

# MINING REPORT

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# WHAT IS NEW IN MINING?

## IT IS CONFIRMED THAT POTOSÍ HAS RESERVES OF TECHNOLOGICAL MINERALS

*El Potosí*

**03/19/2023:** The Minister of Mining and Metallurgy highlighted that Potosí has areas with reserves of rare earths and technological minerals. Among them, the San Luis deposit has cobalt and copper. Cobalt and other products are found in the municipality of Tacombamba. The Mallku Khota deposit contains gold, indium, and gallium. Additionally, in the Coroma region there is a 100,000-hectare deposit that contains uranium and other valuable minerals according to studies carried out by six North American mining engineers with the support of NASA, which were reflected in the Map of Permissive and Favorable Areas for Selected Types of Mineral Deposits in the Altiplano and Eastern Cordillera of Bolivia.

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## SANTA CRUZ WILL HAVE A TECHNOLOGICAL MINERALS MANAGEMENT

*Bocamina COMIBOL*

**03/17/2023:** The Ministry of Mining and Metallurgy confirmed that, in coordination with the Bolivian Mining Corporation (COMIBOL), a Technological Minerals Management Office will be opened in the Department of Santa Cruz with the aim of carrying out prospecting and exploration tasks for technological minerals and rare earths in eastern Bolivia. These works will allow the country to enter a new stage of state-of-the-art mining, thus giving a qualitative leap within the industry, which will allow to project a new era of mining in the country.

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## CANADIAN NEW PACIFIC CONSIDERS THAT THE SILVER SAND SILVER MINE IN POTOSÍ MAY BE “ONE OF THE LARGEST IN THE WORLD”

*El Deber*

**01/12/2023:** The Silver Sand project being developed by New Pacific Metals Corp. in Potosí could become one of the largest silver mines in the world, according to Rui Feng, executive director and founder of the Canadian mining company, who affirms that a recent study identified that the deposit has about 171 million ounces of silver and a useful life of 14 years. Initial capital costs ascend to USD 308 million including USD 52 million in contingency costs while mine sustaining capital costs will total USD 20 million. Silver Sand's 171 million ounces of silver exceed San Cristóbal's reserves and are almost as significant as the 203 million ounces of silver estimated to be held by Mallku Khota.

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## GOVERNMENT WILL MAKE A MILLIONAIRE INVESTMENT IN MINING PROSPECTING AND EXPLORATION

*La Patria*

**01/2023:** The Departmental Secretariat of Mining and Metallurgy of the Government of Oruro reported that in 2023 approximately four million Bolivians will be allocated for the National Geology and Mining Service (SER-GEOMIN) to carry out mining prospecting and exploration activities in three planned projects in the municipalities of Soracachi, Poopó, and Huanuni, whose results will be known at the end of the year. The objective of the activities is to identify new mineralogical reserves in Oruro that can be exploited in the future and generate greater economic resources for the department through the payment of mining royalties.

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## SUMITOMO TRANSFERS 100% OF ITS SHARES IN SAN CRISTÓBAL

*Página Siete*

**01/24/2023:** San Cristóbal Mining Inc., a Canadian-owned mining company, closed an agreement with the Japanese firm to acquire one hundred percent control of the largest mine in the country. Through the transfer of the shares of Sumitomo's subsidiaries -Comercial Metales Blancos AB, SC Minerals Bolivia SRL, and Summit Minerals GmbH-, San Cristóbal Mining Inc. will continue to develop mining activities for a period of approximately 17 years, useful lifetime that the mine is estimated to have once the necessary implementations are carried out for the start-up of the new project to be undertaken.

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## BOLIVIA HAS 19 SALT FLATS THAT WILL BOOST LITHIUM RESERVES

*La Razón*

**12/29/2022:** The 21 million tons of lithium reserves in Bolivia correspond entirely to the Uyuni salt flat. Bolivia has 19 smaller salt flats that have not yet been explored or quantified. According to Carlos Ramos, president of YLB, the exploration activities of these salt flats will increase in 2023. Additionally, the results on the amount of lithium reserves in the Coipasa and Pastos Grandes salt flats will be known in the last quarter of 2023, increasing lithium levels in Bolivia.

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## BOLIVIA EXPORTS MINERALS FOR USD 6.2 BILLION AND INCREASES PRODUCTION BY 14% IN 2022

*Los Tiempos*

**12/26/2022:** The value of mining exports in 2022 reached USD 6.2 billion and production rose 14%, according to President Luis Arce. In turn, these figures entail a 7% increase in mining royalties received by the departments of Bolivia, with Potosí being the one that reached the highest income (843.4 million bolivianos), followed by La Paz (347.8 million bolivianos), and Oruro with 114.5 million Bolivians. In general, the nine departments increased their export volumes, and it is estimated that by December 2022 they reached 1,700 million bolivianos in mining royalties.

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# ANALYSIS AND OPINION

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## BOLIVIA BETS ON TECHNOLOGICAL MINING AND INVESTMENT IN STRATEGIC MINERALS

Within the framework of the objectives of the Bolivian Government, the country advances in the transition from traditional mining to technological mining, focused on the exploration, prospecting, exploitation, and commercialization of technological minerals and rare earths. This initiative seeks to diversify the national economy and increase the income generated by mining.

The Minister of Mining and Metallurgy, Ramiro Villavicencio, announced the upcoming inauguration of the Management of Technological Minerals, an entity dependent on the Mining Corporation of Bolivia (COMIBOL). The new management will be in charge of the works related to technological mining, promoting industrialization and import substitution in the sector. Since the promulgation of Decree 4721, which establishes the creation of the Vice-Ministry of Technological Minerals and Metallurgical Mining Productive Development, maps have been prepared to locate rare earths and technological minerals, such as uranium, titanium, niobium, tantalum, thorium, yttrium, nickel, cobalt, chromium and manganese, among others. These minerals are in high demand in the technology industry and represent an opportunity for Bolivia to diversify its economy.

Villavicencio revealed that samples have been sent from important Precambrian deposits of Cerro Manomó, in Santa Rosa in the department of Santa Cruz, which have yielded significant results. In addition, he mentioned the need for Bolivia to move from industrial minerals, such as tin, lead, zinc and silver, to technological minerals, which are small in volume, but of high value.

Several deposits have been identified in the country, such as in Potosí, Cochabamba and Santa Cruz. Exploration projects at Cerro Manomó include deposits of uranium, thorium and rhodium, the latter with a price ten times higher than gold. In San Luis, Potosí, there are nickel, cobalt, chromium and the Mutún project with iron and manganese, all key inputs for lithium batteries and cathodes.

Bolivia's commitment to technological mining and investment in strategic minerals represents an important step to diversify its economy and generate greater income in the mining-metallurgical sector. The creation of the Technological Minerals Management and the investment in exploration and refining projects of strategic minerals will allow the country to position itself as a relevant player in the international market of technological minerals and rare earths.

In addition, the commitment to technological mining could boost the development of the national industry and encourage the substitution of imports in key sectors such as the production of batteries and electronic components. This, in turn, could generate employment and growth opportunities for local communities and the country as a whole.

However, it is also crucial that Bolivia ensures a sustainable and responsible approach to the exploitation of these natural resources. The implementation of responsible mining practices, environmental protection and respect for the rights of local communities will be fundamental to ensure sustainable and equitable growth in this sector.



# Did you know **that**

## INDUSTRIALIZATION OF LITHIUM IN BOLIVIA

The lithium industrialization process in Bolivia has great potential to take off, considering that the country has the largest mineral resources in the world. Bolivia has opted for a strategy of maintaining control over its valuable lithium reserves, which could offer unique opportunities for the national and sustainable development of this industry.

Yacimientos de Litio Bolivianos (YLB) is a 100% state-owned company that leads all activities in the lithium production chain in Bolivia. With the aim of promoting the lithium industrialization process, the Bolivian State promulgated Law 928 on April 27, 2017, which allows YLB to sign association contracts with national or foreign private companies, always maintaining the majority participation of the State, to semi-industrialization, industrialization and waste processing processes.

YLB is the only company in Bolivian territory that currently carries out mining activities related to lithium, which are done at pilot level (experimentation and adjustment stage) in the Uyuni, Coipasa and Pastos Grandes salt flats. The remaining salt lagoons and smaller salt flats existing in Bolivian territory remain unexplored. At the pilot level, YLB oversees the extraction of lithium carbonate from the brines found in the Uyuni salt flats, which is used as an intermediate material for the

manufacture of rechargeable batteries that use lithium-ion technology to store energy. Since the pilot stage of lithium carbonate extraction has given good results, YLB is advancing in the construction of the lithium carbonate industrialization plant located in Llipi, Uyuni, which is expected to start operating in the third quarter of 2023. On the other hand, the activities in Coipasa and Pastos Grandes remain in the exploration phase and, if the results obtained are satisfactory, the installation of new industrial plants is planned both in Coipasa and in Pastos Grandes.

### Industrial plants for the production of rechargeable lithium-ion batteries

In addition to the lithium carbonate industrialization plants planned by YLB, pilot plants to produce lithium-ion batteries and cathode materials were also developed in previous years, which are in operation and close at pilot level the industrialization process of lithium in Bolivia.

In 2014, the pilot plant for lithium-ion batteries was installed in the industrial complex of La Palca, Potosí. This plant works as a training, experimentation, and production center for lithium batteries. Currently, this pilot plant produces lithium-ion batteries at the pilot level.



In 2017, the cathodic materials pilot plant was inaugurated in the industrial complex of La Palca, Potosí. This plant functions as a center for synthesizing and producing active materials (cathodes) used to manufacture lithium-ion batteries. The plant was designed to produce lithium-manganese oxide and lithium-nickel-manganese-cobalt oxide, elements that are essential materials to produce rechargeable lithium-ion batteries.

### **The future of the lithium industrialization process**

On April 30, 2021, the Bolivian state launched the international call for the Direct Extraction of Lithium (EDL). A total of twenty proposals were received, of which eight were pre-selected. Between October and November 2021, confidentiality agreements were signed between these companies and the Bolivian state to safeguard the technology of the companies involved.

Two of the companies were left out of the subsequent processes, leaving six foreign companies in the race to sign an agreement with Bolivia for the industrialization of lithium: (i) CBC (CATL BRUNP & CMOC) (china), (ii) CITIC GUOAN/CRIG (china), (iii) TBEA Group (china), (iv) Fusion Enertech (china), (v) Lilac Solutions (USA) and (vi) Uranium One Group (Russia).

The six shortlisted companies carried out tests with Bolivian brine from the Uyuni, Coipasa and Pastos Grandes salt flats and achieved lithium recovery results of over 80% and in some cases over 90%. Finally, YLB chose and signed an agreement with the Chinese company CBC for the implementation of EDL technology in the industrialization of soft metal. President Luis Arce pointed out that CBC will invest \$1,000 million in a first phase and assured that, until the first quarter of 2025, YLB together with CBC plan to commercialize the production of lithium carbonate, and industrialized products, such as cathodes and lithium batteries.

Finally, he mentioned that other agreements will be signed with other companies for the development of the industrialization of Bolivian lithium with EDL technology, which demonstrated recovery results above 80 and 90%.

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