

## Strategic mineral resource security from the perspective of South-South cooperation

—Taking the cooperation between China and Argentina's lithium industry as an example\*

Gong Yunjie

Abstract: As the global energy transformation continues to deepen under the dual-carbon background, key minerals used in strategic emerging industries have increasingly become the focus of competition among major economies. In the context of the accelerated evolution of major changes in the world that have not been seen in a century, China attaches great importance to the supply of key minerals and has elevated it to a national security strategy. Lithium resources are the source of the new energy revolution. This article starts from the perspective of ensuring the security of China's strategic mineral resources industry chain and fulfilling the responsibilities of a major country. China and "lithium" The cooperation in the lithium industry with Argentina, an important member of the "Triangle", is taken as an example to explore how to further strengthen South-South cooperation, build a new situation of strategic mineral resources cooperation among developing countries, and promote the joint construction of a green "One Belt and One Road". The study found that China and Argentina China has strong complementarity and mutual benefit in the lithium industry chain. Since 2014, Chinese enterprises, mainly private enterprises, have entered the Argentine lithium market in large numbers through direct or indirect forms. However, Chinese enterprises that "go out" have It is still faced with a series of problems and challenges such as a single industrial structure and cooperation model, the rise of resource nationalism, the long-awaited "Lithium OPEC", the intensification of the resource game among major powers, and the shift in the global resource governance discourse system. Looking to the future, China should continue to strengthen global resources The "circle of friends" of South-South cooperation in the governance system, guided by the principle of consultation, joint contribution and sharing, combines China's urgent need to improve the elasticity of the supply chain and industrial chain of strategic mineral resources with the economic recovery and green development of resource-based developing countries. The short-term goals of transformation and the long-term strategy are organically combined to strengthen industrial synergy, gather synergy for development, and promote the traditional resource governance pattern of "strong in the west, weak in the east, strong in the north and weak in the south" to continue to develop in a fair, win-win and sustainable direction. Contributing Chinese wisdom to the construction of a "community with a shared future for mankind" in the field of global resources. Keywords: strategic mineral resources, national security, South-South cooperation, lithium resources. About the author: Gong Yunjie,

Associate Professor, Department of Spanish, Nankai University, Master Tutor, Center for

National and Regional Studies, Zhong Figure classification number: F426 1j F473 Document identification code: A Article number: 1002 - 6649 (2023) 00 - 0086 - 20

---

\*\* This article is a project of the Central Universities Fundamental Research Funds "A Survey on the Media Image of Chinese Enterprises in Major Countries Along the 'Belt and Road'" (No.: 63212147) phased results.

Strategic mineral resources, also known as critical minerals, the European Commission defines the connotation of this term from the perspectives of economic importance and supply chain risk<sup>5</sup>, and the U.S. Department of the Interior further emphasizes the significance of critical minerals in ensuring national security, especially It is pointed out that "the supply chain of such critical minerals is extremely vulnerable to damage, and the interruption of the supply of the products they manufacture will have a huge impact on the U.S. economy or national security."<sup>6</sup> In view of this, the security issue of strategic mineral resources is increasingly affected by major economies . The European Union, Japan, the United Kingdom, the United States, Australia, etc. have all issued key mineral lists and national strategies based on their own economic, industrial and security development realities. As far as China is concerned, as China enters strategic emerging industries In the critical period of leading the green and low-carbon development of the economy and society, strategic minerals have become an important engine for accelerating the construction of a modern industrial system and promoting high-quality economic development. In 2014, General Secretary Xi Jinping proposed the "overall national security concept", and resource security was included in the National security system. In 2016, China released its first official strategic mineral catalog "National Mineral Resources Planning (2016-2020)", which included 24 mineral resources such as lithium. In 2021, the "14th National Mineral Resources Plan" The "Five" planning outline clearly stated that the planning and control of strategic mineral resources should be strengthened to effectively enhance China's reserve security capabilities. <sup>7</sup> Key minerals were therefore elevated to the strategic level of national security for the first time. In the same year, the Political Bureau meeting of the Central Committee reviewed the national The security strategy once again emphasized the need to enhance industrial resilience and impact resistance <sup>8</sup>, to achieve safe controllability in key areas

of strategic resources, and to build a solid national security barrier. However, judging from China's resource status, most of the country's key mineral resource endowments are poor. Problems such as a weak foundation and insufficient supply capacity are prominent. The "big head is outside" supply pattern has not changed, and the resource supply chain system is still fragile. Therefore, it is necessary to coordinate the overall domestic and foreign situations and further enhance China's global allocation capabilities of strategic minerals. Ensuring national resource security is an urgent and arduous task at present. From a global perspective, on the one hand, strategic minerals are highly scarce and monopolistic. 5) The list of key minerals determined by developed economies such as Europe, the United States, and Japan has many overlaps with China . <sup>9</sup> The resulting competition around strategic mineral resources is inevitable. In this context, resource-rich countries should unite to form a

---

<sup>5</sup> [https://www.ec.europa.eu/euro-observatory/en/analysis/2020/04/2020-04-20-critical-minerals-1\\_en](#)  
<sup>6</sup> [https://www.doi.gov/press-releases/2018/01/2018-01-11-01](#)  
<sup>7</sup> [http://www.gov.cn/xinwen/2021-11/18/content\\_5651753.html](#)  
<sup>8</sup> [http://www.gov.cn/xinwen/2021-11/18/content\\_5651753.html](#)  
<sup>9</sup> [http://www.gov.cn/xinwen/2021-11/18/content\\_5651753.html](#)

<sup>5</sup> «The Fourteenth Five-Year Plan for National Economic and Social Development of the People's Republic of China and the Outline of Long-term Goals for 2035», Website of the Central People's Government of the People's Republic of China, March 13, 2021, [http://www.gov.cn/xinwen/2021-03/13/content\\_5592681.html](http://www.gov.cn/xinwen/2021-03/13/content_5592681.html) [2022-07-05]

<sup>6</sup> «The Political Bureau of the CPC Central Committee held a meeting to review the «National Security Strategy (2021-2025)» «Regulations on Commendation of Honors for Military Meritorious Service» and «National Science and Technology Advisory Committee 2021 Consultation Report» Chaired by Xi Jinping» <sup>7</sup> Website of the Central People's Government of the People's Republic of China, 2021 November 18th, 2021 [http://www.gov.cn/xinwen/2021-11/18/content\\_5651753.html](http://www.gov.cn/xinwen/2021-11/18/content_5651753.html) [2022-07-05]

<sup>8</sup> Tian Huifang: "New Energy Era, Global Layout and Competition of Strategic Mineral Resources", published in "World Knowledge", Issue 17, 2021, Page 61.

A secure and flexible global strategic resource supply chain has become the national security strategy of major economies. On the other hand, the world today is undergoing major changes unseen in a century. The game between major powers continues to intensify, and the impact of the new coronavirus epidemic is superimposed. This has intensified geopolitical instability. The undercurrent of "anti-globalization" characterized by tough protectionism and barriers to the flow of resource factors is surging. The politicization of resource issues has become increasingly significant. As a result, the development and cooperation of overseas resources are facing more challenges. Complex and severe risk challenges

In terms of the supply and demand pattern of global strategic mineral resources, Latin America is one of the regions with the most intensive distribution and exploitation of resources. It has also long been an important target of China's South-South cooperation. China, as the main consumer of strategic mineral resources and the largest As developing countries and active advocates and contributors of South-South cooperation, it is even more necessary to deepen international cooperation with Latin American developing countries in this field: on the one hand, seek safe, reliable, and diversified supplies of China's key minerals "from the inside out" The optimal solution is to break through resource bottlenecks, effectively maintain the stability and competitiveness of relevant industrial and supply chains, effectively ensure the security of national strategic mineral resources, and promote green and low-carbon transformation. On the other hand, we must actively promote the The economic recovery and green development of Latin American developing country partners in the post-epidemic era will lead South-South cooperation and the global new energy revolution, and jointly promote the traditional resource governance pattern of "strong in the west and weak in the east" and "strong in the north and weak in the south" towards a fair and This article will try to explore how to build China's strategy from the strategic perspective of coordinating national development and security, taking the cooperation between China and Argentina, an important member of the "Lithium Triangle", in the lithium industry under the new situation as an example. Safety guarantee system for mineral resources.

### 1 China's Lithium Resource Security and "South-South Resource Cooperation"

Looking at the key mineral lists of major economies such as Europe, the United States, and Japan, lithium is undoubtedly one of its most important components. As an "important element that drives the world forward," lithium is considered to be the fourth mineral after coal, oil, and natural gas. Energy, also known as "white oil" or "new platinum", is of very important strategic significance to the national economy and national defense industry. In recent years, as "carbon neutrality" has gradually become a global consensus, the world's focus on clean energy has increased. The demand for lithium is increasing day by day. As an excellent dielectric material for the development of new energy, lithium has long-term rigid demand. According to the International Energy Agency's predictions, if we want to achieve the goal of "reducing carbon dioxide to net-zero emissions in 2050", the global demand for lithium will increase by around 2040. Demand will increase 42 times compared with 2020. At the same time, in view of the substantial increase in demand for lithium and other minerals driven by the development of clean energy technology,

---

Wu Qiaosheng et al.: "Turning crises into opportunities and building an advantageous strategic mineral resources industry chain", published in "China

Mining News", Issue 1, March 24, 2020, International Energy Agency The Role of Critical Minerals in Clean Energy Transformations World Energy Outlook Special Report 2022 p 9

In addition, the International Energy Agency also reminds countries that they should attach great importance to the security risks of key minerals represented by lithium.

For China, lithium is not only an important key mineral, but also the basic guarantee for China's strategic emerging industry layout and industrial structure adjustment. In the wave of the new energy revolution, China, as the world's largest lithium battery producer and exporter, The development and utilization of lithium is of vital significance to maintaining the security of China's strategic mineral resources and giving full play to the supporting role of energy in the economy and society. However, it should also be noted that risk factors affecting the stability of China's lithium resource supply chain still exist. First, although China is the fifth largest lithium resource country in the world, the vast majority of domestic lithium mines are located in the ecologically fragile areas of the Qinghai-Tibet Plateau. The natural environment is harsh, the infrastructure is backward, the resource endowment is relatively poor, and the initial lithium concentration is low. This has led to high development costs and low utilization efficiency of lithium, and it is difficult to increase production in the short term. Secondly, the demand side of the supply chain has grown rapidly, which has adversely affected the security of China's lithium resources. On the one hand, under the "double carbon" goal, The demand for key minerals represented by lithium that supports the development of the new energy industry has experienced explosive growth. China is currently the largest consumer of lithium resources in the world, accounting for approximately 70% of global lithium resource consumption, and will continue to maintain its demand for lithium resources. On the other hand, the domestic supply of lithium resources is far from meeting the huge market demand. It is predicted that by 2030, China's demand for lithium carbonate may reach 850,000 tons, which will be higher than China's lithium carbonate demand by 2030. 40% of production. China's lithium carbonate supply gap will exist for a long time and will expand year by year. Third, in view of the reality that domestic resource security is seriously insufficient under the strong lithium ore market demand, China's lithium resources have to rely heavily on imports, and raw ore is exported to the outside world. The degree of dependence is as high as 76% and the supply is highly concentrated and the degree of diversification is insufficient, resulting in a significant lack of flexibility and resilience in China's lithium resource supply chain. Taking 2018 as an example, China imported a total of 3.12 million tons of lithium mineral products equivalent to metallic lithium. 83.2% of them come from Australia, a member of the "Five Eyes Alliance". It should be pointed out that Australia's exports to China are all spodumene, and the production cost is 1.4 times higher than that of salt lake lithium on average. In addition, the overly concentrated supply side has led to political instability, and business risks have increased significantly. Not only are they more vulnerable to the impact of politicization of resource issues, but their ability to withstand market price risks has also been weakened. Finally, China lacks the necessary strategic reserves of lithium resources, especially when there is a mismatch between supply and demand and the price of lithium ore raw materials. Against the backdrop of continued rising prices, will lithium ore imports experience a vicious cycle of "volume and price increases" for a considerable period of time, becoming another hidden danger that threatens the safe supply of China's lithium resources?

At the same time, according to the latest data from the United States Geological Survey, Argentina, Bolivia and Chile

---

«It's time to accelerate the development of domestic lithium resources», CCID Research Institute, May 30, 2022, [http://www.ccidgroup.com/info/1\\_105/34577.html](http://www.ccidgroup.com/info/1_105/34577.html) [2022-07-21] Kong Xiangyu, Zhang Yongsheng: «Lithium

Resources: The source of power of the new energy revolution», published in "People's Forum Academic Frontiers", Issue 2022 Issue 13, pp. 77-78. China

Geological Survey: «Hundred Achievements of China's Geological Survey», Beijing: Geological Press, 2016, pp. 256. Chen Yuming et al.: «South

America's "Lithium Triangle" in the post-epidemic era Strategic position highlighted» Published in "China Mining News", Page 1, April 29, 2020.

The Latin American Lithium Triangle composed of lithium and lithium is the region with the richest lithium resources in the world, with proven reserves accounting for 55-96% of the global total (see Figure 1). Not only that, the Lithium Triangle is also the region with the best lithium resource endowment in the world. They are all salt lake brine-type lithium mines with extremely low magnesium-lithium ratio. The difficulty and cost of development and utilization are significantly lower than those in other parts of the world. Under the great changes unseen in a century, China and the Lithium Triangle countries are both important parts of South-South cooperation and The partner countries of the "Belt and Road" are all similar in terms of development stage, historical responsibilities, and the international environment they face. Different from the energy political and economic relations of major countries that compete with each other, the long-term accumulation of political mutual trust between developing countries undoubtedly provides The smooth development of strategic mineral resources cooperation provides a fundamental guarantee. On this basis, the Lithium Triangle countries' rich reserves of key minerals and dependence on resource exports, coupled with China's good economic development trend, huge resource demand and sufficient foreign exchange reserves, have jointly This has injected strong impetus into "South-South resource cooperation" in the post-epidemic era. More importantly, China, as a responsible major country, opposes hegemonic resource plunder. The strategic mineral resource cooperation it advocates is rooted in South-South cooperation. The "empowerment" type of international cooperation based on the concept of cooperation not only allows developing countries to obtain tangible economic benefits from cooperation, but also helps both parties strategically emerge with their existing advantages and continuous technological innovation in related fields. industrial development, jointly promote the transformation of green energy, enhance the flexibility and resilience of the country's sustainable economic growth, and promote high-quality economic and social development.

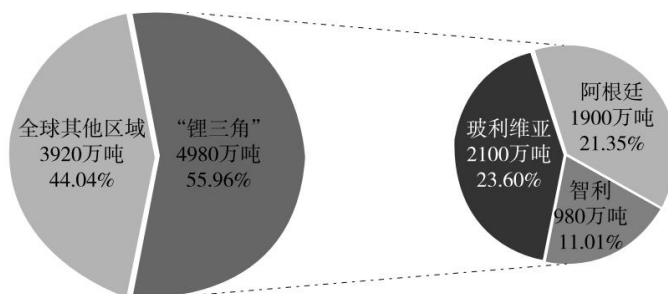


Figure 1 Latin America's "Lithium Triangle" Proven lithium resource reserves

Data source: The author draws based on data from the United States Geological Survey (USGS). <https://pubs.usgs.gov/periodicals/mcs2022/mcs2022-lithium.pdf> [2022 - 07 - 22]

## 2. Argentina in the strategic layout of global lithium resources

By comprehensively considering the total amount of lithium resources, the lithium industry development environment, government policies and regulations and other factors, combined with the "2021 Mineral Exploration and Development Company Survey Report" released by the well-known Canadian think tank Fraser Institute (see Figure 2), it is not difficult to see that Argentina is a comprehensive among the Lithium Triangle countries.

It is the country with the smallest investment risk and the greatest potential for cooperative development. Whether in the industrial or technical fields, Argentina and China are highly complementary in the development and utilization of lithium resources. As Argentina's Secretary of State for Mining Hensel said, Argentina is endowed with unique lithium resources, and China has strong technical and financial strength. Cooperation between the two countries is conducive to the effective docking of resources, technology, and industry. They complement each other's advantages and have huge potential. In view of this, the two parties signed the "China-Argentina Lithium Agreement" in May 2021. Memorandum of Understanding on Mining Investment Cooperation», from the policy level, actively promote the development of the lithium industry cooperation between the two countries in a more high-quality, green, and sustainable direction, and create a closer resource partnership. The article will focus on the development potential, development strategy and other aspects of Argentina's lithium mines. Starting from the perspective of resource security and competition behind it, this paper systematically demonstrates the actual conditions, development space and problems faced by China-Afghanistan lithium industry cooperation.

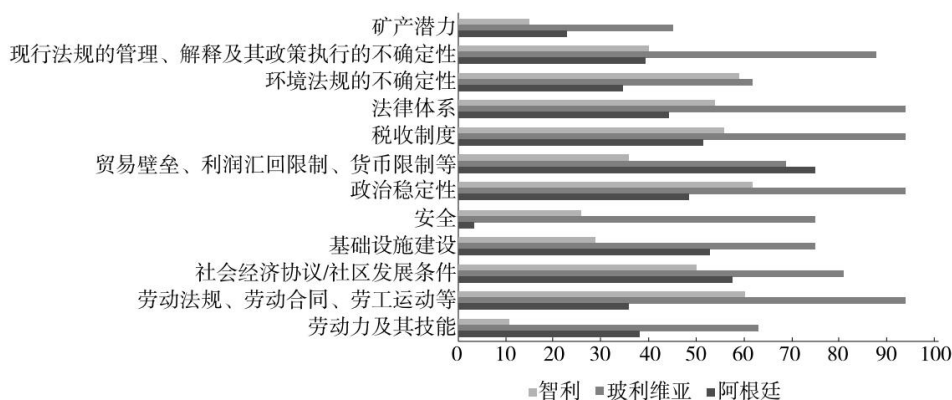


Figure 2 "Lithium Triangle" National Mineral Investment Risk Assessment

Source: Drawn by the author based on data from the Fraser Institute. [http://www.fraserinstitute.org/resource e - file? nid = 14573 & fid = 17567](http://www.fraserinstitute.org/resource-e-file?nid=14573&fid=17567) [2022 - 07 - 22]

(1) Resource endowment and development potential of Argentina's

lithium mines. First of all, from the perspective of lithium resource reserves and distribution characteristics, Argentina's lithium resources are abundant and concentrated in Jujuy Province (Jujuy) and Kata in the Puna Plateau Salt Lake area in the northwest. The provinces of Maca (Catamarca) and Salta (Salta). As of the end of 2021, Argentina's total proven lithium resources ranked second in the world, accounting for 21.35%. Not only that, Argentina's salt lakes are "rich in lithium and low in The resource endowment advantage of "magnesium" makes it easier to develop and utilize, and the operating costs after the project is put into production are also relatively low, so it has stronger profitability and investment intensity.

Chinese Embassy in Argentina: «Ambassador to Argentina Zou Xiaoli attended the China-Argentina Lithium Mine Investment Cooperation Memorandum Signing Ceremony online and delivered a speech Words» May 14, 2021 [http://ar.china-embassy.gov.cn/sgxw\\_1/202105/t20210519](http://ar.china-embassy.gov.cn/sgxw_1/202105/t20210519) [2022-06-20]

Secondly, from the perspective of lithium resource potential, Argentina ranks first in the world in lithium exploration budget expenditure. In recent years, significant progress has been made in lithium resource exploration and prospecting. From 2012 to 2022, Argentina's proven lithium resources The amount increased from 2.6 million tons to 19 million tons, and the increase accounted for the salt lake lithium projects, which is the lithium triangle and the world respectively. In addition, Argentina has a total of more than 60 country with the largest number of similar projects in the world, accounting for 53.42% and 29.82% , far more than neighboring Bolivia and Chile, which both belong to the Lithium Triangle. However, in terms of development level, more than 2/3 of Argentina's salt lake lithium projects are still in the early exploration stage, and among the 23 projects in the leading development stage Only the Cauchari-Olaroz and Fénix salt lake projects are completed projects, and the rest are under construction, planning or in-depth exploration status. At the same time, in conjunction with Argentina's huge lithium resource reserves, A sharp contrast is its still relatively low lithium production. Taking 2021 as an example, Argentina's lithium resource reserves are 2.2 million tons, but its annual output is only 6,200 tons. The reserve-production ratio is as high as 354 84. Compared with the world's largest lithium producer, Compared with Australia, the latter's reserve-to-production ratio is only 103 64. It can be seen that the degree of development of Argentina's lithium resources is still very limited, and it has great potential for future growth.

To sum up, Argentina is the country with the most densely distributed salt lake lithium projects and the broadest development prospects in the world. However, it is currently limited by factors such as capital, technology, and industrial foundation, and the development and utilization of lithium resources is relatively backward. In this regard, Argentina Trying to attract investment through various preferential policies. However, China needs to achieve safe, reliable and

diversified supply of lithium resources. (2) Argentina's lithium resource development strategy: "extractivism"

and "industrialization" Lithium industry investment is a long-term investment. It has the characteristics of large investment amount, long cycle, many links, and complex influencing factors. Therefore, it is very important to understand and analyze Argentina's lithium resource development strategy and comment on its policy and legal environment to guide China-Argentina lithium industry cooperation and prevent investment risks. The significance of this. From the perspective of relevant regulations and systems for lithium industry investment, unlike other countries in the lithium triangle, Argentina currently has neither a unified regulatory framework for lithium mining nor a specialized regulatory agency. The core of the relevant system is mainly based on three A regulation promulgated in the 1990s. First, mining activities in Argentina are mainly based on the "Mining Law" revised in 1997. This law stipulates that local provincial governments are the owners of mineral resources and have the right to grant development concessions to private companies. authority, but does not own mining rights and mineral rights. In other words, once a company becomes a mine owner through the licensing system, it can become the sole beneficiary of the minerals and has the right to explore, mine and dispose of the mineral resources, while the license holder only Must be paid in accordance with relevant price regulations

Y YYYYYYYYY Y YYYYYYYYY YYYYYYYYY Y YYYYYYYYY YYYYYYYYY: YYY YYYYY YYYYY YYY YYY  
 Y: // YY YYYYYYYYY YYY Y/ YYYYY/ YYYYY / YYY [YYY Y Y Y] "YY

Y YYYYY YYYYYYYYY YYYYYYYYY YYY Y YYYYYY"Y YYYYY YYYYY YYYYYYYYY YYYYYY YYYYYY YYY  
 YYYYY: // YYY YYY YYY / YYYYYYYYYY/ YYYYYY / YYYYYY Y YYYYYY YYY [YYY Y Y Y]

---

Pay an annual fee and complete the minimum investment amount. In addition, Argentina's "Mining Law" implements a transparent non-discrimination policy, which is different from other countries' restrictions on mineral development categories and specific areas. This act allows miners to enter any area and conduct any type of Secondly, the Foreign Investment Law No. 21,382 stipulates that domestic and foreign investors enjoy the same national rights and obligations. Therefore, Argentina has become the only country in the Lithium Triangle that allows free application for lithium mining concessions. Both Argentine and foreign individuals or legal entities can apply for exploration and mining licenses for lithium resources without distinction. Compared with Chile and Bolivia, this has an undoubted advantage in attracting foreign investment. Take Chile as an example. As early as the 1970s and 1980s, the country regarded lithium as a national strategic resource and defined it as a mineral that "cannot be granted mining rights." In 2014, the Chilean National Lithium Commission launched the policy reform of lithium resource development and reiterated this Lithium has a strategic position in the country. In 2019, the Chilean House of Representatives passed a proposal to list the mining, industrialization and commercialization of lithium as national interests, so that the development and operation of the Chilean Salt Lake Lithium Project can only be carried out by the state or state-owned enterprises. In 2023, President Boric announced that Chile will further promote the nationalization of lithium mines. On the one hand, a state-owned lithium company will be established under the framework of the "National Lithium Strategy". On the other hand, lithium mine contracts will only be open to public-private joint ventures under state control in the future. In fact, not only the Lithium Triangle, but other lithium-rich countries in Latin America such as Mexico are also trying to nationalize lithium resources through national administrative regulations. From exploration and mining to revenue and utilization, the state is completely responsible. But for Argentina The serious domestic debt crisis and hyperinflation, as well as a series of financial, economic, political and social problems caused by them, have prompted it to continue to implement an open mining policy and increase its efforts to attract foreign investment into the domestic mining industry, including lithium mines. Comprehensively increase metal and mineral production to achieve the goal of increasing mining exports by 10 billion US dollars by 2030. Therefore, Argentina has become one of the most important destinations for foreign investment in lithium mines in the world at this stage. Third, on this basis Act No. 24 196 (1993), known as the "Mining Investment Law", is the main applicable law for lithium mining investment in Argentina. As an industrial preferential policy, this act aims to encourage investment in lithium mines through long-term stable fiscal and tax incentives. Mining development investment. Its main contents include (1) Limit the mining royalty rate levied by each province to no higher than 3% of the net value of minerals; (2) Implement zero tariffs on capital goods and imported raw materials required for operations; (3) When calculating corporate income tax, use it for projects The investment amount for feasibility studies can be 100% deducted, that is, the Argentine government will bear the risks and uncertainties in mineral exploration and evaluation. (4) Commitment from the level of national law, after the enterprise provides the feasibility report to the central government Within 30 years from that date, all tax policies will remain unchanged.

---

"Empresa Nacional del Litio: Presidente Boric To del Mineral" y Gobierno de Chile Increase mining exports by US\$10 billion in 2030»,

China Mining Network, January 18, 2022

// // [ ]





---

Use technological innovation to drive the extension of the industrial chain. First of all, on the basis of stabilizing the advantages of upstream raw materials, by cooperating with mid-stream and downstream enterprises to build factories and improve processing capacity, we strive to achieve synergy and "integrated" development of our own business, so as to capture excess profits and Purposes such as increasing pricing power. Secondly, increase R&D investment, build a scientific and technological innovation platform, and enhance the scientific and technological innovation capabilities of the local lithium industry through industry-university-research cooperation. In 2015, the Argentine National Council for Scientific and Technological Research, the Jujuy Provincial Government and the Jujuy The National University of Iran jointly initiated the establishment of the Jujuy Advanced Materials and Energy Storage Research and Development Center (also known as the "Lithium Research Institute"). Its main tasks include overcoming technical difficulties in lithium extraction in the upstream field and comprehensively improving the development of lithium mines. Speed, quality and efficiency also involve expanding to the downstream industrial chain. Through cooperation with mature enterprises and technical teams, we will strengthen the research and development of new lithium battery technologies. Finally, we will innovate lithium resource products to stimulate the demand for lithium products in Argentina's domestic final market. For example, in 2020, the National Energy and Mining Company of Jujuy Province cooperated with the University of La Plata to transform about 100 passenger buses in the province from diesel vehicles to electric vehicles to make full use of the rich lithium mineral resources and lithium in the province. Batteries have huge advantages as a clean, efficient, and pollution-free energy source.

In fact, Argentina and China are highly complementary and mutually beneficial in promoting the coordinated development of the lithium resource industry chain and supply chain. In recent years, driven by both policies and markets, China's lithium industry is ushering in an explosion. Growth, participation and influence in the global industrial chain and value chain are increasing day by day. On the one hand, Chinese companies such as Ganfeng Lithium, CATL, NIO and other Chinese companies have very strong technical and financial strength in the middle and lower reaches of the industry. But on the other hand, the imbalance between the supply and demand of upstream raw materials is still a prominent contradiction faced by the development of China's lithium industry in the long term. Therefore, strengthening Sino-Arab cooperation can enable both parties to simultaneously have advantages in resources, capital, technology, market and other aspects. ¶ Work together to open up the upstream and downstream links of the lithium industry chain, and jointly maintain the state of coupling and dynamic balance between the front and back ends of the supply chain¶, which will not only help Argentina achieve economic recovery and transformation and development, but also effectively ensure the safe supply of China's key minerals and new energy. Sustained and stable development of strategic emerging industries.

(3) The resource security game and geopolitical economy behind lithium competition. With the continuous advancement of the global new energy revolution, the supply and demand situation of lithium resources is undergoing significant changes and triggering a new round of international competition. In fact, strategic mineral resource issues It is never a purely economic issue, and lithium resources are definitely not ordinary commodities. Behind the competition for strategic mineral resources represented by lithium, there is often a mutual game between national interests. Therefore, this article will focus on Argentina's domestic, lithium Starting from the four levels of the triangular region, the competition between major powers outside the region, and global governance, we examine and discuss the resource security game and geopolitical economy behind lithium competition and its impact on China-Arab lithium industry cooperation.

---

¶ Du Xingye: «Effectively maintain the security and stability of China's industrial and supply chains», published in Guangming Daily, Page 11, August 23, 2022.

First, the rise of domestic resource nationalism in Argentina has intensified the risk of overseas supply. The importance of resources to national economic development, as well as the ideological transformation of Latin American left-wing forces and their rise to power driven by indigenous movements, resource nationalism has become increasingly important when resources are abundant and Latin American countries that have long relied on the extractive industry have a clear upward trend. A new wave of nationalization has emerged, which has led to an increase in the reversal of investment liberalization and has created a certain degree of constraints on the supply of overseas resources. In the face of fiscal deficits, excessive debt, and economic crises, Although Argentina did not fully nationalize the ownership, development and management rights of its own resources like Bolivia and other countries, it adopted a more covert form of government intervention, especially after the center-left Fernandez government came to power. A series of government intervention measures including asset nationalization, attempts to take over private companies, and the introduction of price ceilings have been adopted. According to "Latin America Leads the Global Shift to Resources" released in 2021 by Verisk Maplecroft, a well-known British risk consulting firm Nationalism » report, since the outbreak of the new crown epidemic, Argentina's resource nationalism index has rapidly climbed from 81st to 19th in the world. Against this background, the trend of Argentine resource nationalism, especially "lithium nationalism" and its impact on lithium industry investment deserve more attention.

Second, promote the establishment of a common market for lithium resources in the Lithium Triangle region -

"Lithium OPEC". As early as 2011, Argentina took the lead in proposing to cooperate with Bolivia and Bolivia, which also belong to the Lithium Triangle. Chile jointly established a regional lithium resource alliance organization - the "Association of Lithium Producing Countries" (OPPROLI), aiming to coordinate and unify the lithium industry policies of member countries, not only to prevent over-exploitation of lithium resources, but also to implement appropriate price controls , thereby promoting the long-term stable development of the regional lithium market and safeguarding the maximum interests of member states. In view of the fact that the role, functions and goals of this organization are highly similar to those of the Organization of the Petroleum Exporting Countries (referred to as "OPEC", OPEC), it is also called As "Lithium OPEC". However, due to the changes in the political situation of the Lithium Triangle countries and the different prominent contradictions faced by the three governments in the process of economic and social development, this idea has still remained in the theoretical stage and has not been put into practice. But as time goes by, Boric, who advocates using state power to regulate mineral resources, was elected as the new president of Chile. Governments in the Lithium Triangle are all left-wing. Coupled with the increasing competition for global lithium resources, the process of realizing lithium OPEC is expected to accelerate. In October 2021, Argentina and Bolivia The government stated that both countries seek to transform from lithium resource exporters to lithium product producers. Therefore, it is necessary to strengthen cooperation to jointly enhance the added value of lithium resources and resolutely safeguard their country's energy sovereignty. In the same year, the socialist organizations of Argentina, Bolivia, and Chile Groups and academic institutions have organized the establishment of the "Lithium Resource Alliance", which aims to promote the formulation of a more comprehensive lithium triangle resource development strategy by building an academic exchange and cooperation platform. If the idea of lithium OPEC is implemented, the countries in the lithium triangle will learn from the OPEC model and develop Lithium m

ü üüüüü üüüüüüüüüü "üüüüü üüüüüüü üüüüüüüüüü üüüüü üüüüü üüüüüüüüüü üüüüüüüüüü"ü üüüüü ü üüüüü üüüüü: // üüü üüüüüüüüüü üüü/ üüüüüüüü/ üüüüüüüü [üüüü ü üü ü üü]

A uniformly defined quota system will be implemented to control the lithium market by adjusting production capacity, which will improve the geopolitical and economic environment to a certain extent. In fact, although the total lithium resources of the above three countries account for 55.96% of the world, taking 2021 as an example its annual output is only 32,451 tons. Therefore, the establishment of lithium OPEC has limited impact on lithium mine output and prices in the short term. However, in the long term, as the world's largest lithium consumer, China's rigid demand for resources has made China more susceptible to the restrictions and constraints of such regional resource alliance organizations. In view of this, China should actively integrate into the global value chain through more open and diversified methods such as maintaining the multilateral system, joining regional institutions, and signing regional trade agreements, and continue to strengthen the global resource alliance. The "circle of friends" of South-South cooperation in the governance system continues to enhance China's voice and influence in the strategic minerals field.

Loudness

Third, the resource game between major powers outside the region has intensified. Currently, strategic mineral resource issues are becoming increasingly politicized. As one of the core elements of the clean energy transition, lithium has become the focus of the US resource competition and the game between great powers. Since 2008, since then, the United States has no longer disclosed information about its lithium resources and reserves to the outside world. During the Trump administration, the Trump administration signed a presidential executive order titled "Federal Strategy to Ensure the Security and Reliable Supply of Critical Minerals," which included increasing the number of lithium and other critical minerals. The ability to securely supply minerals to avoid major impacts on the U.S. economy and national security. As the trend of "China dominates supply and marginalizes U.S. industry" in the global lithium battery supply chain becomes increasingly apparent, after the Biden administration came to power, it has the local lithium battery supply chain conducted a vulnerability assessment and pointed the finger at China, pointing out that although China does not have an innate advantage in lithium resource reserves, thanks to the country's huge investment in processing and manufacturing, China's position in the global lithium supply chain China's position in China cannot be underestimated. China refines 60% of the world's lithium. It can use its existing advantages to cut off the lithium battery industry chain in the United States at any time. In addition, the United States is also worried that China will use the clean energy supply chain to challenge its global dominance. Dai Qingli, vice chairman and president of the Paulson Institute, wrote in an article that China's influence has penetrated deeply into the traditional sphere of influence of the United States. In 2020, China's mergers and acquisitions in the Latin American energy sector accounted for 1/4 of its total global mergers and acquisitions, especially in Bolivia and Argentina. Chile and Peru have made large investments, and these countries hold more than half of the world's lithium resource reserves. The United States

---

Shi Peiran: « "Resilient Supply Chain" Strategy and China's Repositioning of its Role in the Global Value Chain », Published in "Journal of the Pacific" Issue 9, 2022, Page 74

2018 p 23295

Zhang Rui, Hong Tao: "Clean energy supply chain and the Biden administration's reshaping strategy: based on a geopolitical perspective", published in

"Peace and Development", Issue 1, 2022, page 23, The White House Ing Resilient Supply Chains Revitalizing American Manufacturing - Based on Growth

ratio in The Diplomat





## Sino-Arab lithium industry cooperation under the "Three Greens" "One Belt and One Road"

Strategic mineral resources are an important material basis for the reform of energy governance in today's world. They are related to the national economic development and military and national defense security of various countries. Green development is the prerequisite guarantee for leading the construction of the "Belt and Road" and promoting international industrial cooperation. In this dual background, further strengthening the strategic partnership of South-South cooperation is conducive to the realization of international cooperation in green supply chains, promoting the transformation of countries that jointly build the "Belt and Road" to a green economy, and working together to create an open, inclusive, and universally beneficial "human resources community" that will not only enhance the It also improves the safety and security level of key minerals, improves the ability to optimize the allocation of resources, promotes rapid economic and social development, and jointly builds a green and low-carbon global energy governance pattern.

The cooperation between China and Argentina in the field of lithium mining can be traced back to 2014, when Ganfeng Lithium laid out lithium resources in Mariana Salt Lake. In less than ten years since then, many Chinese companies have entered Argentina directly or indirectly. (See Table 1) Sino-Arab lithium industry cooperation has developed rapidly and has gradually become a new highland for green economic cooperation between the two countries. It has the following obvious characteristics. First, it benefits from its excellent resource endowment and relatively loose and open investment environment. Argentina has become an important destination for lithium investment by many Chinese companies. Among them, world-renowned lithium producers represented by Ganfeng Lithium continue to deploy high-quality lithium resources in Argentina and further expand on the basis of improving resource self-sufficiency. Lithium salt processing capacity, there are also leading lithium battery companies such as CATL, which are expanding from the downstream to the upstream resource side. By improving the industrial chain layout, they strive to obtain more raw material supplies to enhance their market bargaining power and enhance the company's core competitiveness. There are also Traditional mining giants such as Zijin Mining and Tibet Everest are accelerating their entry into the new energy field to comply with the development trend of green economy and promote business transformation. Secondly, from the perspective of corporate ownership form, unlike in the past, state-owned enterprises are traditional oil and gas investments in China and Latin America. The main body of the cooperation. As far as the China-Arab lithium industry cooperation is concerned, among the Chinese companies that have "went global", only Zijin Mining is a large state-owned holding group, and the rest are private companies. Therefore, how to provide solutions for companies that actively participate in overseas investments in strategic mineral resources? Private enterprises provide necessary support and guarantees, and at the same time make good use of their status as private enterprises to more fully exert their advantages and roles. This is a key link that deserves attention and strengthened discussion in the future. Third, although a considerable number of Chinese enterprises have entered Argentina Lithium industry market, but the industrial structure and cooperation model are still relatively simple and traditional, mainly focusing on the upstream and midstream lithium resource mining and lithium compound extraction fields. Specifically, Chinese companies usually extract brine from Argentine salt lakes and simply process it into carbonic acid locally. Lithium compounds such as lithium are then sold directly to other countries to ensure demand for raw materials for lithium products. At the same time, Chinese companies are more inclined to enter the Argentinian market by purchasing equity or assets rather than making greenfield investments: companies directly acquire lithium mines, Salt Lake equity, or through equity participation in international lithium giants that control "co

It is worth noting that Argentina's large-scale high-quality salt lake lithium projects with complete mineral rights have been divided up by Western countries such as Canada and Australia in the early stage. Therefore, although a large number of Chinese companies have entered the Argentine lithium industry, in fact, the cooperation with the local Argentine government and enterprises is still relatively weak. Limited

Table 1 List of Chinese companies acquiring or investing in Argentinian lithium mines (2014-October 2022)

Company Name	Company description	project name	Equity structure
Ganfeng Lithium Industry	The largest producer of lithium compounds in China and the third largest producer of lithium compounds in the world. The largest producer of lithium metal in the world.	Cauchari-Olaroz directly holds	46.67% of the equity and has control over the project
		Mariana holds 100%	equity in the project
		天齐锂业 (Tianqi Lithium Industry)	Jointly financed the acquisition of the Puna Salt Lake (SDLP) project with Canada's Arena Minerals and held a 35% stake in the project, and acquired Lithea Inc. 100% equity, its core assets
		赣锋锂业 (Ganfeng Lithium Industry)	include Pozuelos (Pozuelos) and Pastos Grandes (Pastos Grandes) two salt lake projects, but this acquisition does not involve the transfer of ownership of the mining rights, and is still owned by Lithea Company Inc) acquired Canadian Lithium X Energy through privatization (Lithium X Energy Corp) owns the exploration rights of the Arizaro Lithium Salt
Mount Everest in Tibet	Engaged in the mining, selection, smelting, production and operation of large overseas lead and zinc mines, and the development and extraction of lithium and potassium salt lake resources in South America	阿伊亚 (Aiyaya)	Lake (Arizaro)
		西藏矿业 (Tibet Mining)	Through the privatization acquisition of Canada's Lithium X Energy Corp, it owns 100% of the mining rights of the Angeles Lithium Salt Lake (SDLA) project
Shangxin Lithium Energy	Engaged in the production and sales of new energy lithium battery materials	西藏矿业 (Tibet Mining)	Acquired 100% of the equity of Salta Exploration Company (Salta Exploraciones S A), and jointly owned the Angeles Lithium Salt Lake with Mount Everest in Tibet by holding a 50% interest share in the consortium of companies ("UT"). SDLA) Project Operations rights, but not ownership rights, and cooperated with the French Eramet Group to
Qingshan Industrial	The world's largest producer of stainless steel and ferronickel	天齐锂业 (Tianqi Lithium Industry)	build a battery-grade salt lake lithium extraction project. Tsingshan Industrial provided US\$37.5 billion in financing and obtained 49.9% of the equity of the lithium extraction plant.
Xinwanda	Engaged in the research and development, production and sales of lithium battery cells and modules	天齐锂业 (Tianqi Lithium Industry)	Jointly invested to establish Zhejiang Jinhengwang Lithium Co., Ltd. and planned to acquire the Laguna Caro project 100 held by Argentina's Goldinka Energy S A % mineral rights
Jinyuan Shares	Engaged in building materials, environmental protection and new energy businesses		
Chuanheng Shares	Engaged in phosphate rock development and intensive processing of phosphate resources		
NIO	Global smart electric vehicle company	天齐锂业 (Tianqi Lithium Industry)	Reached a strategic financing agreement with Greenwing Resources Ltd, an Australian mineral exploration and development company, to provide financing of up to or more than RMB 600 million, requiring Greenwing Resources to accelerate its holdings of San Jorge (San Jorge) Development of lithium mines progress and NIO must give priority to becoming a customer of the project
Ningde era	The world's leading lithium-ion battery R&D and manufacturing company	天齐锂业 (Tianqi Lithium Industry)	Acquired 8% of the shares of Canada's Neo Lithium and thus became the third largest shareholder (its core asset is the 3Q Salt Lake Project, but it was 100% acquired by Zijin Mining in 2021)
Zijin Mining	China's largest gold producer and second largest mined copper producer	天齐锂业 (Tianqi Lithium Industry)	Acquired 100% equity of Canada's Neo Lithium (wholly owns the 3Q Salt Lake Project)

Note: Except for Zijin Mining, which is state-owned, all other companies are privately owned.

Source: Compiled and drawn by the author.



However, it should also be noted that in recent years, Chinese companies that are "going out" have gradually begun to directly invest in local Argentine companies, effectively realizing the docking of development strategies and finding more points of interest. For example, China was the first to engage in independent research and development of lithium batteries for new energy vehicles and Guoxuan Hi-tech, which produces, established a joint venture with Jujuy National Energy and Mining Company to establish Guoxuan Jujuy Mining Co., Ltd., and established and operated a battery-grade lithium carbonate refinery in the Perico Free Trade Zone of the province. The latter is mainly responsible for Guoxuan Hi-Tech will provide technical support for the supply of industrial-grade lithium carbonate required for the project, the exploration of potential local lithium mines in Argentina, and the provision of other mining rights. More importantly, both parties will also provide technical support in cathode materials and lithium battery manufacturing, and other downstream businesses of the lithium industry to cooperate to achieve mutual benefit. The role of this move in promoting Argentina's new energy industry has also been highly recognized and evaluated by President Fernandez. Not only that, China and even the world's largest electric vehicle battery manufacturer CATL has also cooperated with CATL Argentina's state-owned oil and gas company has established a strategic partnership, aiming to gain the support of the Argentine government to expand its high-grade lithium resource layout, improve its global supply chain system, and alleviate the increasingly prominent supply and demand contradiction of power battery materials. For the Argentine government we can use the bridging role of state-owned oil and gas companies to make full use of CATL's accumulation in lithium battery technology and market to promote the development of Argentina's lithium battery industry chain and even the transformation of the energy matrix.

#### Four conclusions and countermeasures

From the perspective of resource security and the responsibility of a major power, China has proposed a strategic mineral resource security concept that embodies Chinese wisdom and reflects Chinese values. It requires getting rid of the shackles of zero-sum thinking, breaking through the conflict and competition emphasized by traditional energy security concepts, and advocating Organically combine the complementary advantages and mutual benefit between countries with the creation of a harmonious international political environment for resource security and the construction of a green and low-carbon global energy governance pattern, guide countries from resource competition to resource cooperation, and jointly realize global strategic mineral resources. Security points out the direction. On this basis, China and Afghanistan should further promote the continuous improvement and upgrading of China-Arab lithium industry cooperation in the context of the green "Belt and Road Initiative" and promote South-South cooperation in strategic mineral resources.

First, strengthen political mutual trust and promote mutual benefit and win-win. China and Argentina are both important components of South-South cooperation. Both parties should firmly establish a new development concept of win-win cooperation, shared responsibilities, and cooperative governance, and take into account each other's interests and demands, and practical concerns, seek convergence of interests and the greatest common denominator of cooperation, gather consensus, and deepen mutual trust. As a strategic emerging industry and an indispensable core resource for the development of green economy in today's world, lithium is an important resource for Argentina, which is deeply mired in debt. It is an important tool to achieve its economic recovery and energy transformation, and China needs to be more proactive in promoting the formation of a global community of interests in the strategic mineral resources supply chain to effectively ensure the safety, reliability, and diversified supply of China's lithium resources. Different from the so-called

The essence of Sino-Arab lithium industry cooperation is a new South-South cooperation model of equal treatment, mutual benefit and win-win results. There is no distinction between dominance and subordination, and it is not directed at third parties, nor should it be interfered by third parties. Faced with the wave of resource nationalism, the interference of American factors, and the resulting noises such as "neo-colonialism", "theory of plundering resources" and "theory of environmental destruction", it is necessary for both sides to work together on the four pillars of "truth, reality, affinity and sincerity". Under the guidance of the national policy and the correct concept of justice and benefit, integrate and utilize high-level intergovernmental consultation and exchange platforms to establish a strategic mineral resources cooperation mechanism around green economic development, and jointly provide scientific and reasonable solutions for the long-term sustainable development of China-JAE lithium industry cooperation. Top-level design

Second, actively realize policy interoperability and strategic docking, and improve the ability of China's lithium resource supply chain to withstand uncertainty. At the national level, the Chinese government should focus on improving the flexibility of the lithium resource supply chain and dynamically identify country risks in the countries where the resources are located. Systematically carry out strategic mineral supply and demand analysis and supply chain risk assessment. On the one hand, we will regularly enrich and improve the policy reserve toolbox and strengthen the safety early warning ability to respond to major international resource conflicts. On the other hand, we will establish organizations such as the China Lithium Enterprises Association to work closely with Communication and exchanges between relevant departments of the host country, without direct government intervention, strengthen macro guidance and support for Chinese enterprises to participate in lithium industry cooperation and integrate into the international industrial chain and supply chain. In addition, the government should also stand at the strategic height of ensuring national resource security. Enterprises are encouraged to carry out necessary key mineral reserves. They can also establish a mixed reserve mechanism that combines production and storage with the participation of the government and enterprises, forming a strategic mineral resource reserve system with product reserves as the main component and production capacity and production area reserves as the supplement. In enterprises In view of the two-level legislative system of federal countries, it is more necessary for Chinese enterprises to strengthen preliminary research and demonstration of projects, fully understand the relevant laws and regulations of the Argentine federal and local provincial governments, and target the three lithium-rich provinces of Jujuy and Cacao. Tamaca and Salta have completely different development logic and planning concepts for the lithium industry. Implementing a moderate localization strategy, proactively integrating into the overall development situation, and making full use of policy support can not only effectively enhance the company's competitive advantage, but also ensure compliance with laws and regulations. operations, lay a solid foundation for risk prevention. At the same time, Chinese enterprises should always be alert to the risks of policy changes, make full use of local Argentine laws and international investment treaties, study and formulate risk prevention plans, and minimize the legal and

commercial risks of lithium industry investment. Chapter 2 3. Complementary advantages to promote the innovation and upgrading of cooperation in the entire industry chain of the Sino-Argentine lithium industry. In view of the fact that Argentina's current lithium resource development model has obviously insufficient impact on the international lithium market voice and industrial value-added income, Chinese companies should seize the Argentine green technology revolution and the new opportunities brought about by industrial changes, we will work simultaneously from the supply side and the demand side, make full use of our own advanced technology, mature experience, abundant funds and broad market, organically combine it with Argentina's natural resource advantages, and consolidate the Upstream resource layout

---

See Lin Hua: "The Space and Path of Poverty Reduction Cooperation between China and Latin American Countries", published in "Latin American Studies", Issue 5, 2022, page 109. Li Shixiang and Liu Siqi: "Building a

Strategic Mineral Resources Guarantee System" Published in "China Social Sciences Journal" on May 31, 2021.



A virtuous cycle of growth. Finally, China should also actively participate in Argentina's green industry investment, close green development partnerships, and contribute China's strength to the green and low-carbon transformation of developing countries.

Fifth, adhere to equal emphasis on resource development and social responsibility, and create a good image of Chinese enterprises and the country in building a global "resource community with a shared future." Like most strategic minerals, Argentina's lithium mines are mostly distributed in remote areas with relatively backward social development. Chinese companies that "go global" should strive to carry out humanistic care and social assistance, help local communities strengthen various infrastructure construction such as schools, hospitals, and lithium mining vocational training centers, and promote the improvement of the lives and abilities of indigenous residents. Improve and actively repay the Argentine society. As for the company's responsible behavior, it should strengthen publicity, actively open new social media accounts, and promptly introduce the latest progress of the project and its impact on the sustainable development of the economy and society to the public through pictures, videos and other full media forms. The positive role of the company is to enable enterprises to better integrate into the local society and establish emotional bonds, and to establish a trustworthy and responsible image of Chinese enterprises and even the country.

Sixth, adhere to market operation, focusing on corporate behavior and supplemented by government guidance. In view of the fact that Chinese companies investing in the lithium industry in Argentina are mainly private enterprises, the commercial nature of the cooperation between the two parties should be emphasized, and insist on building a "government-guided, corporate The industrial chain cooperation system is "centered and market-operated", fully mobilizes the advantages of private enterprises in flexible operation, quick decision-making, strong adaptability and non-governmental non-officials, emphasizes incremental sharing, complementary advantages and mutual benefit and win-win, and refutes the opposition to us with practical actions. Theories such as "neo-colonialism" and "resource plundering" alleviate the concerns of resource nationalists about the export of strategic mineral resources. At the same time, it should also be noted that Chinese companies that "go global" are working independently and have not formed an overall picture. The model of coordination and cooperation has weakened the overall competitiveness of China's lithium industry to a certain extent. Therefore, it is necessary to establish and improve the normal communication mechanism between the government and private enterprises, and to smooth the information sharing channels between domestic lithium mining enterprises. Actively coordinate and integrate industry resources, form a unified alliance externally, and effectively enhance China's voice in global governance in the field of lithium mines and even strategic minerals.

(Editor-in-charge Wang Shuai)