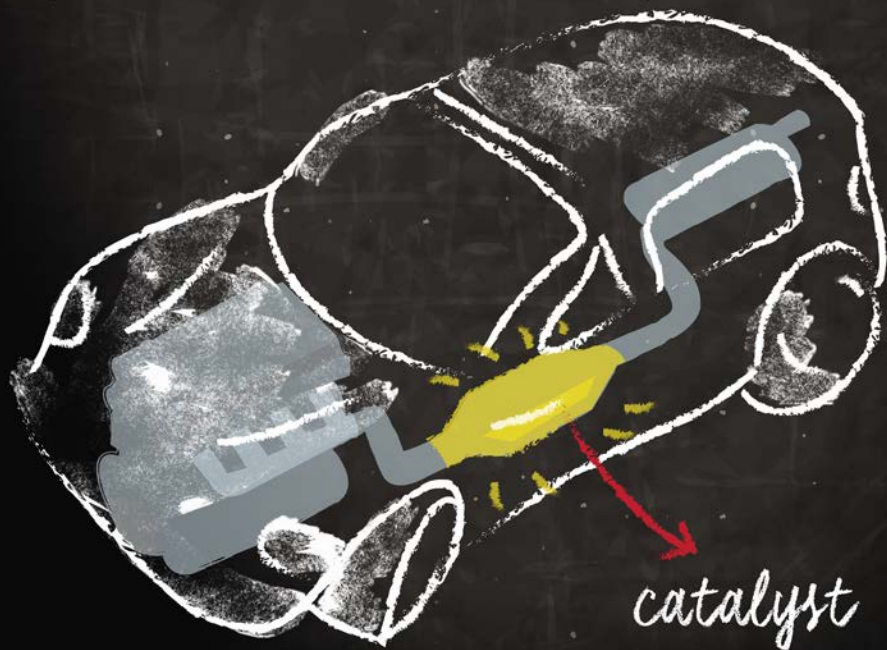
An illustration of a surgical room. A white surgical light fixture with five yellow circular lights is mounted on a stand. A green cone of light from the fixture illuminates a brown surgical table. On the table, there are several white line-art icons of surgical instruments: a syringe, a scalpel, a pair of scissors, a pair of forceps, a pair of long-handled scissors, and another pair of forceps. The background is a solid light blue.

Being antimicrobial, copper  
manages to reduce hospital  
infections by up to **58%.**

*In Chile **3** hospitals have incorporated copper in their facilities to reduce infections.*



The use of gold in catalytic converters helps reduce polluting emissions by 30%.

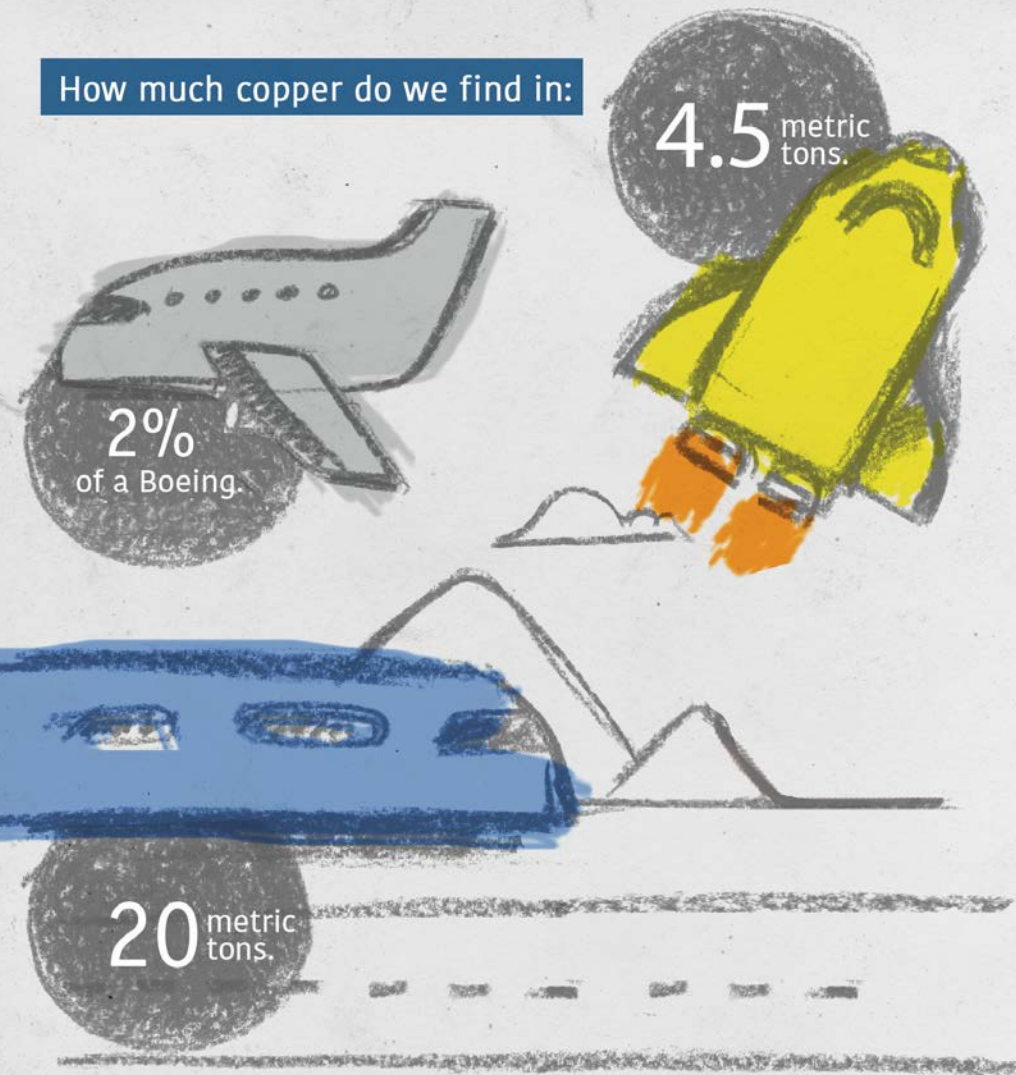


How much copper do we find in:

4.5 metric tons.

2%  
of a Boeing.

20 metric tons.





CONVENTIONAL  AUTOMOBILE

C H I L E

23

KG OF COPPER

HYBRID  
AUTOMOBILE

C H I L E

 40

KG OF COPPER

ELECTRIC  
AUTOMOBILE

C H I L E

 83

KG OF COPPER

ELECTRIC  BUS

C H I L E

369

KG OF COPPER

IN LARGE-SCALE MINING  
IN CHILE,



**hours of training are carried  
out per year**, which is  
equivalent to each worker  
being trained an average of  
24.9 hours per year.



**ABOUT 49%  
OF GOLD IS  
CONVERTED INTO JEWELLERY.  
(THE MOST COMMON USE OF THIS METAL).**



IS CONTAINED IN AN OLYMPIC MEDAL.





The figures in this book were obtained from the most recent information available at the time of its edition (March 2022). In cases where we considered that the most recent figure was not representative of the reality of the industry, the average of the last five available periods was used.



20

COMPANIES

Which are part of the following 16 mining groups:



**BARRICK**

**BHP**



GLENCORE



lundin mining

RioTinto

Teck

.....

# MAP OF LARGE-SCALE MINING IN CHILE

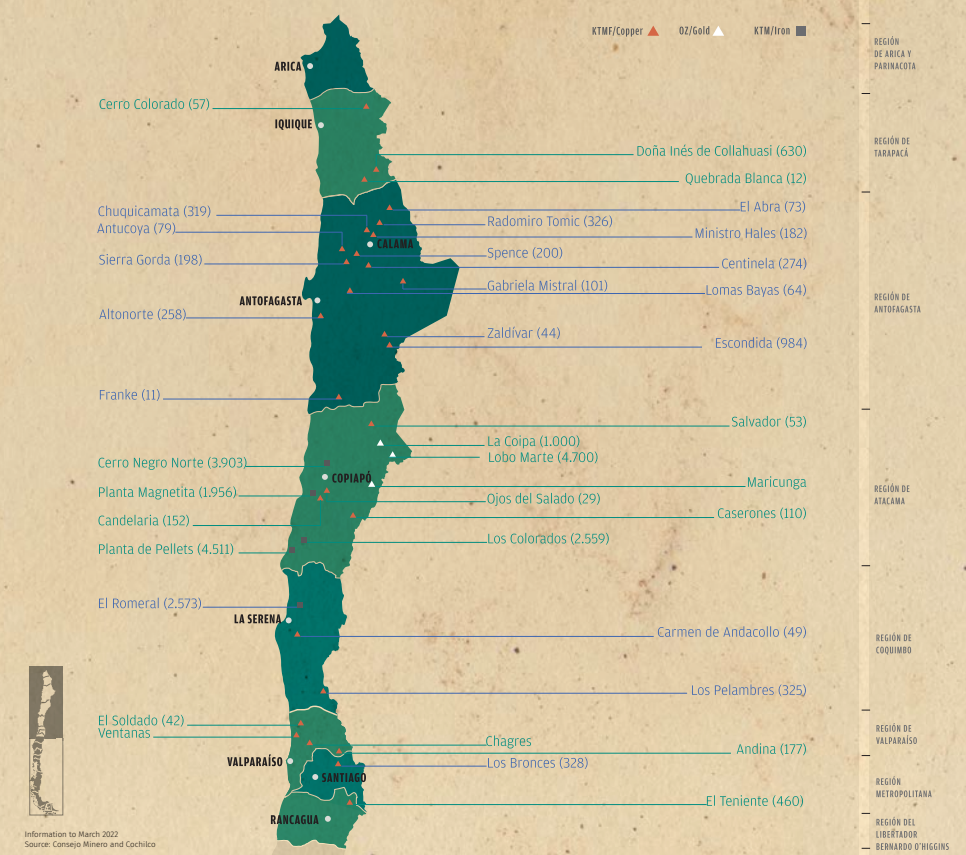
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Information to March 2022  
Source: Consejo Minero.



# COPPER, GOLD AND IRON



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