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El futuro es de todos Minenergia







El futuro es de todos

Minenergia

Mining sector institutional framework in Colombia



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Responsible for the National Mining Policy

Vice Ministry of Mines



Mining Authority and Mining Resources Manager

NATIONAL MINING

AGENCY



Sectoral Planning and Market Monitoring



Geological Knowledge and Monitoring of Geological Threats



GOBERNACIÓN DE ANTIOQUIA República de Colombia

Delegated mining authority in the province of Antioquia



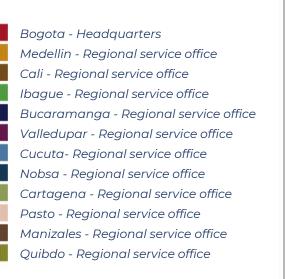
About the National Mining Agency

Main functions Article 4 Decree 4134 / 2011 Management of national mineral resources. Hold, manage and audit concession and mining rights for exploration and development of minerals. Management of the national mining registry. Calculate, collect, manage and transfer royalties and compensations.

Regional presence

5

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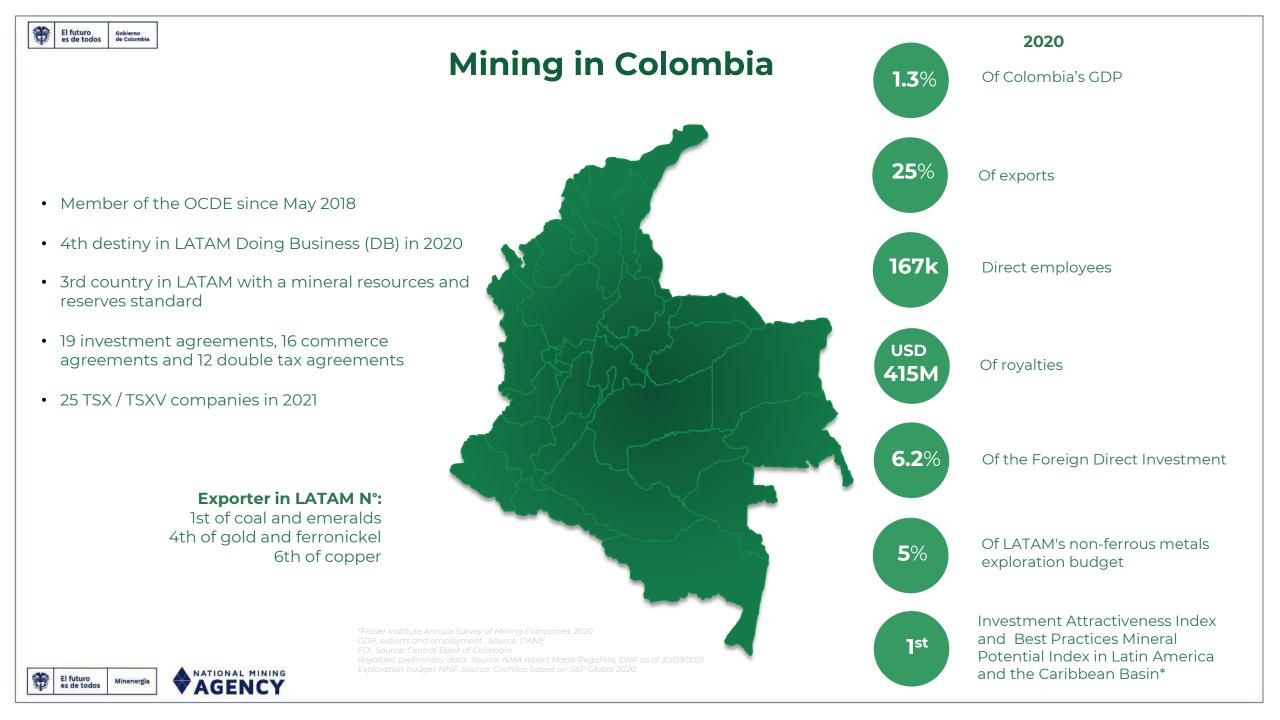


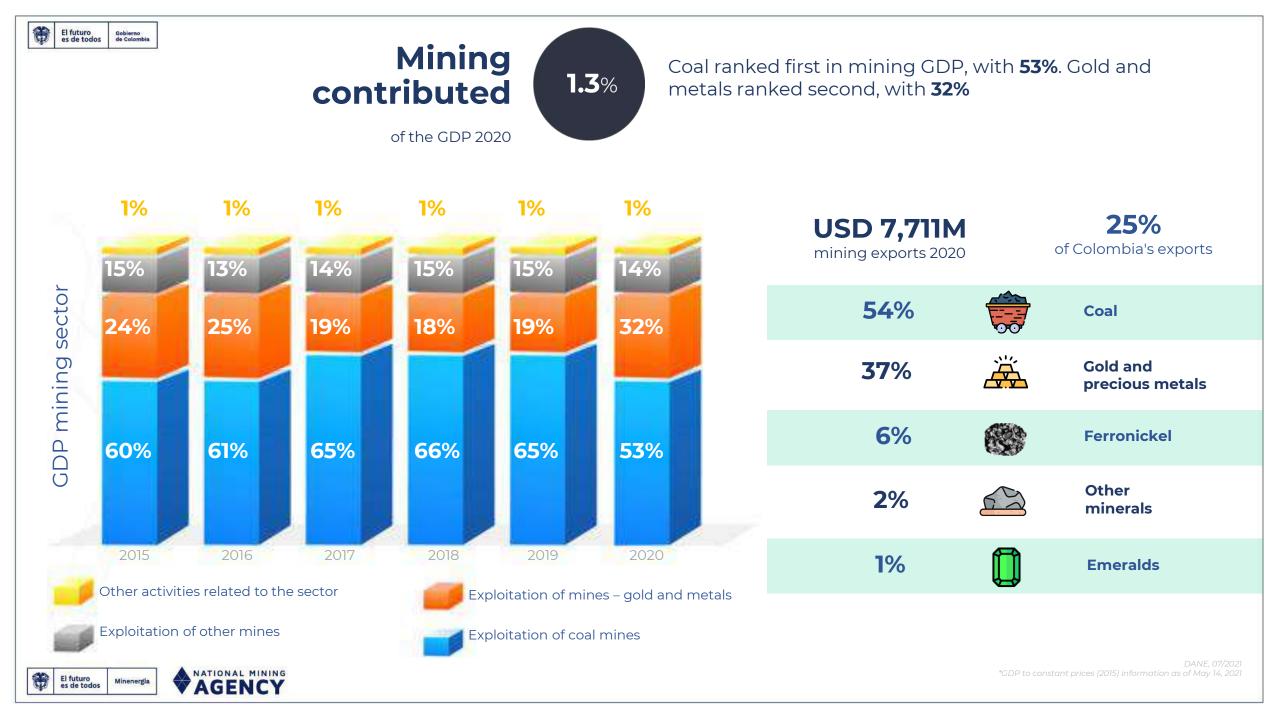
Mining safety and rescue stations

💶 Ubate	🔁 Amaga	🔹 Jamundi	
👍 Marmato	Bucaramanga		
Remedios	7 Cucuta	🖲 Nobsa	

Promote and encourage development of mining.

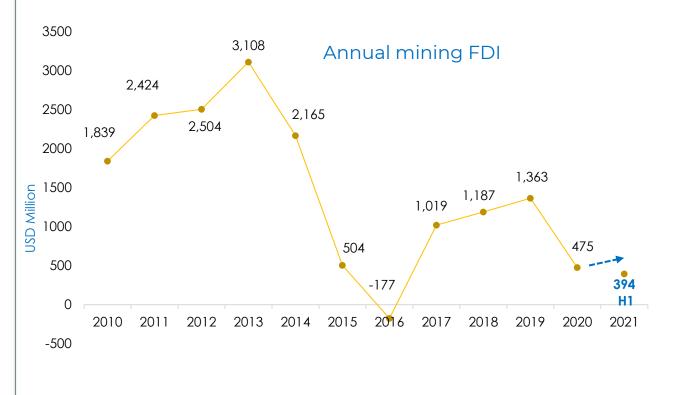








Foreign direct investment in mining



-FDI MINING

In 2020, mining sector accounted for 6.2 of the total FDI in Colombia, reaching

USD 475 Million

Global Nonferrous Exploration Budget 2020

USD 8.3 billion

25% LATAM with more than USD 2.06 billion



52% of Budget destined to gold exploration



23% of the Budget destined to copper exploration

Colombia

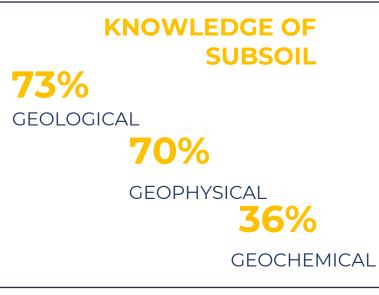
In **2020, Colombia accounted for 5%** or more than **USD 103 million** of LATAM's exploration budget



Source: Central Bank of Colombia 02/09/2021, S&P Global Market Intelligence – World exploration trends 2021, Cochilco based on S&P Global



Potential mineral areas



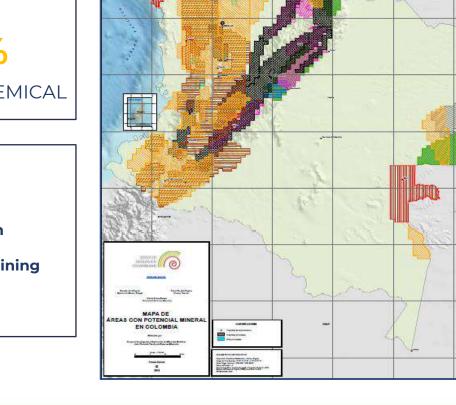
FOCUS

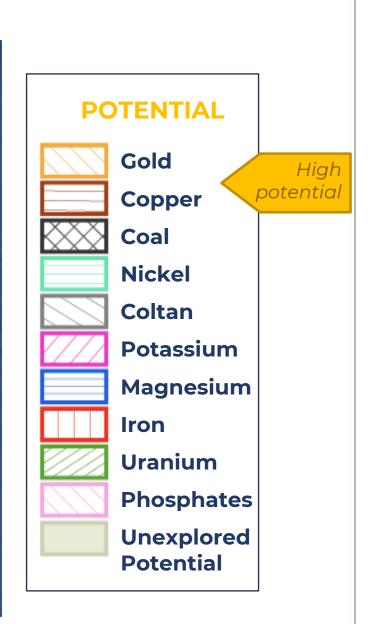
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- Increase mineral production.
- Diversifying the mining production matrix - "copper and phosphates".
- Raising the levels of formality of mining activity with the best practices of informal economies.

AGENCY





WAS POTENCIALES MINERALE

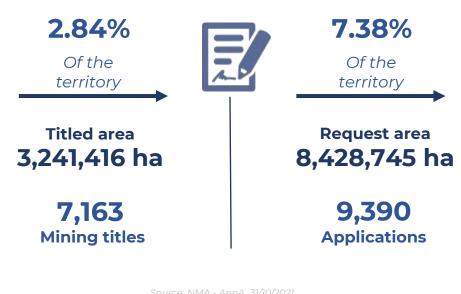
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"Mining activity in the 2.84% of the territory"

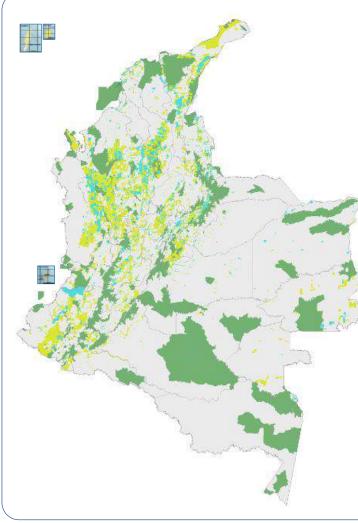
By contractual stage:

(Exploitation: 84.36%, Exploration: 11.32%, Construction and assembly: 4.30% and Advance technical evaluation 0.01%)



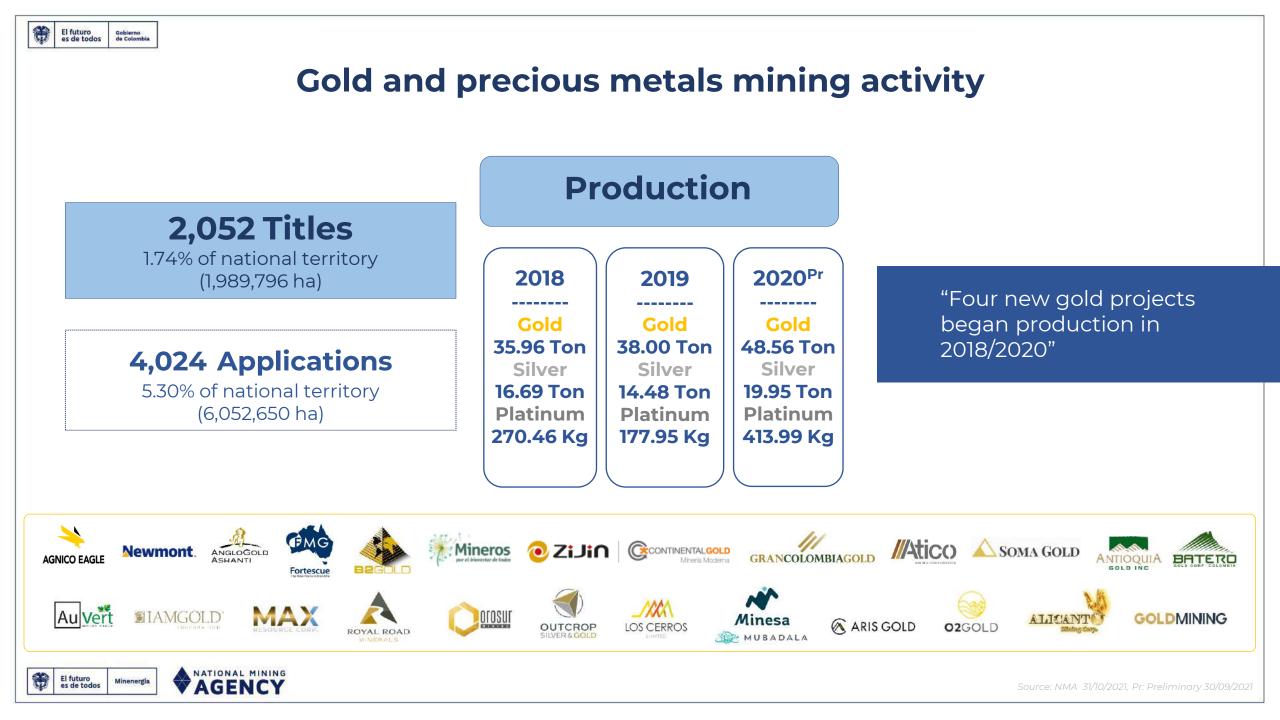
AGENCY

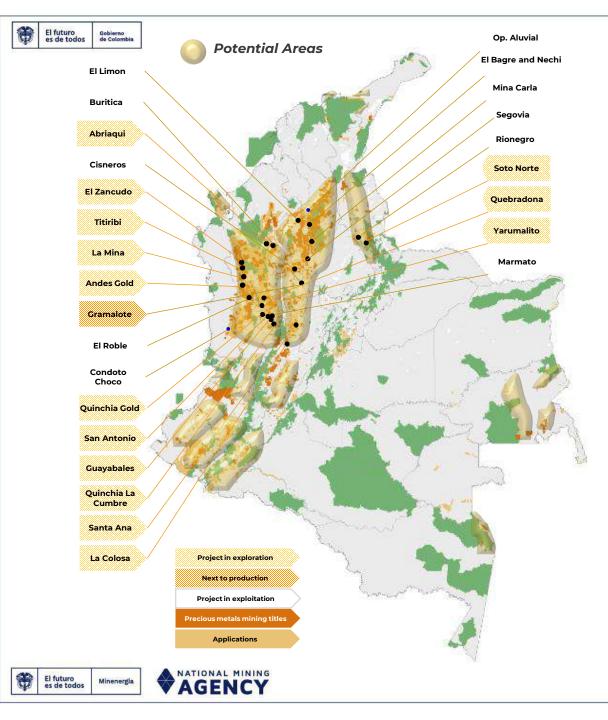
A country to explore



Mining title	s Ap	plications		
47 %	Construction materials	36 %		
29%	Gold and precious metals	42 %		
13%	Coal	9 %		
7%	Other minerals	5%		
3%	Emeralds	5%		
1%	Copper	3%		
Continental area: 114,174,800 ha				
20%	Excludable areas 22,940,138 ha			

"Colombia has territory susceptible to exploration"





Gold and precious metals mining activity

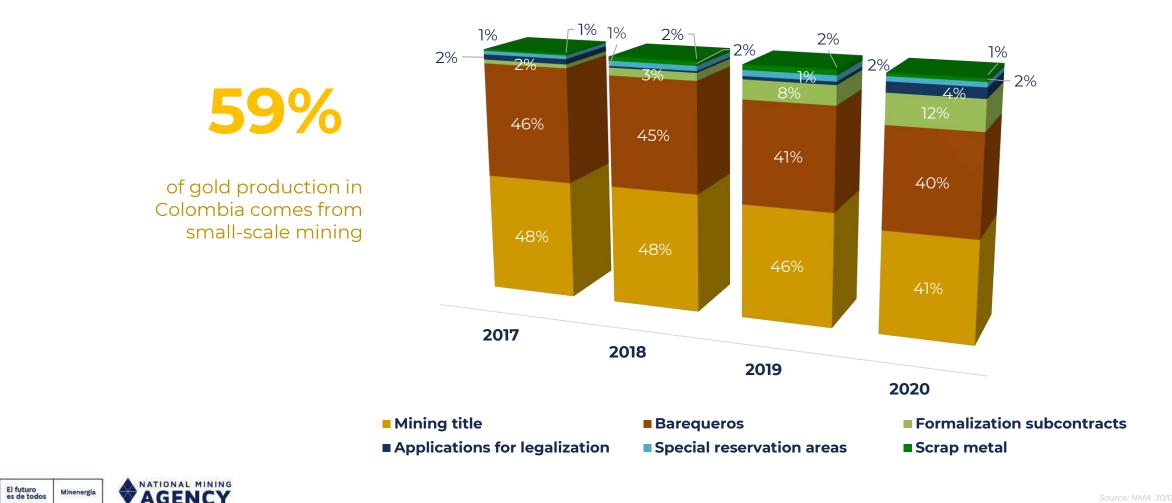
Gold deposits are clustered in districts associated with metallogenic belts in the provinces of **Antioquia, Santander, Tolima, Huila, Caldas, Nariño, Cauca and Bolivar.** Deposits are also found along the Pacific coast, which are formed by the erosion of the western branches of the Andes mountain chain. With an average tenor between **0.7 g/t y 10.4 g/t Au** in probable reserves.

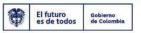
Much of Colombia's platinum comes from alluvial deposits, which are mostly located in the province of Choco.



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Gold production by type of authorized 41% Mining title





Gold MINERAL RESOURCES AND RESERVES

Mineral resources and reserves in **17 main gold projects** according to International Information Standards **(Moz)**



54.1

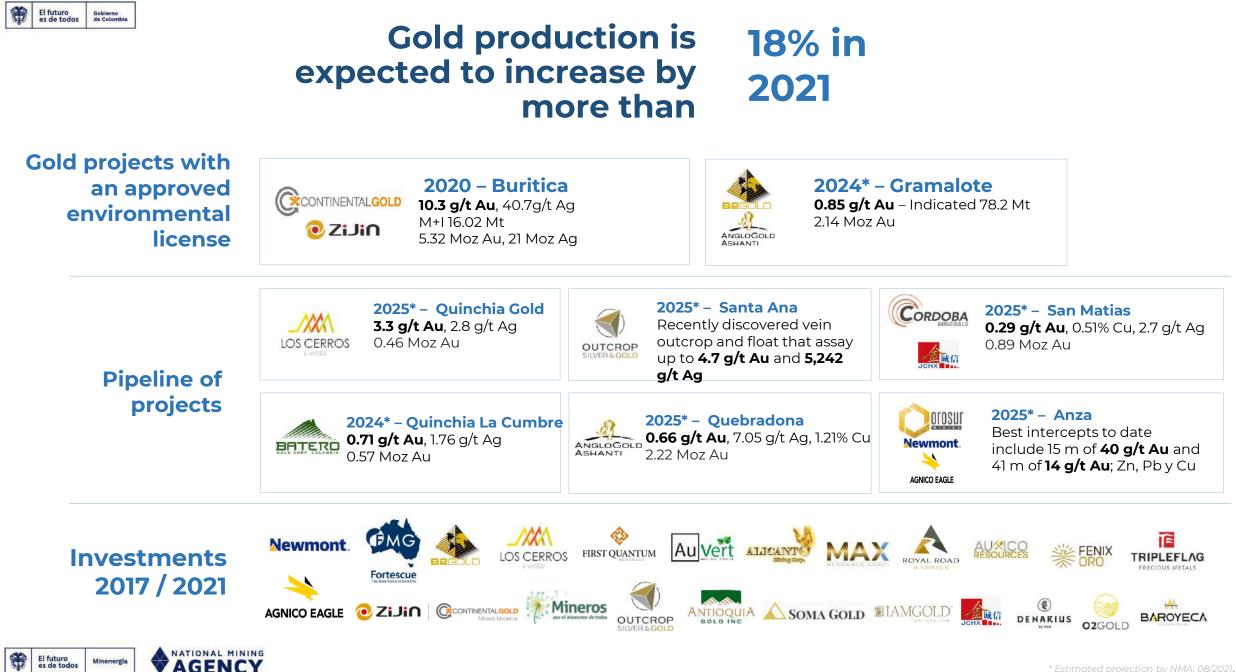
Source: Resources and reserves projects reports including Buritica, Cisneros, El Roble, Gramalote, La Colosa, La Mina, Marmato, Op. Aluvial, Op. Subterranea, Quebradona, Quinchia, Quinchia Gold, San Matias, Segovia, Soto Norte, Titiribi and Yarumalito projects. Calculation NMA June 2020.

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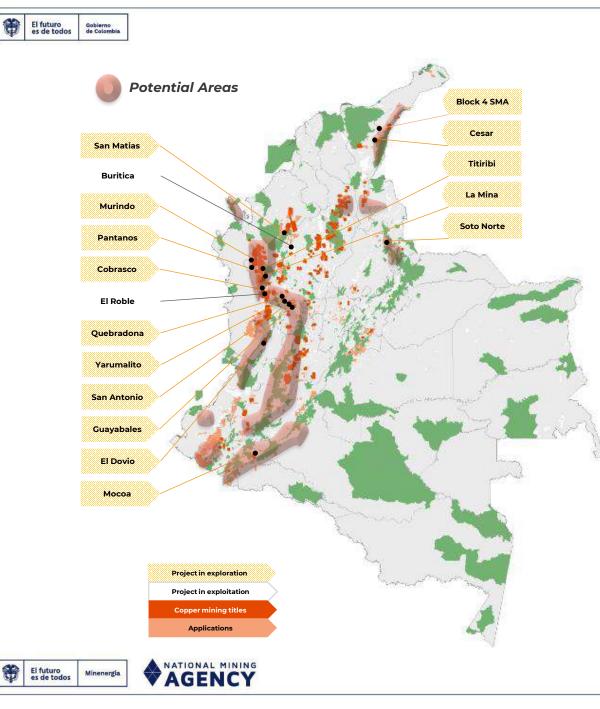




In Colombia, deposits with an average tenor between 1.25% and 2.51% Cu in Probable Reserves are explored and exploited







Copper mining activity

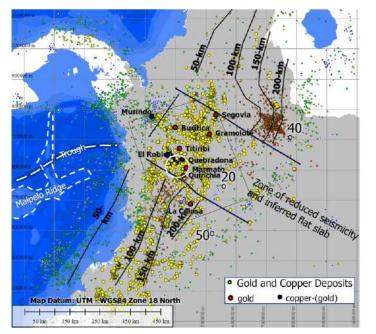
Colombia has **three (3) copper belts** where important prospects can be found:

Central: Quebradona, El Pisno, Piedrasentada-Dominical y

Mazamorras

Western: Acandi, Murindo, Pantanos-Pegadorcito, Andagueda y Piedrancha

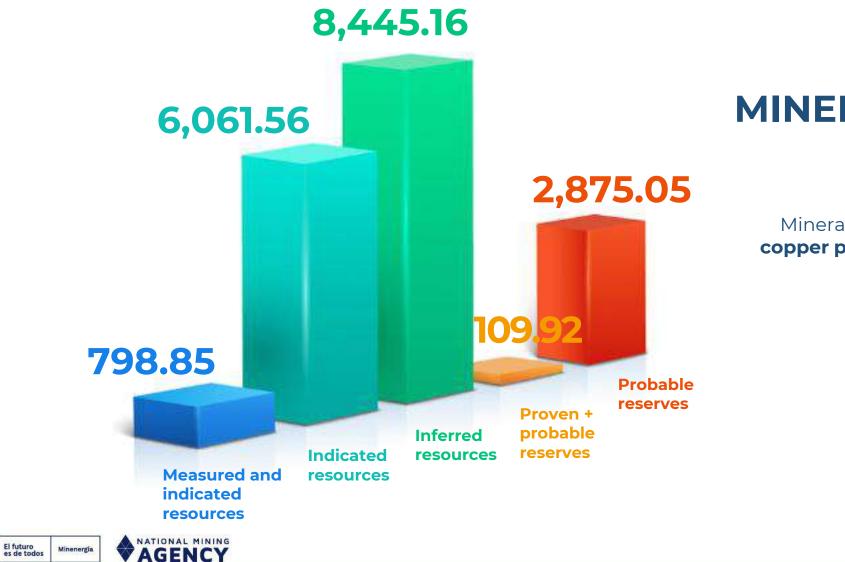
Eastern: Andes, Infierno-Chili, Dolores y Mocoa



Source: https://www.loscerros.com.au/site/PDF/f9fedd30-8b4e-4df8-bddb-b3ee3aa775df/MergerPresentation, Figure: Earthquake Hypocentres & Benioff Zone Contours.



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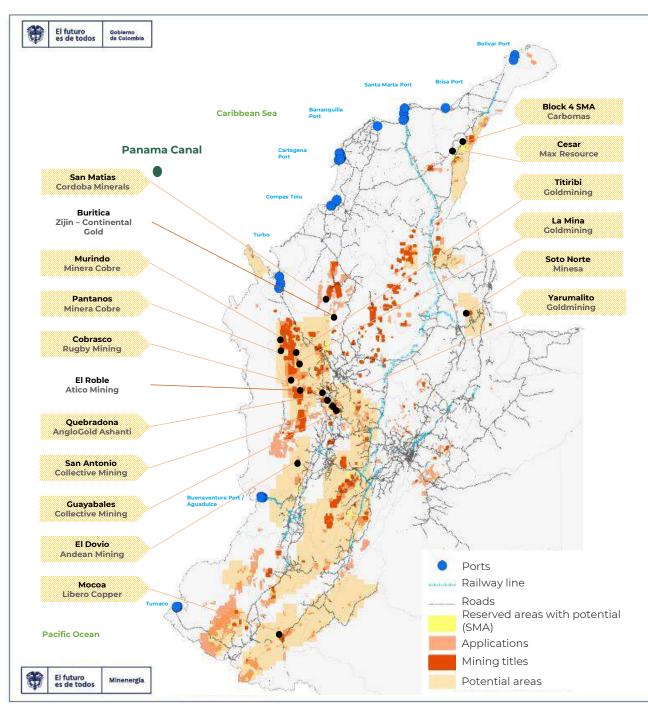


Copper MINERAL RESOURCES AND RESERVES

Mineral resources and reserves in **9 main** copper projects according to International Information Standards (MIbs)

> Resources and reserves projects reports including El Roble, Quebradona, San Matias, Soto Norte, La Mina ,Titiribi , Yarumalito, Mocoa y Cauca. Calculation NMA June 2020.





Rail, road and port infrastructure



Source: Ihttps://www.ani.gov.co/proyectos-de-infraestructuracarreteras

Roads

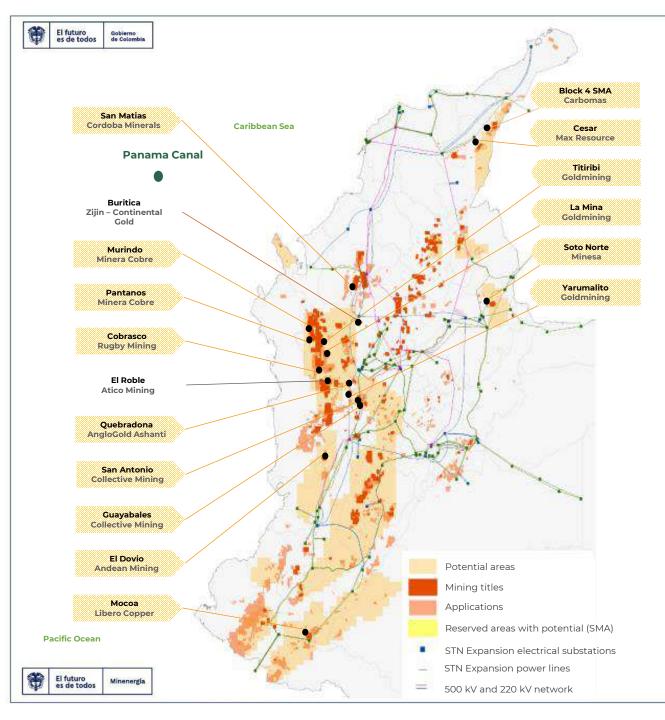
Fourth Generation (4G) public-private partnership infrastructure program have an estimated period of 25 years.

The 4G program estimates USD 17 billion investment to build over 4,400 miles of new roads, 141 tunnels, and 1,300 viaducts.

Most of the road projects were designed to expand the country's transport system and include more than 30 primary road improvements and construction projects.

As of March 31, 2021, the 4G road projects are 54.04% complete.

Many planned concession projects will link main ports with major cities to augment the current state of cargo transportation and lower the relatively high costs of shipping goods over land.



Electrical infrastructure

National Development Plan 2018 - 2022

"Energy Pact"

- Energy and mining development with environmental and productive responsibility
- ✓ Energy security for productive development

17,349 MW

11,846 MW Hydraulic **(68%)**

TODAY

5,326 MW Thermal (31%)

177 MW Unconventional (1%)

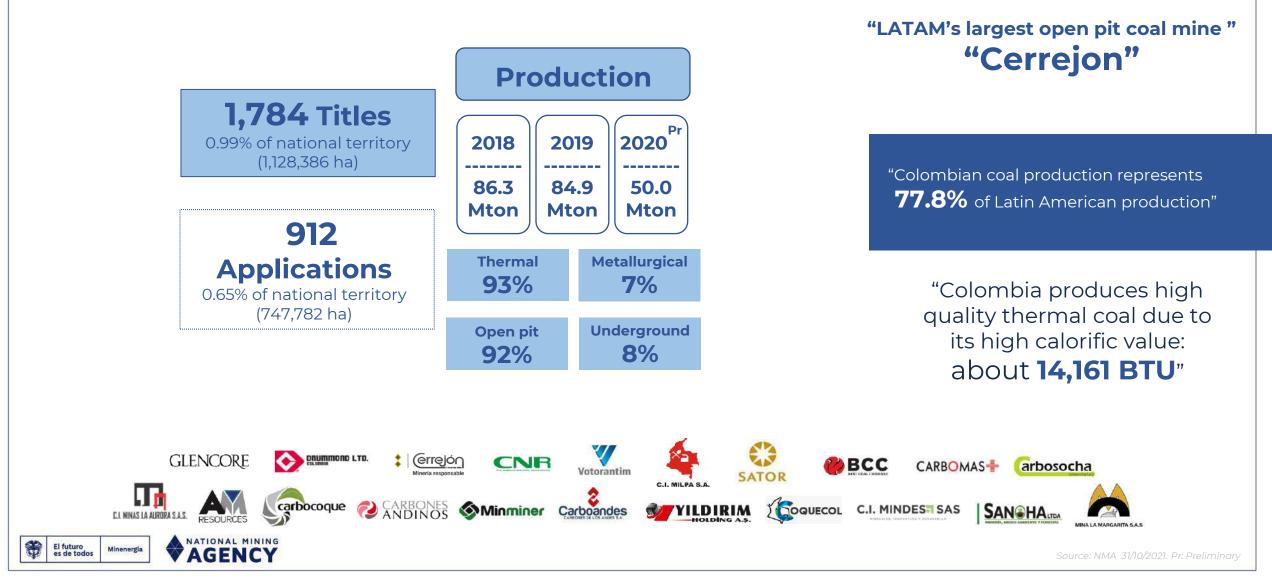
52% The demand for energy in Colombia will increase by 2033

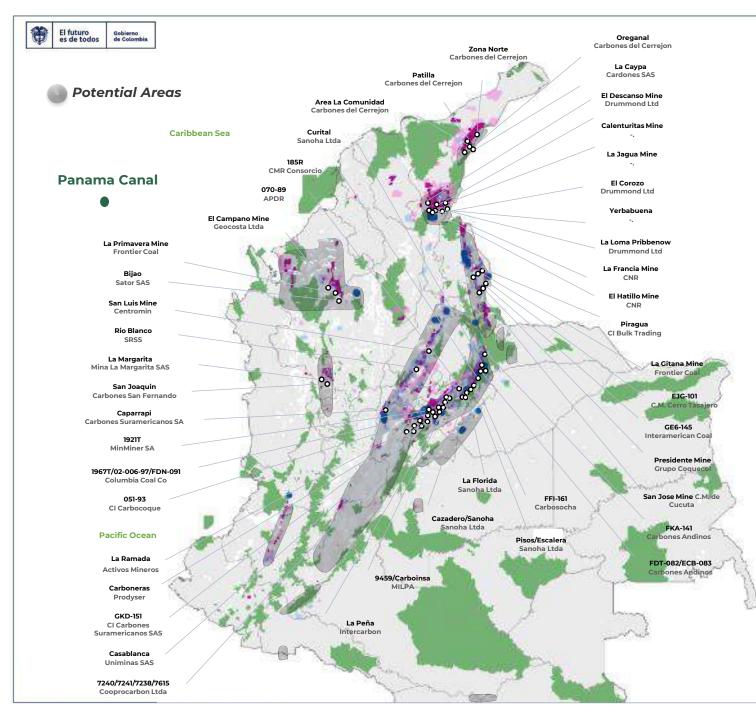
10% Of energy must be unconventional in Colombia by 2033

Source: https://www.acolgen.org.co/ 05/08/2023



Coal mining activity



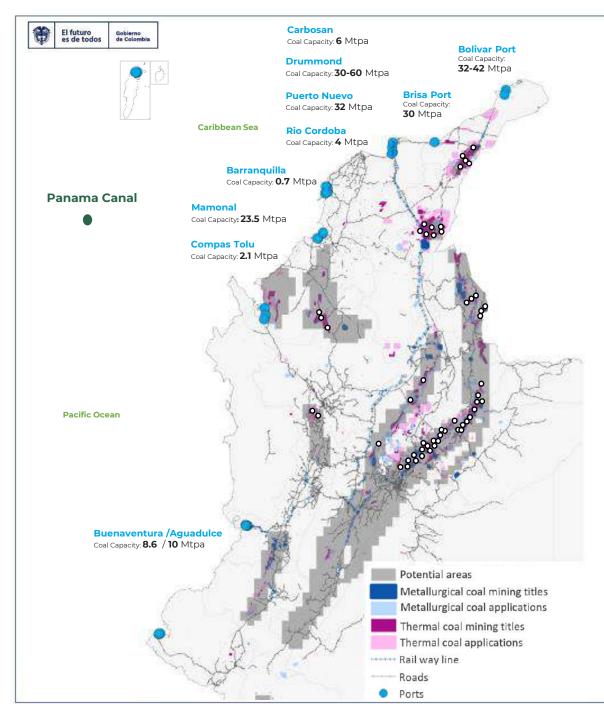


Coal mining activity

Colombia is the world's **fifth largest exporter** of coal with low ash content and low sulfur dioxide emissions and one of the largest coal **proved reserves** of anthracitic and bituminous coal in Latin America with a share of **46.6% (4,554 million tons)***



Colombia is the world's third largest coke exporter.



Rail, road and port infrastructure

Seaports:

Port's capacity and cargo: 444 million tons (Coal:141.5 Mtpa)

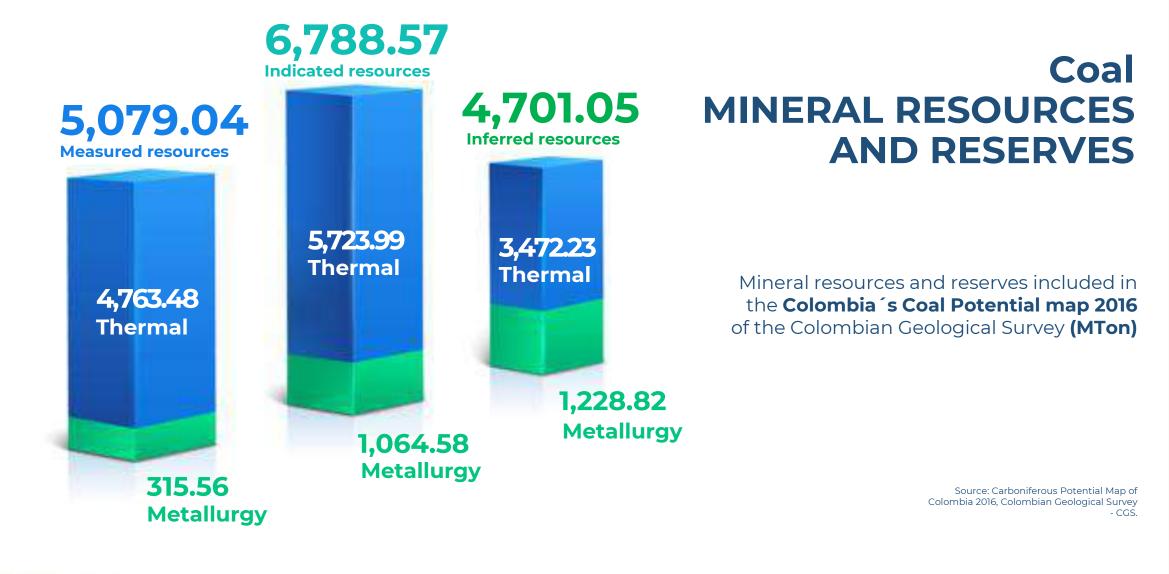
in 8 port areas with 61 port concessions.

Port operators in Buenaventura (Pacific), Cartagena, and Santa Marta (Caribbean) made significant investments that have introduced more efficiency and competitiveness. New terminals in Puerto Bahía (Cartagena), Puerto de Aguadulce (Buenaventura), and Puerto Cayao (Cartagena) began operations in recent years.

Rail:

Colombia has **1,500 miles** of narrow-gauge railroad, which is divided into four different systems managed either by concessions. Two mining companies own the two standard gauge lines, which are mostly used to transport coal from the mine to the seaport for export.





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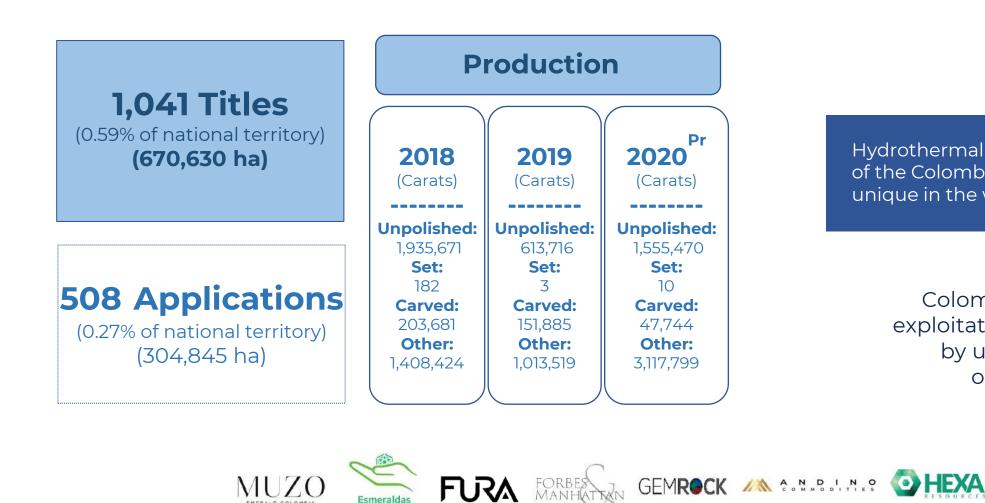
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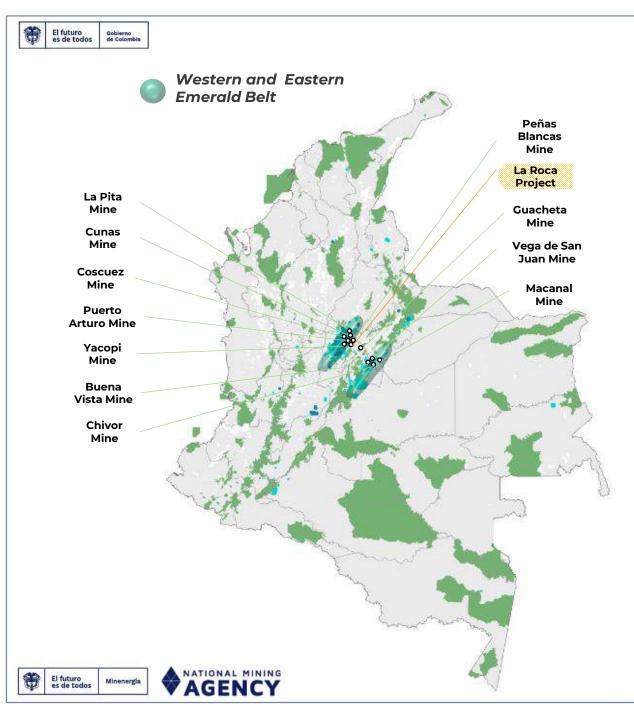
Emerald mining activity



Hydrothermal sedimentary origin of the Colombian emeralds is unique in the world

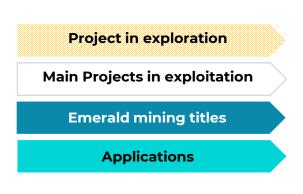
> Colombian emerald exploitation is carried out by underground operations

> > : NMA 31/10/2021. Pr: Preliminary 30/09/2021.

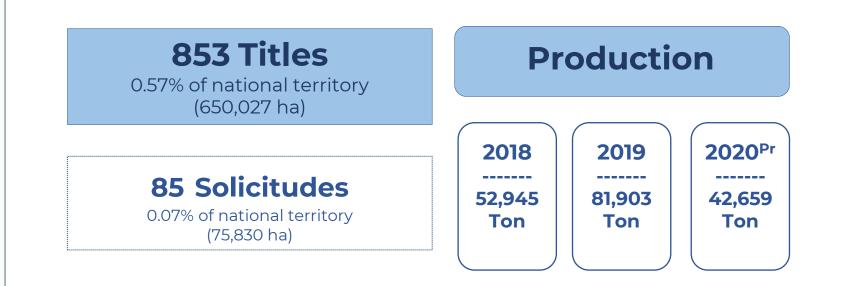


Emerald mining activity

Colombian emeralds are **number one in the world for quality,** due to their hydrothermal sedimentary origin that gives them a brightness, transparency, color, play of lights and optimal hardness.



Phosphate rock mining activity



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> "The production of Phosphate Rock or Phosphoric Rock is carried out in the departments of **Boyacá**, **Huila and Norte de Santander**, with more than 99% destined for domestic consumption"

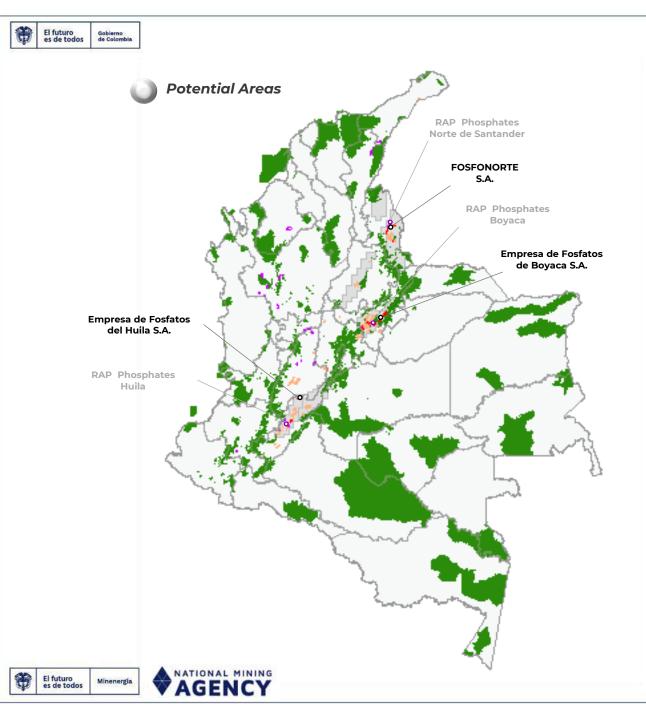


AGENCY





Source: NMA, 31/10/2021, Pr: Preliminary



Phosphate rock mining activity

Phosphorite deposits come from

phosphoric sandstones contained in marine origin of Cretaceous age, belonging to the Ermitaño and La Luna Formations, and the Olini and Guadalupe Groups.

The P₂O₅ (phosphorus oxide) content of these sandstones varies between 20% and 30%

Main Projects in exploitation

Reserved Areas with Potential

Phosphate rock mining titles

Applications

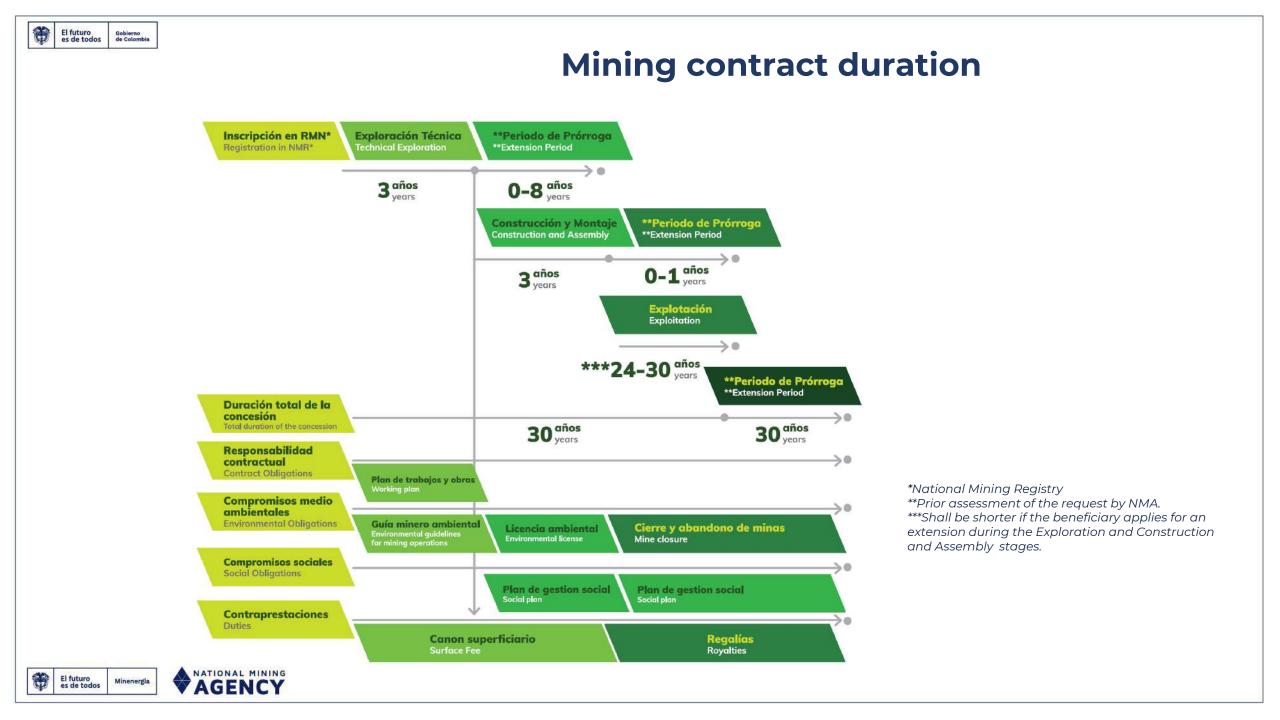


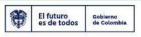




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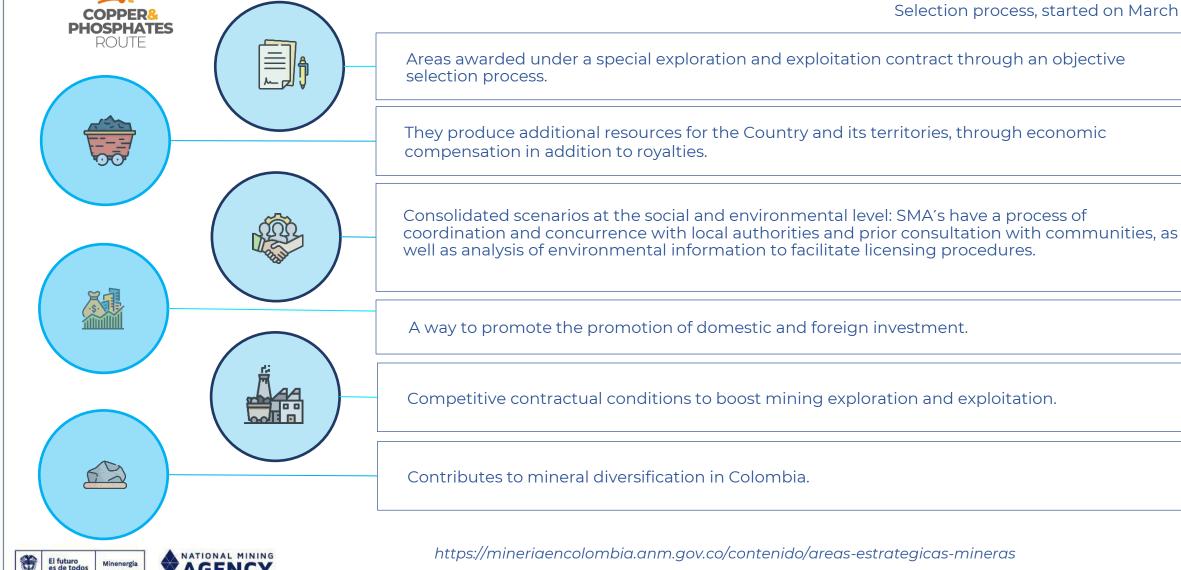
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Strategic Mining Reserve Areas

Selection process, started on March 2021



Areas offered in the 2021 mining round La Guajira and Cesar Departments

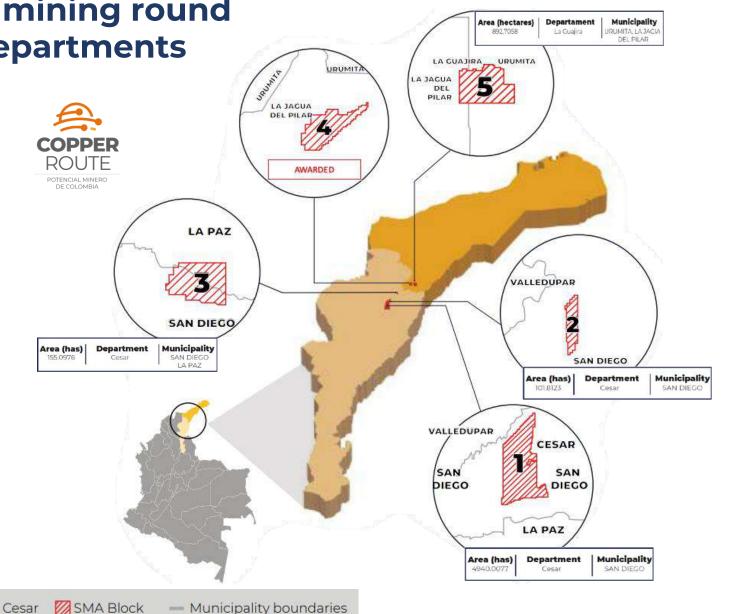
La Guajira

Five areas defined by the Colombian Geological Survey as having high potential for copper minerals

Block 4: **AWARDED** By Resolution 000655 Jun e 21, 2021.

By which the special contract for exploration and exploitation of minerals in Strategec Mining Reserve Areas for copper and poly metallic minerals – Block 4 is awarded to the company CARBOMAS SAS according to the terms of reference issued in Resolution 150 of March 18, 2021.

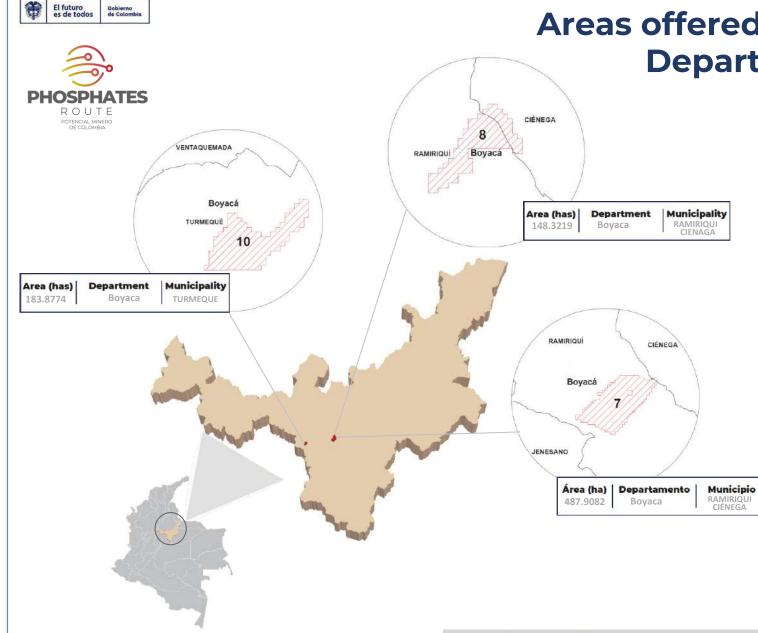
The special exploration and exploitation contract for Block 4 was **signed** on September 14, 2021.





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Areas offered in the 2021 mining round Department of Boyaca

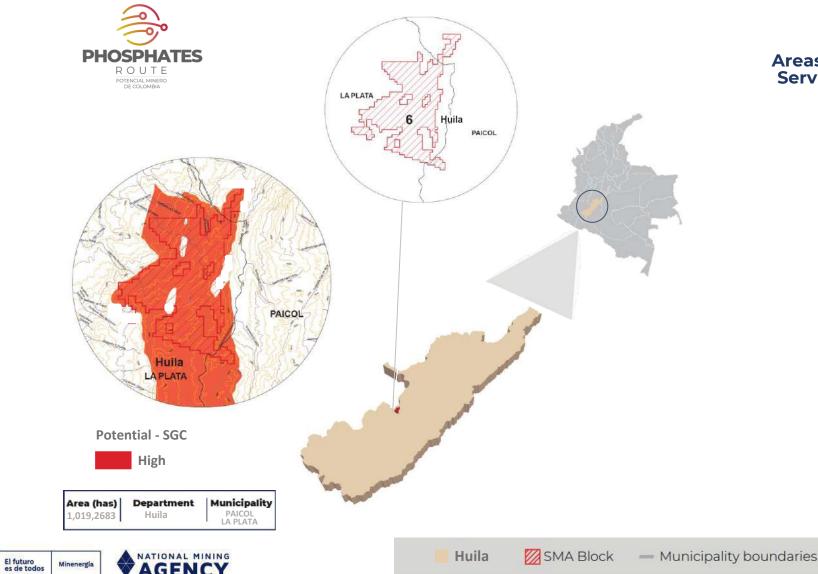
Areas defined by the Colombian Geological Service as having high phosphate mineral potential

The Colombian Geological Service -SGC evaluated the mining potential of phosphates in the area, identifying 3 areas of high mining potential for phosphates.

The National Mining Agency is advancing in the development of the permanent allocation of Strategic Mining Reserve Areas (AEM) with high potential through the mining rounds through a competitive process, for this, there are currently 4 blocks with high potential for phosphates, located in the departments of Boyaca and Huila.



Areas offered in the 2021 mining round Department of Huila

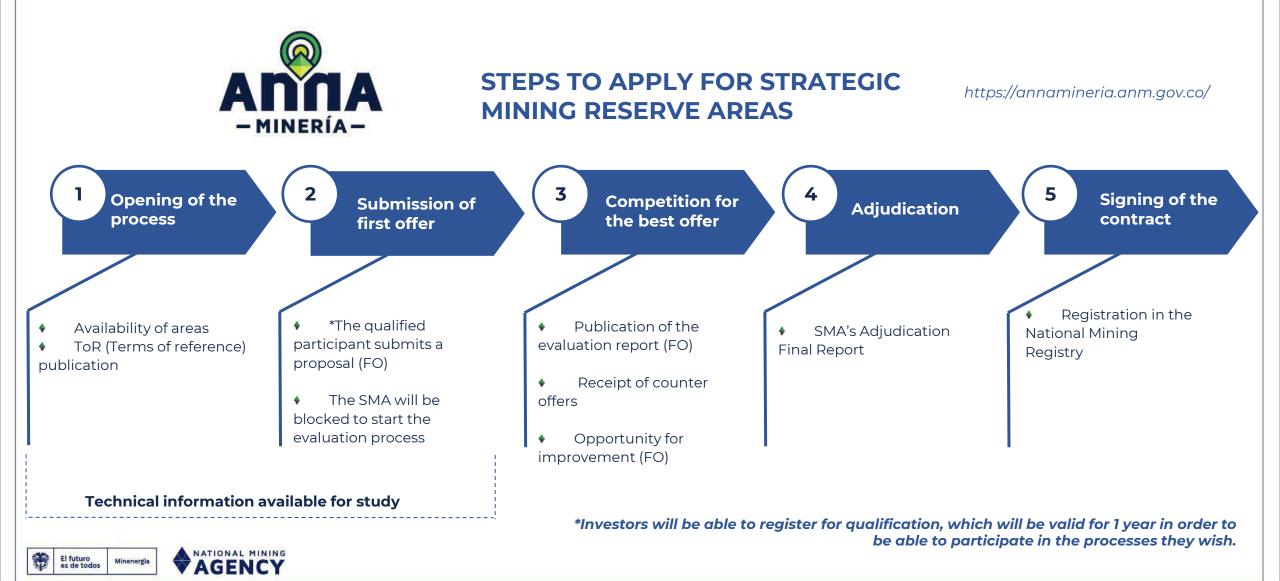


Areas defined by the Colombian Geological Service as having high phosphate mineral potential

The Colombian Geological Service -SGC evaluated the mining potential of phosphates in the area, identifying 1 area of high mining potential for phosphates.

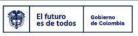
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Mining contracts

NATIONAL MINING

176

granted in

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2020 – October 2021

Coordination and concurrency process

444 Municipalities that have said yes to mining

172 Municipalities with public hearings

Of the municipalities that have said to mining have potential for copper and gold extraction

45%

27%

Of the titles granted in 2020 - October 2021 are for the extraction of **copper** and **gold** extraction

62%

Of the hectares titled in 2020 -October 2021 are for the extraction of **copper** and **gold** "Central and regional governments working for a sustainable and responsible mining with communities"

- Respect, protection, and guaranteed human rights
- Dialogue, communication and transparency
- The inexistence of prohibition
- Sustainable development
- Territorial focus



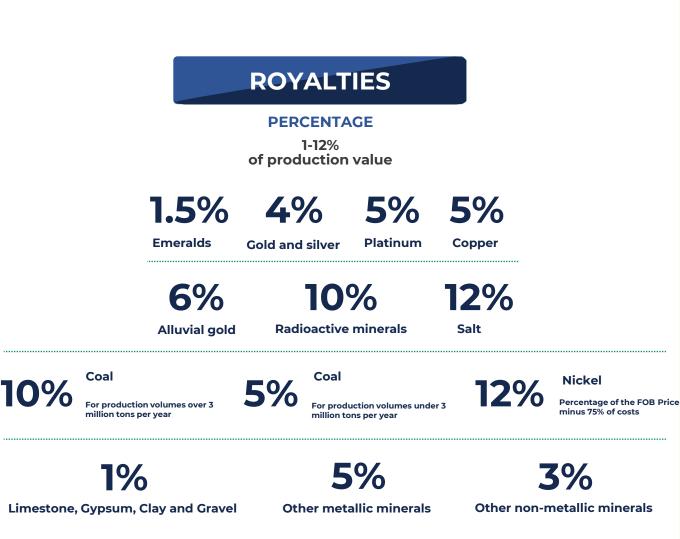
Financial obligations

Surface Fee

An economic compensation must be paid during the **exploration** and **construction and assembly** stages

Number of hectares	0 to 5 years OMDW/ha	5 to 8 years OMDW/ha	8 to 11 years OMDW/ha
0 - 150	0.5	0.75	1
151- 5,000	0.75	1.25	2
5,001 – 10,000	1.0	1.75	2

- Official minimum daily wage in Colombia OMDW / hectares
- OMDW 2021: COP \$30,284
- Exchange rate USD/COP: 4,010.98 (Central Bank of Colombia 30-11-2021)

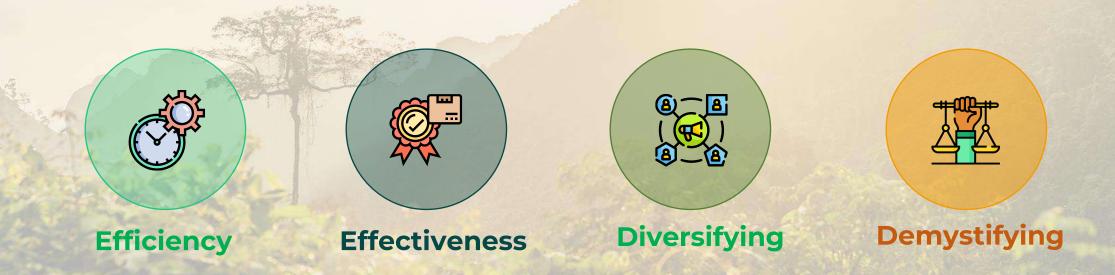




*For special mining exploration and exploitation contracts in Strategic Mining Reserve Areas, the surface fee is governed by the provisions of the Terms of Reference of each process.



Pillars of the mining sector



Through **impact strategies**, to secure a sustainable and safe mining activity, creating **opportunities and wealth** for the country.





Effectiveness LEGALITY AND PRESENCE IN THE TERRITORIES





93.5 %

SUPPORT FOR OUR MINERS Mobile support

- Bringing technology based tools to the region
- Resolve bottlenecks
- Legal support

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Technical and focalized security training

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LARGE – SCALE MINING

6.5 %

AUDIT PREROGATIVES AND MINING TITLES

- Satellite images
- On line checking
- Drone-based auditing
- IoT setup

TRACEABILITY SYSTEM

To measure and calculate transaction volumes across the chain, as well as origins, of construction materials, emeralds, coal and gold.

Demystifying

Regional forums with universities and colleges (students of 10th and 11th grades) for the last degrees on the successful experiences of well done mining. To generate with these groups information banks and research. laboratories from the academy in favor of new methodologies for the search of solutions in the environmental management and the construction of new businesses from the same mining products. Teachers and students are active in each of their territories.

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Young Miners

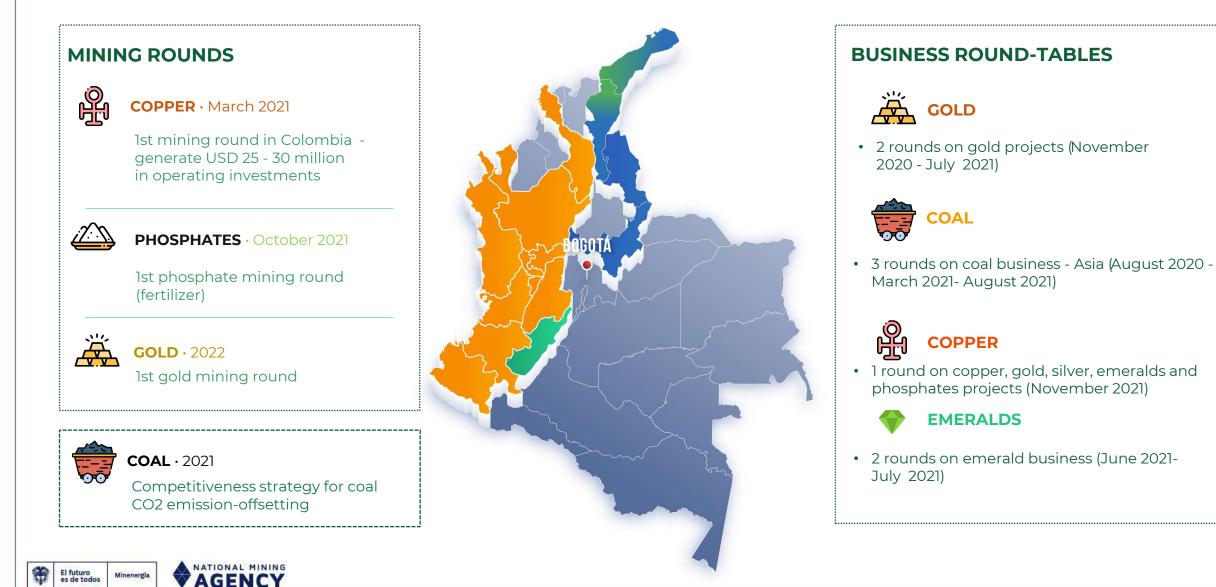
Miners in action : Large and small Mining Companies, supported by the ANM, would make visible their actions of social and environmental responsibility. As well as, the different economic activations that are developed in the region thanks to the mining sector. These good practices will be awarded every year and will have a microsite on the web.

Colombia's Young Miners : is a space for listening and generating teamwork in order to make visible how mining can be developed with all the laws, creating content through social networks that show social responsibility, economic recovery of the mining territory.



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Diversifying - Economy boost



Single Registry of Mineral Traders





https://www.anm.gov.co/?q=Rucom

Consist in a control mechanism administered by the National Mining Agency, supported by a technological platform

Certification for natural or legal persons that commercialize, consume or benefit minerals in the national territory

> Provides greater transparency and competitiveness to the mineral commercialization activity in Colombia

- Online registration and list consultation
- Certificates of origin / production declarations to prove the origin of minerals
- Authorized mineral traders



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Integral mining management system - SIGM



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Technological platform with a dynamic and updated geographic database, to settle, follow up and efficiently manage proposals for concession contracts, mining titles and any other process

https://annamineria.anm.gov.co/

MINING GRID

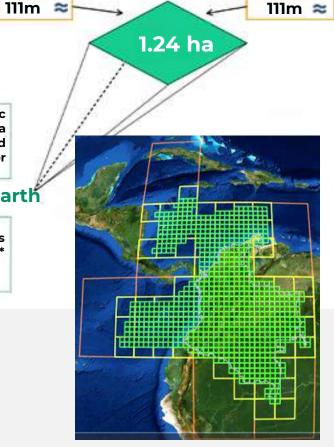
Law 1753 of 2015 (National Development Plan 2014-2018) and Res. 504 of 2018 Objective: to organize and divide Colombian territory into grids, direct access to information on the country's mining resources, availability, geographical, environmental and social conditions

A unit of cartographic measurement determined by a <u>regular</u>, <u>predefined</u> and <u>standardized</u> grid or mesh for granting mining rights.

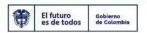
Center of the Earth

One cell in the mining grid is roughly equivalent to: 111m * 111m = 1.24 hectares.





SIZE OF EACH CELL



-

ECRR - A standard for Colombia and investors







Thank you





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🖻 anmcolombia

promocion@anm.gov.co

ROUTF