

ASYMMETRY OF THE LITHIUM TRIANGLE: A COMPARATIVE STUDY OF LITHIUM GOVERNANCE IN BOLIVIA, ARGENTINA, AND CHILE

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ABSTRACT

Lithium is a critical mineral for the clean energy transition, most known for its use in lithium-ion batteries, which are deployed in electric vehicles. Consequently, global demand for lithium is booming, expected to triple by 2030. The Lithium Triangle, composed of Argentina, Bolivia, and Chile, is assuming an essential role in satisfying this demand since it is home to half of the world's lithium reserves. However, of the three countries, only Chile has successfully transformed most of its reserves into commercially viable resources, making it the second highest lithium producer in the world. Bolivia, Argentina, and Chile have adopted starkly different approaches to governing their lithium industries. Part I will outline Bolivia's statist approach, their constitution enshrining the state's ownership of the mineral and its control over its entire productive chain. Part II will outline Argentina's decentralized, investor-friendly approach under which the provinces own the mineral and liberally grant mining rights to investors who benefit from a myriad of special tax benefits. Part III will outline Chile's centralized, mixed public-private approach in which the state retains ownership of the mineral while meticulously negotiating and closely supervising the conditions of mining rights extended to two private actors. Part IV will compare the three countries' approaches and theorize that, in a region characterized by weakened state capacity, Chile's governance style has empowered it to significantly outpace Bolivia and Argentina in lithium production. Lastly, Part V will address the vulnerabilities of generalizing about the success of the Chilean model, accounting for confounding variables such as the role of indigenous

communities, Chile's favorable geographic conditions, and Chile's relatively stronger state capacity.

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INTRODUCTION

Lithium, often referred to as “white gold,” is an essential component of the response to climate change.¹ Global lithium demand is expected to grow threefold by 2030 due to the mineral's critical role in clean energy technology, especially in lithium-ion batteries powering electric vehicles.² The Lithium Triangle (the Triangle), consisting of Argentina, Bolivia, and Chile, is home to roughly half of the world's lithium reserves.³ At the top of the list, Bolivia and Argentina are estimated to each possess 23 million tons of lithium, followed by Chile with 11 million tons.⁴

Despite possessing the smallest lithium reserves of the three countries, Chile has successfully transformed most of its reserves into economically viable resources available for commercial production, with Argentina and Bolivia trailing behind.⁵ In 2024, Chile produced 49,000 metric tons of lithium—the second most in the world—while Argentina produced about one-third of that amount—18,000 metric tons, the fifth most in the world⁶—and Bolivia produced only 1130

1. Ryan C. Berg & T. Andrew Sady-Kennedy, *South America's Lithium Triangle: Opportunities for the Biden Administration*, CTR. FOR STRATEGIC & INT'L STUD. (Aug. 17, 2021).

2. INT'L ENERGY AGENCY, *GLOBAL CRITICAL MINERALS OUTLOOK 2024* (May 2024), <https://www.iea.org/reports/global-critical-minerals-outlook-2025>.

3. U.S. GEOLOGICAL SURVEY, *Lithium*, in *MINERAL COMMODITY SUMMARIES 2025* (Jan. 2025).

4. *Id.*

5. *Id.*

6. Georgia Williams, *Top 9 Lithium-Producing Countries*, INVESTING NEWS NETWORK (Mar. 5, 2025), <https://investingnews.com/daily/resource-investing/battery-metals-investing/lithium-investing/lithium-production-by-country/>.

metric tons.⁷ To translate these figures into global contribution, in 2024, Chile's share of the world's lithium production was 20.4 percent, Argentina's was 7.5 percent, and Bolivia's was less than 1 percent.⁸ Why has Chile substantially outpaced Argentina and Bolivia in the extraction and commercialization of lithium? Surely, a lack of demand for the mineral does not explain the disparity nor does a lack of initiative on behalf of the Argentine and Bolivian States to exploit the mineral. In Argentina, 56 lithium projects are underway: six are in the production stage, five are in the construction stage, and the remainder are in preliminary stages like exploration, feasibility, and economic evaluation.⁹ In 2017, Bolivia created the state-owned enterprise Yacimientos de Litio Bolivianos (YLB), which operates under the direction of the Ministry of Energy, with a mission of developing the industrialization of evaporite resources in Bolivia's salt flats¹⁰ and controlling the entire productive chain of lithium.¹¹

Differences in state capacity also fail to offer a complete story of the production disparities. State capacity is a crucial marker in an industry requiring specialized equipment and highly technical processes such as lithium extraction and development.¹² Lithium is extracted from

7. *Bolivia fue la que menos exportó en el triángulo del litio en 2024, por un total de \$us 9,7 millones*

[*Bolivia was the country that exported the least in the lithium triangle in 2024, with a total of \$US 9.7 million*], *El Día* (Jan. 7, 2025), <https://eldia.com.bo/2025-01-07/economia/bolivia-fue-la-que-menos-exporto-en-el-triangulo-del-litio-en-2024-por-un-total-de-97-millones.html>.

8. U.S. GEOLOGICAL SURVEY, *supra* note 3.

9. *Litio Panorama Global del Mercado del Litio y el Potencial Litífero de Argentina – Serie de estudios sobre mercados mineros* [Lithium Global Panorama of the Lithium Market and Lithium Potential of Argentina – Series of Studies About Mining Markets], SECRETARÍA DE MINERÍA MINISTERIO DE ECONOMÍA [SECRETARIAT OF MINING MINISTRY OF ECON.] (June 2025), https://www.argentina.gob.ar/sites/default/files/informe_litio_junio_2025.pdf.

10. *Acerca de YLB* [About YLB], YACIEMENTOS DE LITIO BOLIVIANOS [BOLIVIAN LITHIUM DEPOSITS], <https://web.archive.org/web/20250427010129/https://www.ylb.gob.bo/acerca> (last visited Sept. 20, 2025).

11. Hortensia Jimenez Rivera, *Política de industrialización de litio, el caso boliviano* [Policy of industrialization of lithium, the Bolivian case], SOUTH CTR. (Oct. 2020), <https://www.southcentre.int/wp-content/uploads/2020/10/IP-85-2.pdf>.

12. See, e.g., Pol Antràs, *Conceptual Aspects of Global Value Chains*, WORLD BANK ECON. REV. 1, 13 (2020) (explaining how “more sophisticated tasks in value chains require skills and capabilities that many underdeveloped countries lack. As a result, the rise of [global value chains] might lead less-developed economies to specialize in relatively low-value added segments of production with little scope for upgrading.”); see also Deborah Winkler, et. al., *Linking Trade to Jobs, Incomes, and Activities: New Stylized Facts for Low- and Middle-Income Countries 22* (World Bank Group, Policy Research Working Paper No. 10635, Dec. 2023), <https://openknowledge.worldbank.org/server/api/core/bitstreams/1da46650-dead-4958-8f69-6de015dd49c0/content> (noting that as countries grow richer, they shift towards more advanced manufactured goods and services).

lithium brine ponds or hard rock mines.¹³ The former requires pumping liquid into evaporation pools where they are then concentrated, while the latter requires mining, crushing, concentrating, and leaching ores to produce lithium solutions.¹⁴ Brine processing is the method predominantly used in the Triangle.¹⁵ This method poses environmental challenges due to the extensive land use, immense water consumption, and chemical waste disposal involved.¹⁶ Additionally, the method is characterized by lengthy processing times and relatively low recovery rates, capturing roughly half of the original lithium content of the brine.¹⁷ Once extracted, the lithium is processed in a plant, converting the extracted substance into a specific battery-compatible compound.¹⁸

The persistent low- to mid-level state capacity in Latin America has been linked, in part, to its colonial past.¹⁹ Historically, Latin America as a region was victim to extractive colonialism: European colonial powers appropriated native natural and human capital for their own wealth accumulation and centralization of power.²⁰ Even following independence, the region has been characterized by stunted state capacity and economic development, weak infrastructure,²¹ and the highest

13. *Lithium Extraction & Refining*, SALTWORKS, <https://www.saltworkstech.com/applications/lithium-extraction-and-refining/#:~:text=Regardless%20of%20the%20source%2C%20lithium,advanced%20automation%20lithium%20refining%20systems> (last visited Sept. 20, 2025).

14. *Id.*

15. *Lithium Extraction Methods*, LITHIUM HARVEST (Dec. 3, 2025), <https://perma.cc/V4MX-66CJ>.

16. *Id.*

17. *Id.*

18. Amanda Doyle, *Brine to Batteries: Lithium Extraction Technology that's Sustainable and Efficient*, THE CHEMICAL ENGINEER (Mar. 17, 2022), <https://www.thechemicalengineer.com/features/brine-to-batteries-lithium-extraction-technology-that-s-sustainable-and-efficient/>.

19. See generally Raúl Aldaz Peña & Daniel Baquero-Mendez, *The Original Sin of Latin American States: Formation, Building, and Capacity*, 4 J. HIST. POL. ECON. 557 (2025) (noting how colonial histories permeated state building in Latin America).

20. See Christopher W. Chagnon, et. al., *From Extractivism to Global Extractivism: The Evolution of an Organizing Concept*, 49 J. OF PEASANT STUD. 760, 763 (2022); Iza Camarillo, *The Corporate Colonization of Latin America: How Investor-State Dispute Settlement (ISDS) Harms Indigenous Communities*, PUB. CITIZEN 12 (June 2024), <https://gtwaction.org/wp-content/uploads/2025/03/ISDS-Indigenous-Peoples-Report-FINAL.pdf>; Malayna Raftopoulos, *Contemporary Debates on Social-Environmental Conflicts, Extractivism and Human Rights in Latin America*, 21 INT'L J. HUM. RTS. 387, 390 (2017).

21. See Mauricio Cárdenas, *State Capacity in Latin America*, 10(2) ECONOMÍA 1, 8–9 (2010); Jerry Haar, *Latin America Must Prioritize Infrastructure to Spur Economic Growth*, WILSON CTR. (Mar. 13, 2023), <https://www.wilsoncenter.org/article/latin-america-must-prioritize-infrastructure-spur-economic-growth>; Base B. Bakker, et. al., *Lack of Human Capital is Holding Back Latin America's Growth*, INT'L MONETARY FUND NEWS (Aug. 13, 2020), <https://www.imf.org/en/News/Articles/2020/08/12/na081320-lack-of-human-capital-is-holding-back-latin-americas-growth>.

levels of income inequality in the world.²² Bolivia was colonized by the Spanish Crown for nearly three hundred years.²³ The discovery of silver in Bolivia made it one of the wealthiest and most heavily populated regions in the Spanish Empire.²⁴ Under Spanish dominion, the indigenous populations were forced to supply labor for mines until the silver deposits were exhausted and, by the end of the eighteenth century, an economic depression ensued.²⁵ Following independence, Bolivia experienced nearly sixty years of coups and repeated changes in constitutions.²⁶ Colonialism is believed to have institutionalized economic inequalities that modern economic development continues to reinforce along ethnic, racial, and linguistic lines.²⁷

Argentina was colonized from roughly 1580 to 1816, until Buenos Aires declared its independence from Spain, with northern Argentina being liberated a few years later.²⁸ Although the Argentine territory was not characterized by a widespread *encomienda* regime,²⁹ indigenous populations were forced to supply labor for agriculture, animal husbandry, and mining in northern Argentina to ensure the flow of precious metals to the Crown.³⁰ Following Buenos Aires being named the capital city of the Viceroyalty of the Río de la Plata and the reorienting

22. Evidiki Tsounta & Anayochukwu I. Osueke, *What is Behind Latin America's Declining Income Inequality?* (Int'l Monetary Fund Working Paper WP/14/124, 2, July 2014), <https://www.imf.org/external/pubs/ft/wp/2014/wp14124.pdf>.

23. *Bolivia profile – Timeline*, BBC NEWS (Jan. 10, 2018), <https://www.bbc.com/news/world-latin-america-18727510>.

24. Thayer Watkins, *The Economic History and Economy of Bolivia*, SAN JOSÉ STATE UNIV. DEP'T OF ECONS., <https://www.sjsu.edu/faculty/watkins/bolivia.htm> [<https://web.archive.org/web/20250810012007/https://www.sjsu.edu/faculty/watkins/bolivia.htm>] (last visited Sep. 20, 2025).

25. *Id.*

26. *Bolivia (09/06)*, U.S. DEP'T OF STATE, <https://2009–2017.state.gov/outofdate/bgn/bolivia/74107.htm>.

27. Bret Gustafson, *Diversity and Democracy in Bolivia: Sources of Inclusion in an Indigenous Majority Society*, GLOBAL CENTRE FOR PLURALISM 1 (May 2017), https://www.pluralism.ca/wp-content/uploads/2017/12/Bolivia_EN.pdf#:~:text=Despite%20economic%20expansion%20in%20recent,ethnic%2C%20racial%20and%20linguistic%20lines.

28. *History in Argentina*, FROMMER'S, <https://www.frommers.com/destinations/argentina/in-depth/history/> (last visited Sept. 20, 2025); Greg Beyer, *Modern Argentina: A Struggle for Independence from Spanish Colonization*, THE COLLECTOR, <https://www.thecollector.com/spanish-colonization-modern-argentina-independence/> (last visited Sept. 20, 2025).

29. *Encomienda* was a Spanish labor system which extended royal grants to conquerors or settlers for the use of forced indigenous labor. EZEQUIEL ADAMOSKY, *A HISTORY OF ARGENTINA FROM THE SPANISH CONQUEST TO THE PRESENT* 10, 21 (Rebecca Wolpin trans., 2024).

30. *Id.* at 15, 19.

of local production from extracting metals to serving foreign markets, Argentina became one of the world's largest exporters to Europe.³¹ Despite achieving prominence in the international trade system, Argentina experienced an unstable nation-building process following the War of Independence due to social hierarchies and regional divisions entrenched by colonialism.³²

Chile was colonized by the Spanish Crown from roughly 1540 to 1810.³³ Under colonial rule, the indigenous Chilean population was subjected to forced labor in agriculture, animal husbandry, and the exploitation of precious metals.³⁴ Little manufacturing capacity was established in Chile during this time; rather production was centered on the transfer of wealth to the Crown—even colonists settled in Chile were deprived of profits from local activities.³⁵ Internal instability followed the first declaration of independence in 1810, resulting in the restoration of Spanish rule in 1814.³⁶ Finally, in 1818, combined Argentinian and Chilean armies decisively defeated the Spanish army.³⁷ The legacy of colonial extractivism in Chile persists in the present day: modern extractive industries, like mining, can be traced back to the same places that primitive accumulation took place during the colonial era—a product of dispossessing indigenous communities for a capitalist repurposing of land.³⁸ Overall, the post-independence eras in the Triangle were marked by political instability, internal disunity, and slowed economic growth.³⁹

Over two hundred years have lapsed since the three countries gained independence. In that time, Bolivia has experienced extended

31. *Id.* at 34.

32. *Argentina: A Historical Overview of the United Provinces*, MEXICOHISTORICO, <https://www.mexicohistorico.com/paginas/argentina-a-historical-overview-of-the-united-provinces-f19ba1ba.html> (last visited Sept. 20, 2025); Nikolai Wenzel, *Argentina, 1500–2023: An Institutional Story*, AM. INST. FOR ECON. RSCH. (Mar. 6, 2025), <https://aier.org/article/argentina-1500–2023-an-institutional-story/>.

33. Marcello A. Carmagnani & John J. Johnson, *History of Chile*, BRITANNICA, <https://www.britannica.com/topic/history-of-Chile> (last visited Sept. 20, 2025).

34. LUIS GALDAMES, *The Colonial Organization*, in HISTORY OF CHILE 73 (Isaac Joslin Cox trans. ed., 1964).

35. *Id.* at 73, 76.

36. *History of Chile*, ADVENTURE LIFE, <https://www.adventure-life.com/chile/articles/history-of-chile> [<https://perma.cc/26XS-SYTT>] (last visited Sept. 20, 2025).

37. *Id.*

38. Hugo Romero-Toledo, *Producing Territories for Extractivism: Encomiendas, Estancias and Forts in the Long-Term Political Ecology of Colonial Southern Chile*, 12 LAND 857, 861 (Apr. 2023); see also Jeff Abbott, *The Mapuche Indigenous Struggle in Chile Continues Centuries of Resistance*, TOWARD FREEDOM (May 17, 2018), <https://perma.cc/R3LR-XCRE>.

39. EDUARDO ALEMÁN, *Colonial Legacy and the Post-Independence Period*, in LATIN AMERICA POLITICS 24–27 (1st ed. 2020).

periods of prosperity and political stability,⁴⁰ Argentina was among the world's top ten wealthiest nations from 1880 to 1930,⁴¹ and Chile had one of the world's highest growth rates during the latter half of the twentieth century.⁴² Therefore, by no means does the Triangle's colonial history fully account for the region's present-day struggles with state capacity. Democratic conditions, economic and social inequalities, armed conflicts, and globalization are among the factors that influence a state's capacity.⁴³ However, the legacy of extractive colonialism continues to shape contemporary discussions as the "original sin" of low state capacity in the region,⁴⁴ and lithium mining in the Triangle has been criticized as extractive neocolonialism.⁴⁵

Presently, Chile has achieved a higher state capacity than Argentina, and Argentina has achieved a higher state capacity than Bolivia, as it pertains to the efficacy of governance.⁴⁶ With respect to economic output, Chile's GDP per capita also ranks highest of the Triangle countries, amounting to \$17,020 (U.S.) in 2025,⁴⁷ in comparison to Argentina's \$14,360 (U.S.)⁴⁸ and Bolivia's \$4,530 (U.S.).⁴⁹

40. See *Bolivia (09/06)*, *supra* note 26.

41. *Argentina (09/06)*, U.S. DEP'T OF STATE, <https://2009-2017.state.gov/outofdate/bgn/argentina/74091.htm> (last visited Sept. 20, 2025).

42. Francisco Gallego & Norman Loayza, *The Golden Period for Growth in Chile: Explanations and Forecasts 1* (Cent. Bank of Chile, Working Paper No. 146, Feb. 2002), https://www.bcentral.cl/documents/33528/133326/DTBC_146.pdf/9c88ce14-1793-c24a-29b1-27f206765d6a?t=1693339760937.

43. Davide Grassi & Vincenzo Memoli, *Political Determinants of State Capacity in Latin America*, 88 *WORLD DEV.* 94, 95 (2016).

44. See Peña & Baquero-Mendez, *supra* note 19.

45. See, e.g., Teddy Ostrow, *WSJ Sells Lithium Neocolonialism as Climate Necessity*, FAIR (Aug. 23, 2022), <https://fair.org/home/wsj-sells-lithium-neocolonialism-as-climate-necessity/>; Donald V. Kingsbury, *'Green' Extractivism and the Limits of Energy Transitions: Lithium, Sacrifice, and Maldevelopment in the Americas*, GEORGETOWN J. OF INT'L AFFAIRS (July 20, 2021), <https://gjia.georgetown.edu/2021/07/20/green-extractivism-and-the-limits-of-energy-transitions-lithium-sacrifice-and-maldevelopment-in-the-americas/>.

46. See *Worldwide Governance Index*, WORLD BANK, <https://databank.worldbank.org/source/worldwide-governance-indicators> (last visited Aug. 6, 2025) (according to the "Government Effectiveness - Estimate" index, which "captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies," Chile has consistently scored higher than Argentina, and Argentina has consistently scored higher than Bolivia). Databank, Metadata Glossary, WORLD BANK, <https://databank.worldbank.org/metadataglossary/worldwide-governance-indicators/series/GE.EST>.

47. Chile Datasets, INT'L MONETARY FUND, <https://www.imf.org/external/datamapper/profile/CHLCHL> (last visited Aug. 6, 2025).

48. Argentina Datasets, INT'L MONETARY FUND, <https://www.imf.org/external/datamapper/profile/ARG> (last visited Aug. 6, 2025).

49. Bolivia Datasets, INT'L MONETARY FUND, <https://www.imf.org/external/datamapper/profile/BOL> (last visited Nov. 13, 2024).

Nonetheless, all three countries are labeled as “developing,”⁵⁰ thus lagging behind the markers of developed countries. For example, Australia, who produces the most lithium of any country (accounting for 36.7 percent of the world’s lithium production in 2024)⁵¹ ranks higher than Chile in state capacity,⁵² and its GDP per capita is nearly quadruple that of Chile’s at \$64,550 (U.S.).⁵³ This Comment theorizes that in a region marked by weaker state capacity and inadequate infrastructure, stemming in part from a history of foreign exploitation in the form of extractive colonialism, the statist approach in Bolivia and the decentralized approach in Argentina have hindered the progression of lithium extraction and commercialization in contrast to the mixed Chilean model in which the state owns the mineral but authorizes, with close oversight, private third parties in their exploration, exploitation, and development of the mineral.

Part I will outline Bolivia’s governance of lithium. Bolivia has followed a strictly statist approach in its governance of lithium, declaring it a strategic resource and asserting complete state control over the mineral through YLB.⁵⁴ Overall, YLB has authorized minimal foreign investments in activities related to the industrialization of the mineral.⁵⁵ Part II will outline Argentina’s governance of lithium. Argentina does not have a unitary regulatory framework for lithium, nor is the mineral considered a strategic resource.⁵⁶ Under the Argentine constitution, the provinces own the natural resources existing within their territory.⁵⁷ Therefore, the three main provinces where lithium is concentrated—Salta, Catamarca, and Jujuy—adopt their own mining procedural codes which grant mining rights and concessions to private companies for the exploration, exploitation, and development of

50. Developing Countries, WORLD DATA.INFO, <https://www.worlddata.info/developing-countries.php> (last visited Aug. 6, 2025).

51. U.S. GEOLOGICAL SURVEY, *supra* note 3.

52. *Worldwide Governance Index*, *supra* note 46.

53. IMF, *Australia World Economic Outlook*, IMF Datamapper (April 2025), <https://www.imf.org/external/datamapper/profile/AUS> (last visited Aug. 6, 2025) [<https://perma.cc/7W7C-4T6W>].

54. Martín Obaya & Paulo Daniel Pascuini, *Estudio comparativo de los modos de gobernanza del litio en la Argentina, Chile y el Estado Plurinacional de Bolivia* [Comparative Study of the Modes of Governance of Lithium], in *LA GOBERNANZA DEL LITIO Y EL COBRE EN LOS PAÍSES ANDINOS* [THE GOVERNANCE OF LITHIUM AND COPPER IN THE ANDEAN COUNTRIES], 30 (Mauricio León et al. eds., 2020) (Chile).

55. *Id.*

56. *Doing Mining in Argentina*, DENTONS RATTAGAN AROCENA, 5 (Aug. 2022), <https://www.dentons.com/en/insights/articles/2022/september/2/doing-mining-in-argentina>.

57. *Constitution of the Argentine Nation*, BIBLIOTECA DIGITAL MINISTERIO DE JUSTICIA, § 124, <http://www.biblioteca.jus.gov.ar/Argentina-Constitution.pdf> (last visited Oct. 3, 2024).

lithium.⁵⁸ Thus, Argentina's lithium market has been largely dominated by private foreign entities.⁵⁹ Part III will outline Chile's governance of lithium. In 1976, Chile declared lithium a nuclear interest due to its strategic character in the development of hydrogen bombs; subsequently, in 1979, Chile reserved ownership of the mineral to the state, and, in 1982, Chile declared that lithium was not eligible for mining concessions.⁶⁰ Therefore, only the state can directly approve or execute the exploration and exploitation of lithium.⁶¹ Due to the high barriers to entry into Chilean lithium production, the industry has been dominated by two companies: Chemical and Mining Society of Chile (SQM, by its Spanish acronym) and Albemarle, a U.S.-based company.⁶²

Part IV will argue that Chile's centralized, mixed public-private approach to lithium governance has enabled it to significantly outperform Argentina and Bolivia in the industrialization of its lithium resources. Unlike Argentina, Chile has declared lithium a strategic resource, and the state has dictated mining and production rights and goals. Contrasting Bolivia's approach, Chile has remained more open to foreign investment in all phases of the lithium production chain. Consequently, Chile's governance of lithium has allowed for the state to actively structure and oversee exploitation of the mineral, while enabling the flow of foreign capital into the market. This Part will theorize that the Chilean model presents a valuable lesson for organizing state control and regulatory frameworks for other natural resources requiring advanced processing, especially in regions characterized by weaker state capacity.

Finally, Part V will address the confounding variables and weaknesses of this hypothesis. For one, all three countries have faced opposition to lithium extraction from indigenous communities, but Chile is the only country that has directly addressed indigenous communities in contracts for lithium exploitation.⁶³ Chile's climate is more

58. *Doing Mining in Argentina*, *supra* note 56.

59. Emilia Delfino, *Who controls Argentina's lithium?*, DIALOGUE EARTH (Apr. 9, 2024), <https://dialogue.earth/en/business/392580-who-controls-argentinas-lithium/> [<https://perma.cc/W74L-KDHB>].

60. Obaya & Pascuini, *supra* note 54, at 30–31.

61. Gobierno de Chile [Gov't of Chile], *Estrategía Nacional del Litio Por Chile y su Gente* [*National Strategy of Lithium for Chile and Its People*] 7, (June 15, 2023) [hereinafter *National Strategy of Lithium for Chile and Its People*].

62. *The Lithium Triangle: How three countries in South America will determine our future*, VERDICT (July 12, 2024), <https://www.verdict.co.uk/lithium-triangle-chile-argentina-bolivia/?cf-view> [<https://perma.cc/W4PP-PDF9>].

63. *See infra* notes 200–215 and accompanying text.

favorable to lithium extraction.⁶⁴ Additionally, Chile has experienced greater governmental stability,⁶⁵ higher state capacity,⁶⁶ and stronger economic development.⁶⁷ Nonetheless, this Comment will conclude that, even controlling for these factors, the Chilean approach to lithium governance is what empowers it to significantly outpace Argentina and Bolivia in the extraction and commercialization of the mineral.

PART I: BOLIVIA'S APPROACH TO LITHIUM GOVERNANCE

Bolivia is home to the world's largest lithium reserves and largest salt flat, the Salar de Uyuni.⁶⁸ The Government of Bolivia has maintained a closed regime for the lithium market, exercising complete state ownership over lithium reserves as well as control over access to extraction and commercialization of the mineral.⁶⁹ Bolivia's exploration of lithium traces back to the early 1980s when Bolivian salt flats were first prospected,⁷⁰ and the Government of Bolivia initiated a dialogue with LITHCO, a U.S.-based mineral exploration corporation, proposing the creation of a mixed company, of which the Bolivian State would hold 51 percent of the shares.⁷¹ LITHCO began conducting a feasibility study soon after.⁷² In 1985, Law No. 719 created the Industrial Complex of Evaporative Resources of the Uyuni Salt Flat (CIRESU, by its Spanish acronym), declaring it a national necessity to export, exploit, and commercialize the mineral resources in the Uyuni Salt Flat.⁷³ Law No. 719 designated CIRESU as the representative of the state to conduct solicitations, partnerships, and contracts for all phases of the exploration, exploitation, and commercialization of the resources in the Uyuni

64. Berg & Sady-Kennedy, *supra* note 1.

65. *See infra* notes 222–228 and accompanying text.

66. *See* Chile datasets, *supra* note 47 and accompanying text.

67. *See supra* notes 47–49 and accompanying text.

68. Berg & Sady-Kennedy, *supra* note 1.

69. Obaya & Pascuini, *supra* note 54, at 80.

70. The Inter-American Development Bank partnered with the Board of the Cartagena Agreement and the Autonomous University of Tomás Frías (UATF, by its Spanish acronym) partnered with the Higher University of San Andrés to begin prospecting Bolivia's salt flats. Weimar Giovanni Iño Daza, *Historia del extractivismo del litio en Bolivia: El movimiento cívico de Potosí y la defensa de los recursos evaporíticos del Salar de Uyuni (1987–1990)* [History of Lithium Extractivism in Bolivia: The Civic Movement of Potosí and the Defense of Evaporative Resources of Salar de Uyuni (1987–1990)], 10 REVLISE 173, 175 (2017).

71. *Id.*

72. *Id.* at 176.

73. *Id.* at 176.

Salt Flat.⁷⁴ In 1986, the Uyuni Salt Flat was declared a fiscal reserve, cementing CIRESU's control over the salt flat's exploitation.⁷⁵

As prospecting studies began yielding new calculations of Bolivia's lithium reserves in the mid-to-late 1980s, the Ministry of Mining and the Higher University of San Andrés signed two agreements for the construction of a lithium carbonate pilot plant.⁷⁶ During this time, regional actors, especially members of the CIRESU board based in the Potosí department, where the Uyuni Salt Flat is located, became vocal with their opposition to private actors, especially international ones, gaining rights to exploit the salt flat.⁷⁷ For example, the Potosinista Civic Committee (COMCIPO, by its Spanish acronym) maintained the position that granting mining interests to private actors would eventually result in handing over the entire salt flat to them.⁷⁸ In November 1987, the Government of Bolivia abandoned its support for an international tender for lithium development and instead negotiated directly with LITHCO.⁷⁹ By August 1988, the government had signed a preliminary contract with LITHCO, which was met with criticism from regional actors, among them CIRESU, who opposed intervention by international actors.⁸⁰ Nonetheless, in January 1989, the government signed a letter of intent outlining a \$40 million (U.S.) investment by LITHCO for the exploration of lithium and the installation of a lithium carbonate plant.⁸¹

In response, several labor-focused organizations produced a joint declaration warning about the risks of a North American company exploiting the salt flat's evaporative resources on unfavorable conditions to Bolivia.⁸² The government continued closed-door negotiations and, in November 1989, signed a draft contract, approved by CIRESU, for forty years or the production of 400,000 tons of metallic lithium, whichever came first.⁸³ Rather than creating a mixed company, the contract planned for three phases: three years of exploitation and

74. *Id.*

75. *Id.* at 177.

76. *Id.* at 178.

77. *Id.*

78. *Id.* at 177.

79. *Id.* at 178.

80. *Id.*

81. *Id.*

82. The Central Workers' Department, UATF, and the Departmental Trade Union Federation of Mining Workers were among the authoring organizations. *Id.* at 179.

83. *Id.*

development, two years of design and construction, and the remainder dedicated to production and commercialization.⁸⁴

Once the government published the contract, regional actors began dissecting its content and raising objections; for example, COMCIPO published a document referencing the history of extractivism in Bolivia, concluding that the contract is unconstitutional and detrimental to Bolivia's sovereignty and national interests.⁸⁵ The opposition culminated in Potosí organizations protesting in April 1990, calling for Congress to reject the contract with LITHCO.⁸⁶ Ultimately, in May 1990, the government annulled the contract with LITHCO and ordered an international tender for exploiting lithium instead.⁸⁷

Following the failed negotiation with LITHCO, the lithium industry in Bolivia was largely paralyzed until 2008.⁸⁸ In May 2007, the government declared all mineralogical, evaporative, and brine resources to be a mining fiscal reserve.⁸⁹ In April 2008, the industrialization of the Uyuni Salt Flat was deemed a national priority and the Mining Corporation of Bolivia (COMIBOL, by its Spanish acronym) was directed to create a new entity responsible for the industrialization of evaporative resources.⁹⁰ In turn, COMIBOL established the National Management of Evaporative Resources (GNRE, by its Spanish acronym) via an administrative resolution.⁹¹ In 2009, Bolivia promulgated a new constitution by referendum.⁹² Chapter IV of the constitution is dedicated to mining and metallurgy, declaring that the state is solely responsible for “mineralogical riches that are found in the soil and subsoil”⁹³ and specifying that the state will exercise control over and supervise “the entire productive chain of mining.”⁹⁴ Moreover, the constitution declares all non-metallic natural resources existing in salts, brines, evaporations, and sulfurs (including lithium) as strategic in character.⁹⁵ While the constitution allows the state to grant mining rights to

84. *Id.*

85. *Id.* at 181.

86. *Id.* at 182.

87. *Id.* at 184.

88. Jiminez Rivera, *supra* note 11.

89. *Id.* at 4.

90. *Id.*

91. *Id.*

92. *Id.*

93. *Bolivia (Plurinational State of)'s Constitution of 2009*, CONSTITUTE PROJECT (June 6, 2017), Art. 369(I), https://cjad.nottingham.ac.uk/documents/implementations/pdf/Bolivia-Constitution_2009_EN.pdf.

94. *Id.* at Art. 369(IV).

95. *Id.* at Art. 369(II).

third parties,⁹⁶ it also declares that Bolivian investment takes precedence over foreign investment.⁹⁷ In conformity with these tenets, in 2010, the GNRE presented the National Strategy for the Industrialization of Evaporative Resources in Bolivia (the Strategy), which outlined three phases of lithium development: (1) the exploitation, (2) the industrialization, and (3) the commercialization of lithium carbonate.⁹⁸ The first two phases were to be carried out by the Bolivian State,⁹⁹ relying on the Central Bank as the principal source of economic resources for the Strategy's execution.¹⁰⁰ Accordingly, in 2012, Bolivia inaugurated a pilot plant for potassium chloride, and, in 2013, Bolivia inaugurated a pilot plant for lithium carbonate.¹⁰¹

However, the government has allowed for foreign entities to minimally participate in activities related to production, like design and construction.¹⁰² For example, in 2014, Bolivia opened a pilot plant for lithium batteries, but the plant was built by the Chinese company LinYi Dake Trade Co.¹⁰³ Additionally, for the development of Bolivia's first industrial battery-grade lithium carbonate plant, Bolivia contracted with German K-Utec AG Salt Technologies for the engineering design and with Chinese MAYSON/CMEC for the construction.¹⁰⁴ In 2018, Bolivia inaugurated an industrial plant for potassium chloride,¹⁰⁵ and, in December 2023, it inaugurated the industrial plant for lithium carbonate.¹⁰⁶

In 2017, GNRE was replaced with YLB,¹⁰⁷ thus dedicating the direction of industrial development of evaporite resources to

96. *Id.* at Art. 370(I).

97. *Id.* at Art. 320(I).

98. *El proyecto estatal del litio en Bolivia. Expectativas, desafíos y dilemas* [The State Project of Lithium in Bolivia. Expectations, Challenges and Dilemmas], NUEVA SOCIEDAD (Mar.–Apr. 2013), <https://nuso.org/articulo/el-proyecto-estatal-del-litio-en-bolivia-expectativas-desafios-y-dilemas/> [<https://perma.cc/2ZN6-Y8PS>]; see also Obaya & Pascuini, *supra* note 54, at 37.

99. Jimenez Rivera, *supra* note 11, at 5.

100. Obaya & Pascuini, *supra* note 54, at 37.

101. *Id.*

102. Jimenez Rivera, *supra* note 11, at 6.

103. *Id.*; *Bolivia Inaugurates Pilot Plant for Making Lithium Batteries*, THE SAN DIEGO UNION-TRIBUNE (Sept. 22, 2016), <https://www.sandiegouniontribune.com/2014/02/17/bolivia-inaugurates-pilot-plant-for-making-lithium-batteries/>.

104. Montenegro Bravo & Juan Carlos, *El model de industrialización del litio en Bolivia* [*The Model of Industrialization of Lithium in Bolivia*], in 34 REVISTA DE CIENCIAS SOCIALES 69, 79 (2018).

105. Jimenez Rivera, *supra* note 11, at 6.

106. Luis Alberto Guevara López, *Litio en Bolivia: ¿un tesoro imposible de desenterrar?* [*Lithium in Bolivia: An Impossible Treasure to Unearth?*], DISTINTAS LATITUDES (Iván Carillo ed., Feb. 15, 2024), <https://distintaslatitudes.net/historias/reportaje/litio-en-bolivia>.

107. *Acerca de YLB* [*About YLB*], YACIMIENTOS DE LITIO BOLIVIANOS [BOLIVIAN LITHIUM

the Ministry of Energy. YLB spearheaded the process of selecting a strategic partner for executing Phase 3 of the Strategy, ultimately choosing Germany's ACI Systems.¹⁰⁸ In 2018, YLB and ACI Systems were merged to create the company YLB ACISA-EM, with the Bolivian State participating at 51 percent.¹⁰⁹ However, once again, the Decree evoked protests in Potosí, which demanded royalties and more favorable contractual conditions for the country, leading the government to annul the contract with ACI Systems in 2019.¹¹⁰ Despite internal opposition to foreign intervention in the lithium market, the government has continued to seek partnerships abroad, especially under the leadership of current President Luis Alberto Arce Catacora, who promised to increase the lithium industry's productivity.¹¹¹ For example, in January 2023, YLB signed contracts with China's CATL BRUNP & CMOC to install two battery-grade lithium carbonate plants.¹¹² In June 2023, YLB signed contracts with Russia's Uranium Group One and China's Citic Guoan for the installation of two more such plants.¹¹³ Most recently, in January 2024, YLB signed a contract with the Chinese consortium CBC—formed by CATL, BRUNP, and CMOC—for the installation of a Direct Lithium Extraction (DLE) pilot plant.¹¹⁴ In November 2024, YLB announced a \$1 billion (U.S.) deal with CBC for two more DLE plants.¹¹⁵ Consistent with historical trends of protest, Potosí community leaders demanded the “expulsion of the CBC and Uranium One companies from Bolivia.”¹¹⁶

In sum, Bolivia has maintained a statist approach in its control over the lithium industry, reserving ownership of the resource, and the salt flats in which it resides, to the state. Bolivia has recognized

DEPOSITS], <https://www.bnamericas.com/en/company-profile/yacimientos-de-litios-bolivianos> (last visited Oct. 16, 2024).

108. Bravo & Carlos, *supra* note 104, at 80; Jiminez Rivera, *supra* note 11, at 7.

109. *Id.* at 4.

110. Rocío Lloret Céspedes, *Understanding Bolivia's struggles to exploit its lithium reserves*, DIALOGUE EARTH (Aug. 25, 2022), <https://dialogue.earth/en/business/57525-understanding-bolivia-long-struggle-to-exploit-its-lithium-reserves/>.

111. See Berg & Sady-Kennedy, *supra* note 1.

112. Guevara López, *supra* note 106.

113. *Id.*

114. Cecilia Jamasmie, *Bolivia Uyuni plant to yield first lithium by 2025-end*, MINING.COM (Jan. 22, 2024), <https://www.mining.com/bolivia-uyuni-plant-to-yield-first-lithium-by-2025-end/>.

115. *Bolivia's Lithium Ambitions: A \$1 Billion Deal with Chinese Consortium CBC*, THE RIO TIMES (Nov. 27, 2024), <https://www.riotimesonline.com/bolivia-lithium-ambitions-a-1-billion-deal-with-chinese-consortium-cbc/>.

116. Carla Ruas, *Bolivian communities push back against foreign-backed lithium projects*, MONGABAY (Apr. 17, 2025), <https://news.mongabay.com/2025/04/bolivian-communities-push-back-against-foreign-backed-lithium-projects/>.

the mineral as a strategic resource and codified the prioritization of its development. Accordingly, Bolivia has founded specific government agencies to direct the entire productive chain of lithium. These agencies have repeatedly attempted to partner with foreign entities on limited aspects of the production chain, but these efforts have often failed due to internal opposition, largely spearheaded by regional actors based in the Potosí province, where the Uyuni Salt Flat is located. While the government has been increasingly successful in securing contracts for lithium development with foreign partners, it remains to be seen whether these contracts will come to fruition.

PART II: ARGENTINA'S APPROACH TO LITHIUM GOVERNANCE

Argentina does not have a national legal framework dedicated to its lithium industry.¹¹⁷ Therefore, the lithium industry is subject to general corporate, labor, tax, and mining regulations as well as the Argentine Constitution.¹¹⁸ The three principal governing frameworks are Article 124 of the constitution, the National Mining Code (the NMC), and the Law of Mining Activity No. 24,196.¹¹⁹

Argentina has a federalist state organization, composed of 23 provinces and the autonomous City of Buenos Aires.¹²⁰ Under Article 124 of the Argentine Constitution, enacted in 1994, “[t]he provinces have the original dominion over the natural resources existing in their territory.”¹²¹ The three main provinces that are rich in lithium reserves are Salta, Catamarca, and Jujuy.¹²²

Though Argentina has not declared lithium a strategic resource, under the NMC, lithium is classified as a first-category mineral, meaning it is owned by the provinces.¹²³ However, private parties can gain mining access to the mineral through legal concessions granted by the

117. Obaya & Pascuini, *supra* note 54, at 40.

118. *Id.*

119. *Id.*

120. Juan Sonoda & Pablo Sbarra, *Mining 2024 Argentina*, CHAMBERS AND PARTNERS, <https://web.archive.org/web/20240215215527/https://practiceguides.chambers.com/practice-guides/mining-2024/argentina> (last updated Jan. 25, 2024).

121. CONSTITUCIÓN ARGENTINA [Constitution] art. 124 (Arg.).

122. Obaya & Pascuini, *supra* note 54, at 41.

123. Martín Obaya et al., *Driving Regional Development Through Critical Minerals: A Case Study of the Lithium Policy Mix in Argentina*, in 37 MIN. ECON. 645, 650 (2024); Secretaría de Minería y Energía Ministerio de Producción y Desarrollo Sustentable, Gobierno de Salta [Secretary of Mining and Energy Ministry of Production and Sustainable Development, Government of Salta], *Mining in Salta*, GOBIERNO DE SALTA [GOVERNMENT OF SALTA], https://www.argentina.gob.ar/sites/default/files/mining_in_salta_china_mining_2020.pdf (last accessed Sep. 27, 2025).

province in which the deposits lie.¹²⁴ Consequently, provinces have crafted their own mining procedural codes for the acquisition of mining concessions in accordance with the standards set out in the NMC.¹²⁵ The NMC enables the award of two types of concessions: exploration and development.¹²⁶ Exploration concessions grant the party the exclusive right to explore a certain area and obtain a development concession in the event of discovering a deposit.¹²⁷ Development concessions grant rights over the mine and its deposits, as well as buildings, machinery, vehicles, and any other movable assets used to develop the mine.¹²⁸ Mining concessions are granted in perpetuity so long as the grantee pays the annual mining fee and complies with the investment plan, the terms of which are set at the time of granting the concession.¹²⁹ Additionally, prior to commencing mining activities, the grantee must prepare an environmental impact report (EIR), describing the environmental protection methods the grantee proposes to utilize.¹³⁰ The competent provincial authority will evaluate the EIR and issue an environmental impact declaration (EID), establishing the conditions the grantee must observe while conducting the mining activities.¹³¹ The EID must be renewed every two years.¹³²

In Argentina, mining activities are also subject to a special tax regime.¹³³ In the 1990s, under the administration of President Carlos Menem, state-owned enterprises were dissolved or privatized, national mining regulations were liberalized, and deregulation enabled the exploitation of previously classified strategic minerals to attract international investment.¹³⁴ Moreover, Argentina signed several bilateral investment treaties extending protections to foreign investors¹³⁵ and allowing them to resort to international arbitration in cases of expropriation or unfair treatment by the federal, provincial, or municipal governments.¹³⁶ First enacted in 1993 and amended since, the Law

124. Obaya et al., *supra* note 123, at 650.

125. *Doing Mining in Argentina*, *supra* note 56, at 6.

126. *Id.*

127. *Id.*

128. *Id.*

129. Sonoda & Sbarra, *supra* note 120.

130. *Id.*

131. *Doing Mining in Argentina*, *supra* note 56, at 7.

132. *Id.*

133. *Id.* at 9.

134. Felix M. Dorn & Fernando Ruiz Peyré, *Lithium as a Strategic Resource: Geopolitics, Industrialization, and Mining in Argentina*, 19 J. OF LATIN AM. GEOGRAPHY 68, 75 (2020).

135. Daniel Chudnovsky & Andrés López, *Foreign Investment and Sustainable Development in Argentina*, 2008 WORKING GROUP ON DEV. AND ENV'T IN THE AMS., 11.

136. *Doing Mining in Argentina*, *supra* note 56, at 5.

of Mining Activity No. 24,196 offers a host of tax benefits to investors in the mining sector.¹³⁷ Specifically, mining activities are assured a thirty-year fiscal stability period, meaning tax rates will not be raised from those applicable at the time a project feasibility report was submitted.¹³⁸ Value-added tax payments by mining companies are eligible for financing or reimbursement, and amounts invested in “prospecting, special research, mineral and metallurgical tests, pilot plants, applied research and other works performed for the purpose of determining the technical and economic feasibility of a project” are fully deductible.¹³⁹ Accelerated depreciation benefits are available for “investments made on housing, transport, construction of plants and equipment in connection with the necessary infrastructure for mining activities within three years.”¹⁴⁰ Lastly, investors are exempt from paying income taxes derived from revenues of mining rights and duties related to the import of assets, and royalties are capped at 3 percent.¹⁴¹

Argentina’s investor-friendly foreign policy and regulations enacted in the 1990s converted the country into one of the primary destinations for foreign direct investment (FDI) among emerging markets.¹⁴² Unsurprisingly, Argentina’s lithium industry is dominated by private foreign entities.¹⁴³ In 1997, Livent, a U.S.-based corporation, began operating Project Fenix, Argentina’s first commercial lithium brine operation in the Hombre Muerto Salt Flat, spanning both the Catamarca and Salta provinces.¹⁴⁴ Since then, three more projects producing lithium carbonate or lithium hydroxide have become operational.¹⁴⁵ In 2014, Australian-based Orocobre and Japanese-based Toyota Tsusho Corporation (TTC) opened the Olaroz Lithium Facility in the Jujuy province.¹⁴⁶ The joint venture is operated through Argentine subsidiary Sales de Jujuy SA, and the state-owned Jujuy

137. Obaya & Pascuini, *supra* note 54, at 40.

138. *Doing Mining in Argentina*, *supra* note 56, at 9.

139. *Id.*

140. *Id.*

141. *Id.*

142. Chudnovsky & López, *supra* note 135, at 1.

143. Delfino, *supra* note 59.

144. INTEGRAL CONSULTING, INC., *Resource and Reserve Report Pre-Feasibility Study Salar del Hombre Muerto*, 1–1 (Feb. 21, 2023), https://s203.q4cdn.com/709125885/files/doc_downloads/TechnicalRep/Salar-del-Hombre-Muerto-Argentina.pdf.

145. Luis Cáceres, *Uno por uno, los 50 proyectos de litio por los que el Gobierno espera que ingresen USD 8 mil millones [One by one, the 50 lithium projects which the Government expects to generate 8 billion USD]*, INFOBAE (Aug. 30, 2024), <https://www.infobae.com/politica/2024/08/31/uno-por-uno-los-50-proyectos-de-litio-por-los-que-el-gobierno-espera-que-ingresen-usd-8-mil-millones/>.

146. Dorn & Ruiz Peyré, *supra* note 134, at 76.

Energía y Minería Sociedad del Estado (JEMSE) holds an 8.5 percent stake in the project.¹⁴⁷ In June 2023, Caucharí-Olaroz project opened in Jujuy, operated by Minera Exar, a holding company for the project created by a joint venture between China-based Ganfeng Lithium Co. Ltd. (Ganfeng), Canada's Lithium Americas Corp., and JEMSE also holds an 8.5 percent stake.¹⁴⁸ In July 2024, France-based Eramet and China-based Tsingshan opened the Centenario project, a Direct Lithium Extraction plant in Salta,¹⁴⁹ initially a joint venture until Eramet bought out Tsingshan's interest.¹⁵⁰ In October 2024, Posco Argentina, a subsidiary of the South Korean Posco inaugurated the Sal de Oro lithium hydroxide plant in Salta.¹⁵¹ Most recently, in February 2025, Ganfeng commenced production at the Mariana lithium chloride plant in Salta.¹⁵²

While all three of Argentina's lithium-rich provinces have created state-owned enterprises dedicated to mining, Catamarca and Salta have assumed a *laissez-faire* approach, letting private companies invest in the mining sector and conduct mining activities with little oversight.¹⁵³ In fact, Salta has focused on attracting private business to take over lithium extraction.¹⁵⁴ Conversely, Jujuy has taken on a more interventionist role.¹⁵⁵ Jujuy is the only province to declare lithium a strategic resource, establishing the Committee of Experts for the Analysis of Lithium Projects in 2011.¹⁵⁶ Accordingly, the Jujuy Government has become a minority shareholder in lithium ventures such as the aforementioned Sales de Jujuy and Minera Exar.¹⁵⁷ In the Sales de Jujuy

147. *ASX/TSX Announcement Quarterly Report of Operations for the Period Ended 30 September 2016*, OROCOBRE (Oct. 28, 2016), <https://www.datocms-assets.com/53992/1636431022-161028orocobre-qtrly-reportsep-16.pdf>.

148. *Management's Discussion and Analysis for the Six Months Ended June 30, 2023*, LITHIUM AMS., 30 (June 2023), https://s203.q4cdn.com/835901927/files/doc_financials/2023/q2/LAC-Q2-2023-MDA-FS.pdf.

149. *Lithium plant in Argentina: "an extraordinary success story,"* ERAMET (July 9, 2024), <https://www.eramet.com/en/news/2024/07/lithium-plant-in-argentina-an-extraordinary-success-story/>.

150. *Eramet regains full ownership in its flagship Lithium business in Argentina*, ERAMET (Oct. 24, 2024).

151. *Posco Launches the First Commercial Lithium Hydroxide Plant in Argentina*, PANORAMA MINERO (Oct. 25, 2024), <https://www.panorama-minero.com/en/news/posco-launches-the-first-commercial-lithium-hydroxide-plant-in-argentina>.

152. *Ganfeng Lithium starts production at Mariana Salt Lake project in Argentina*, MINING TECH. (Feb. 13, 2025), <https://www.mining-technology.com/news/ganfeng-lithium-mariana-project>.

153. Catamarca created Minera and Energética Sociedad del Estado, Salta created Recursos Energéticos y Mineros Salta, and Jujuy created JEMSE. Lucas González & Richard Snyder, *Modes of Lithium Extraction in Argentina: Mining Politics in Catamarca, Jujuy, and Salta*, NAT. RES. & POL'Y CHOICES IN LATIN AM. 211, 216 (2021).

154. *Id.* at 216–17.

155. *Id.* at 216.

156. Obaya & Pascuini, *supra* note 54, at 18.

157. *Id.* at 42.

project specifically, JEMSE has reserved for itself priority for project sales above a 5 percent quota of lithium carbonate.¹⁵⁸ In 2019, JEMSE also negotiated a 60 percent stake in Jujuy Litio, a joint venture with Italy's SERI Group for the construction of a lithium-ion battery assembly plant.¹⁵⁹

In sum, Argentina has maintained a decentralized approach to lithium governance. Under its constitution, the provinces are the owners of mineral reserves within their territory; accordingly, the provinces retain the discretion to adopt their own mining codes, granting concessions so long as minimal requirements to remain in good standing are met. Argentina has also enacted a special mining tax regime which guarantees tax benefits, like thirty-year fiscal stability and a 3 percent royalty cap, to attract foreign investors. Consequently, Argentina's lithium industry is predominantly controlled by transnational private companies subject to minimal oversight by provincial governments, and current President Javier Milei has pledged to attract further foreign investment¹⁶⁰ and deregulate the mining sector.¹⁶¹ Of the three lithium-rich provinces, only Jujuy has assumed a more interventionist role, declaring lithium a strategic resource and negotiating shareholdings in lithium projects via the state-owned JEMSE.

PART III: CHILE'S APPROACH TO LITHIUM GOVERNANCE

Chile has adopted a centralized model to lithium governance, directing development rights and goals while allowing for the involvement of private actors, subject to direct negotiation with and close oversight by the state.¹⁶² Chile's interest in lithium dates back to the Cold War period when the military regime made lithium extraction exclusive to the state for the production of thermonuclear weaponry.¹⁶³ In the 1960s, Chile commenced exploration efforts, which led to the discovery that the Atacama Salt Flat had the highest concentration of lithium of all of Chile's salt flats, and the absence of contaminants made

158. *Id.*

159. *Id.*

160. Luana Torruella, *Milei Meets with Lithium Mining CEOs from China and Canada to Discuss Argentina's Lithium Future*, THE NET-ZERO CIRCLE (Feb. 11, 2025), <https://www.netzerocircle.org/news/milei-meets-with-lithium-mining-ceos-from-china-and-canada-to-discuss-argentinan-lithium-future>.

161. Francesca Masiero, *Argentina's Lithium Industry: Reforms and Radical Rhetoric*, THE NEW GLOBAL ORDER (May 8, 2024), <https://thenewglobalorder.com/world-news/argentinan-lithium-industry-reforms-and-radical-rhetoric/>.

162. *The Lithium Triangle: How three countries in South America will determine our future*, *supra* note 62.

163. Obaya & Pascuini, *supra* note 54, at 17.

it quite commercially viable for exploitation.¹⁶⁴ To this day, Chile's only lithium mining operation takes place in the Atacama Salt Flat.¹⁶⁵ During this time, the Chilean Commission on Nuclear Energy (CCHEN, by its Spanish acronym)—dedicated to handling issues of production, acquisition, transport, and use of atomic energy—was created.¹⁶⁶ In 1979, under President Augustus Pinochet's leadership, the government declared lithium a resource of strategic character because of its use in hydrogen bombs, thus designating CCHEN as the sole authority to commercialize the mineral.¹⁶⁷ Subsequently, lithium ownership was officially reserved to the state, deeming it ineligible for mining concessions.¹⁶⁸ The state confirmed this designation and further cemented its control over the mineral, reaffirming that only the state and state-owned enterprises could explore and exploit lithium unless a private party was granted an administrative concession or special contract in accordance with the terms decided by the President of Chile through Supreme Decree.¹⁶⁹

In the 1980s, the initiative to develop lithium prompted the creation of two companies dedicated to the objective: Chilean Society of Lithium (SCL, by its Spanish acronym) and the Mining Society Atacama Salt Flat (MINSAL, by its Spanish acronym).¹⁷⁰ Through a series of corporate ownership changes over the span of decades, MINSAL was ultimately acquired by the Chemical and Mining Society of Chile (SQM, by its Spanish acronym) in 1995, and SCL was ultimately acquired by Albemarle in 2015.¹⁷¹ To date, SQM and Albemarle

164. *Id.*

165. *Id.*

166. SUBSECRETARÍA DE MINERÍA [UNDERSECRETARY OF MINING], *Compilación de Informes Sobre: Mercado Internacional del Litio, El Potencial de Litio en Salares del Norte de Chile* [Compilation of Reports About: International Lithium Market, The Potential of Lithium in the Salt Flats of Northern Chile], 36 (Dec. 2013), https://www.sernageomin.cl/wp-content/uploads/2017/09/Mercado-Internacional_Potencial-del-Litio-en-salares-del-norte-de-chile.pdf.

167. *Id.* at 34.

168. Obaya & Pascuini, *supra* note 54, at 30.

169. *Id.*

170. *Id.* at 31–32.

171. In 1980, SCL was founded through a partnership between the Production Development Corporation (CORFO, by its Spanish acronym), which held 45 percent of the shares, and U.S.-based Foote Mineral Co., which held 55 percent of the shares. CCHEN authorized SCL to produce and sell lithium in an area of the Atacama Salt Flat originally concessioned to CORFO. In 1984, SCL commenced the production of carbonate lithium. In 1987, SCL began undergoing a series of corporate ownership changes: CORFO sold its 45 percent shareholding to Foote Mineral Co. In 1998, German-based Chemetall acquired Foote Mineral Co., which was subsequently acquired by U.S.-based Rockwood Holdings Inc. in 2004. Ultimately, in 2015, U.S.-based Albemarle acquired Rockwood Holdings Inc. In 1986, MINSAL was created through a partnership between CORFO, which held 25 percent of the shares, U.S.-based Amax, which held 63.75 percent of the shares, and

are the only two companies operating in Chile's lithium industry.¹⁷² SQM accounts for approximately 65 percent of lithium production, while Albemarle accounts for approximately 35 percent of production.¹⁷³ Albemarle and SQM's most recently renegotiated contracts with the Production Development Corporation (CORFO, by its Spanish acronym) were extended until 2043 and 2030, respectively.¹⁷⁴ The contracts include highly interventionist provisions for quotas of lithium extraction, brine and water usage, royalties on sales that range from 6.8 to 40 percent—depending on lithium prices—and reservations of 15 to 25 percent of extracted lithium for sale at preferential rates to manufacturing companies operating in Chile.¹⁷⁵ Moreover, they require the allocation of \$12 to \$15 million (U.S.) annually towards research and development in lithium, salt flats, and clean energy technologies, as well as in contributions to indigenous communities near the salt flat.¹⁷⁶

CORFO renegotiated the contracts with SQM and Albemarle following the recommendations of the National Commission of Lithium (the Commission).¹⁷⁷ In 2014, amidst rising prices of raw materials and conflicts with both SQM and Albemarle over the terms of their contracts, President Michelle Bachelet convened the Commission to devise a strategic vision for the country's national lithium policy.¹⁷⁸ The Commission operated under the direction of the Ministry of Mining and twenty experts who, over the course of five months, developed

Chile-based Molymet, which held 11.25 percent of the shares. The original contract established a 6.8 percent lease fee for CORFO's mining property rights and set fixed amounts of lithium production and sale. In the early 1990s, SQM assumed a central role in governing MINSAL. SQM was founded in 1968 through a partnership between Chile-based Salitrera Anglo Lautaro Company S.A. (Anglo Lautaro) and CORFO. In the 1980s, Anglo Lautaro sold all its shares to CORFO, so SQM became entirely state-owned until it was privatized by President Pinochet when he sold it to his son-in-law Julio Ponce Lerou. SQM first acquired Amax's shares in MINSAL, then Molymet's, turning it into the majority shareholder of MINSAL. Ultimately, in 1995, SQM acquired CORFO's remaining shares in MINSAL, and, the following year, MINSAL began producing lithium carbonate. *Id.* at 31–33; *Prospecto de Emisión de Acciones Sociedad Química y Minera de Chile S.A. Inscripción Registro de Valores N° 184* [*Prospectus for the Issuance of Shares of the Chemical and Mining Company of Chile S.A. Registered in the Securities Registry N° 184*], SQM 1, 4 (Mar. 2021), <https://ir.sqm.com/static-files/aa7538c1-2df8-4974-b659-9e5953ce74a4>; *Pinochet's Shadow: Privatisation in Chile*, QUEEN MARY UNIV. OF LOND. (Sept. 19, 2023), <https://www.qmul.ac.uk/media/news/2023/hss/pinochets-shadow-privatisation-in-chile.html>.

172. Cecilia Jamasmie, *Chile opens 26 lithium salt flats to private companies*, MINING.COM (March 27, 2024), <https://www.mining.com/chile-opens-26-lithium-salt-flats-to-private-companies/>.

173. Gonzalo Gutiérrez & Domingo Ruiz-León, *Lithium in Chile: Present Status and Future Outlook*, 5 MATERIALS ADVANCES 7850, 7854 (2024).

174. *Id.* at 7856.

175. *Id.*

176. *Id.*

177. Obaya & Pascuini, *supra* note 54, at 45.

178. *Id.* at 33.

guidelines for a new regulatory and institutional framework for the lithium industry.¹⁷⁹ The Commission released its final report in January 2015, affirming the strategic nature of lithium and concluding that the state should not only be central to defining the conditions under which lithium is developed but should assume an interventionist role in the industry to increase the exploration, exploitation, and commercialization of lithium.¹⁸⁰ Based on these recommendations, CORFO ensured that the revised contracts with SQM and Albemarle guaranteed greater contributions to the Chilean State, economy, and local communities.¹⁸¹ Building on the Commission's report, President Gabriel Boric presented the National Lithium Strategy for Chile and Its People (the Strategy) in April 2023.¹⁸² The Strategy lays out several objectives, strategic pillars, and milestones centered on the sustainable development and technological advancement of lithium production, the diversification of actors and engagement of all relevant stakeholders in the lithium industry, and the maintenance of the state's involvement in the entire productive chain.¹⁸³

In sum, Chile has maintained a centralized approach to lithium governance, declaring lithium a strategic resource, reserving ownership of the mineral to the state, and deeming it ineligible for concessions. Chile's lithium industry is thus a relatively closed regime, though Chile has allowed for the involvement of private actors through contracts directly negotiated by the state, containing provisions directly benefiting the government, other businesses operating in the Chilean economy, and local communities residing near the salt flats. Overall, the Chilean

179. *Id.*

180. *Id.*

181. *Id.* at 33–34.

182. Gutiérrez & Ruiz-León, *supra* note 173, at 7856.

183. The seven main objectives of the Strategy are: (1) sustainable development of lithium production potential; (2) social and environmental sustainability; (3) technological developments and productive linkages; (4) state participation in lithium revenues; (5) fiscal sustainability; (6) diversification of actors; and (7) contributing to productive diversification and growth potential. The five strategic pillars are: (1) involvement of the state in the entire industrial cycle; (2) building scientific and technological capacities; (3) promotion of public-private partnerships; (4) updating the institutional framework for lithium and salt flats; and (5) social and territorial sustainability, promoting community involvement. The eight milestones are: (1) creating a strategic committee for lithium and salt flats; (2) initiating a process of dialogue and participation from all stakeholders in the lithium industry, including regional governments, academia, civil society, indigenous communities, and private businesses; (3) creating a national lithium company; (4) creating a network of protected salt flats in which the use of clean technologies is guaranteed; (5) modernizing the institutional framework; (6) creating a technological institute of public research into lithium and salt flats; (7) incorporating the state into productive activity in the Atacama Salt Flat; and (8) prospecting other salt flats. *National Strategy of Lithium for Chile and Its People*, *supra* note 61, at 13–16, 18–23, 25–28.

State has dictated national lithium policy and authorized, while closely supervising, the activities of two primarily private actors in the industry.

PART IV: LOOKING AHEAD – TAKEAWAYS FROM COMPARING BOLIVIA’S, ARGENTINA’S, AND CHILE’S APPROACHES TO LITHIUM GOVERNANCE

Chile’s approach to governing its lithium industry presents potential takeaways for Bolivia and Argentina, as the two Triangle countries endeavor to ramp up their commercialization of the mineral, as well as other regions suffering from weakened state capacity that seek guidance for general management of other natural resources requiring advanced processing. As outlined in the preceding sections, Chile’s centralized, mixed public-private mode of lithium governance contrasts Bolivia’s statist and Argentina’s decentralized approaches.¹⁸⁴ Chile and Bolivia have both declared lithium a strategic resource, reserved its ownership to the state, designated state agencies to oversee the development of the mineral, and devised national strategies for the industry. However, Chile and Bolivia differ starkly in their openness to foreign investment. Although Chile has declared lithium ineligible for concessions, it has authorized the Production Development Corporation (CORFO, by its Spanish acronym) to grant administrative concessions to and negotiate special contracts with private parties. Consequently, lithium development in Chile is entirely conducted by the Chemical and Mining Society of Chile (SQM, by its Spanish acronym) and U.S.-based Albermarle. Conversely, the Bolivian State has maintained an ironclad grip on all phases of lithium production in accordance with its constitution, which provides that the state will exercise control over and supervise “the entire productive chain of mining.”¹⁸⁵ Prior to the promulgation of the 2009 constitution, the Bolivian State concluded a contract with U.S.-based LITHCO for the exploitation and development of lithium. Additionally, following the National Management of Evaporative Resources’ presentation of the National Strategy for the Industrialization of Evaporative Resources in Bolivia, the government chose Germany’s ACI Systems as a strategic partner for the execution of the Strategy’s Phase 3. However, both proposed partnerships evoked fierce opposition—rooted in fear of international actors exploiting and taking over the salt flat on unfavorable conditions to Bolivia—from local communities, especially those based in the Potosí province, where the Uyuni Salt Flat is located. Ceding to the opposition, the Bolivian

184. See *supra* Parts I, II, III.

185. *Bolivia (Plurinational State of)’s Constitution of 2009*, *supra* note 93, at art. 369(IV).

Government subsequently annulled both partnerships. To date, Bolivia has only successfully authorized and carried out cooperation with foreign actors in activities merely related to the industrialization of lithium, such as the engineering and construction of lithium plants. Chile's openness to foreign investment, which it closely oversees, offers a valuable lesson for Bolivia, especially in a region characterized by weak infrastructure. In Bolivia specifically, the necessary infrastructure and specialized equipment for lithium development cannot be sourced locally.¹⁸⁶ Therefore, Bolivia would almost certainly benefit from following the Chilean model, permitting foreign investment in the lithium industry to facilitate the flow of foreign capital and bolster local capacity, without compromising its statist approach by having state agencies negotiate the contracts and supervise their execution. Bolivia could also learn from Chile in assuaging persisting local resistance by securing contractual provisions that directly benefit the Bolivian economy and local communities, as Chile did in its contracts with SQM and Albermarle. Perhaps Bolivia has already taken note of the Chilean model and is attempting to modify its relationship with foreign investment because, in recent years, President Catacora has pledged to boost the lithium industry's productivity, and his administration has concluded several contracts with Chinese and Russian companies for the installation of lithium plants.

Argentina, on the other hand, has historically welcomed foreign investment in its lithium industry. In fact, like in Chile, Argentina's lithium development is practically entirely conducted by private companies, though several more international actors are involved. Nearly one million hectares of salt flats in the Jujuy, Salta, and Catamarca provinces are controlled by just five multinational companies, only one of which is based in Argentina.¹⁸⁷ Moreover, the only operational lithium extraction projects are controlled entirely by foreign entities, apart from the joint ventures in which state-owned Jujuy Energía y Minería Sociedad del Estado holds a stake. Beyond merely permitting foreign investment in the lithium industry, Argentina has actively worked to attract it, devising a regulatory scheme that promises fiscal stability, offers financing or reimbursements of value-added payments, deductions for amounts invested in prospecting and researching a mining project, permits accelerated depreciation benefits for investments in infrastructure and equipment for mining activities, grants exemptions

186. *The Lithium Triangle: How three countries in South America will determine our future*, *supra* note 62.

187. Delfino, *supra* note 59.

from income taxes on revenue derived from mining rights, and caps royalties. On top of these special tax benefits, the foreign companies benefit from Argentina's laissez-faire approach to how the mining activities are carried out. Unlike Chile, Argentina has not declared lithium a strategic resource, reserved ownership of the mineral to the state, nor developed a national strategy for lithium extraction and commercialization. Under Argentina's decentralized model, the constitution declares that the provinces are the owners of the natural resource reserves residing within their territory, so the provinces adopt their own mining codes for the extension of mining rights. These provincial mining codes adhere to the general standards outlined in the National Mining Code, which liberally permit the granting of concessions in perpetuity so long as the grantee adheres to minimal requirements to remain in good standing. Overall, the grantees of lithium exploration and development concessions are thus subject to little oversight by provincial governments after acquiring the concessions. Only the Jujuy province has assumed a relatively more interventionist role, declaring lithium a strategic resource and negotiating stakes and priority sales in private companies' lithium projects.

Argentina's decentralized laissez-faire approach starkly contrasts Chile's which mandates that any mining concession to a private party be authorized by the state through Supreme Decree of the President. Moreover, CORFO has assumed a much more interventionist role in shaping the terms of the contracts in accordance with the tenets and objectives of Chile's Strategy. Conversely, coordination between actors operating in Argentina's lithium industry is weak.¹⁸⁸ Therefore, Argentina could learn from the Chilean model by adopting a comprehensive strategy at the federal level to coordinate investment into and management of lithium development. Such a centralized regulatory framework would more precisely define the relationship between the state, the private entities operating in the market, and the affected communities, including the roles of each of these actors and the conditions of access to the mineral. This level of cohesion would facilitate the connection between on-the-ground operations and broader state-defined commercialization objectives. Currently, Argentina is not projected to even contemplate such reforms; to the contrary, President Milei has rooted his economic ideology in deregulation, promising to curb red tape in the mining sector.¹⁸⁹

188. *The Lithium Triangle: How three countries in South America will determine our future*, *supra* note 62.

189. *See* Masiero, *supra* note 161.

PART V: WEAKNESSES OF THE CHILEAN MODEL THESIS

One confounding variable of this Comment's hypothesis is the interaction between the lithium industry and indigenous communities. All three Triangle countries have experienced opposition from indigenous communities to lithium extraction. One particularly conflictive aspect is that lithium extraction requires extensive use of water, which can compromise the water resources of indigenous communities and pose risks for their use of pastures and arable fields.¹⁹⁰ All three Triangle countries have ratified the International Labour Organization Indigenous and Tribal Peoples Convention of 1989 (ILO Convention 169),¹⁹¹ which requires signatories to consult indigenous peoples when the state is altering the rights to natural resources that belong to the lands of the indigenous people.¹⁹² However, in practice, it is not necessary for the indigenous communities to expressly consent to mining projects affecting their lands unless an exceptional circumstance applies, such as the project requiring the indigenous community's relocation.¹⁹³ Consequently, opposition by indigenous peoples is not binding on the state.¹⁹⁴ In Bolivia, local communities in Potosí have long protested lithium exploitation projects in the Uyuni Salt Flat; the most prominent organized protest occurred in 1990 when massive demonstrations and hunger strikes prompted the Bolivian Government to pull out of a contract with LITHCO worth over \$40 million (U.S.).¹⁹⁵ However, protests continue even today, such as the widespread protests in Potosí in 2019 in response to the government signing a lithium contract with Germany's ACI Systems,¹⁹⁶ and the blockades of an Uyuni lithium processing plant in 2023, which functioned as a demand for better benefits for local communities and higher royalties.¹⁹⁷ In Argentina, the Jujuy and Salta provinces have faced continual resistance from local

190. Obaya & Pascuini, *supra* note 54, at 49.

191. INT'L LAB. ORG., *Ratifications of C169 - Indigenous and Tribal Peoples Convention, 1989 (No. 169)*, https://normlex.ilo.org/dyn/nrmlx_en/f?p=1000:11300:0::no:11300:p11300_instrument_id:312314 (last visited Dec. 5, 2024).

192. INT'L LAB. ORG., *C169 - Indigenous and Tribal Peoples Convention, 1989 (No. 169)*, art. 15 https://normlex.ilo.org/dyn/nrmlx_en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C169 (last visited Dec. 5, 2024).

193. *Id.* at art. 16.

194. *Doing Mining in Argentina*, *supra* note 56, at 7.

195. Rick Mills, *Bolivia: Where revolutionaries and lithium miners go to die*, MINING.COM (Dec. 26, 2018), <https://www.mining.com/web/bolivia-revolutionaries-lithium-miners-go-die/>.

196. Jonas Köpel, *Defending Lithium: On the streets with protesters in Potosí*, LITHIUM WORLDS, <https://lithiumworlds.com/defending-lithium/> (last visited Dec. 5, 2024).

197. Daniel Ramos & Monica Machicao, *In Bolivia's heartland, protests rattle lithium development push*, REUTERS (Mar. 15, 2023), <https://www.reuters.com/world/americas/bolivias-heartland-protests-rattle-lithium-development-push-2023-03-16/>.

indigenous communities too, prompting certain foreign investors to abandon their lithium mining projects entirely,¹⁹⁸ such as the Canadian A.I.S. Resources, which ceased operations in 2018 after indigenous communities blocked the company's access to a highway.¹⁹⁹ The most contentious salt flat in Argentina is Salinas Grandes, which, since 2010, has been subject to protests, roadblocks, and administrative and judicial cases organized by 38 indigenous communities.²⁰⁰ However, in 2012, the Argentine Supreme Court rejected the indigenous communities' claim that the Jujuy and Salta provincial governments violated their rights under ILO Convention 169 by carrying out mining exploration activities without consulting with them first.²⁰¹ In Chile, indigenous communities have also fiercely confronted efforts to exploit the Atacama Salt Flat, largely motivated by a desire to protect water resources in the arid climate.²⁰² Since the start of lithium exploitation projects in the Atacama Salt Flat, indigenous communities have been directly consulted and negotiated with on lithium projects, ensuring their agreements are based upon mutual cooperation, community benefits, and sustainability commitments.²⁰³ Most recently, Chile's Strategy highlighted the state's commitment to include indigenous communities in the dialogue for lithium development projects, and the renegotiated contracts with the Chemical and Mining Society of Chile (SQM, by its Spanish acronym) and Albermarle reflected this objective, stipulating mandatory contributions to indigenous communities.²⁰⁴ For example, Albermarle transfers 3.5 percent of its revenue to 18 nearby indigenous communities, while SQM transfers 1.7 percent of its revenue.²⁰⁵ Therefore, observing the interaction between indigenous communities and the lithium industry strengthens this Comment's hypothesis because all three Triangle countries have faced strong resistance from indigenous peoples to lithium extraction, but Chile's mode of governance

198. González & Snyder, *supra* note 153, at 217, 221–23.

199. Fred Pearce, *Why the Rush to Mine Lithium Could Dry Up the High Andes*, YALE ENVIRONMENT 360 (Sep. 19, 2022), <https://e360.yale.edu/features/lithium-mining-water-andes-argentina>.

200. Delfino, *supra* note 59.

201. Dorn & Ruiz Peyré, *supra* note 134, at 80.

202. Maurico Lorca et al., *Mining indigenous territories: Consensus, tensions and ambivalences in the Salar de Atacama*, 9 EXTRACTIVE INDUS. & SOC., 2022, at 6–7.

203. *Id.* at 7.

204. Dorn & Ruiz Peyré, *supra* note 134, at 72.

205. Patricia I. Vásquez, *Lithium Production in Chile and Argentina: Inverted Roles*, WILSON CTR., at 6–7 (Jan. 2023), https://www.wilsoncenter.org/sites/default/files/media/uploads/documents/Lithium%20Production%20in%20Chile%20and%20Argentina_Inverted%20Roles.pdf.

has enabled indigenous communities to actively participate in the contract negotiation process to safeguard their rights. Conversely, Bolivia's statist approach has barred the participation of private actors in the negotiation process, while Argentina's decentralized approach lacks a uniform platform and streamlined process for indigenous communities to engage in direct dialogue with private companies dominating the lithium industry.

Another confounding variable of this Comment's hypothesis is Chile's more favorable geographic conditions to lithium mining. Chile's desert landscape facilitates the process of lithium extraction by making extraction and evaporation easier in the arid climate.²⁰⁶ On the other hand, Argentina's salt flats experience more frequent rains, and its brines contain lower lithium concentrations.²⁰⁷ Bolivia's Uyuni Salt Flat contains high concentrations of magnesium—making exploitation costlier and more difficult—and experiences an exceptionally humid rainy season from December to April.²⁰⁸ While the differing geographic conditions may contribute to Chile's greater success in lithium production, surely they do not explain the entire production-level disparity among the Triangle countries. After all, Argentina still experiences minimal rains (300 to 400 millimeters annually),²⁰⁹ and—outside of the rainy season—Bolivia experiences a dry season with little to no rain,²¹⁰ providing both countries with ample open periods to conduct lithium extraction. Moreover, geographic conditions certainly have not deterred efforts to establish lithium development projects in both countries. Rather, project failures have been accredited to community resistance, regulatory hurdles, or flat-out government rejection.

Lastly, Chile's relatively higher state capacity may be another confounding variable for this Comment's hypothesis. Chile ranks higher than Bolivia and Argentina in state capacity in terms of both government efficiency and GDP per capita.²¹¹ In terms of overall governmental stability, Bolivia has experienced over 190 coups—some successful—since the formation of the state in 1825, with the most recent failed

206. Berg & Sady-Kennedy, *supra* note 1.

207. Vásquez, *supra* note 205, at 3.

208. *The Lithium Triangle: How three countries in South America will determine our future*, *supra* note 62; *Best Time to Visit the Uyuni Salt Flats*, SALARDEUYUNI, <https://www.salardeuyuni.com/best-time-to-visit-the-uyuni-salt-flats/> (last visited Dec. 5, 2024).

209. *Salinas Grandes del Noroeste [Great Salt Flats of the Northwest]*, UNIVERSES IN UNIVERSE, <https://universes.art/es/art-destinations/argentina/noroeste/salinas-grandes#c100818> (last visited Dec. 5, 2024).

210. *Best Time to Visit the Uyuni Salt Flats*, *supra* note 208.

211. See *supra* notes 47–50 and accompanying text.

military takeover occurring in June 2024.²¹² Following a golden era during which Argentina found itself among the top ten wealthiest economies in the world prior to the Great Depression of the 1930s,²¹³ Argentina has vacillated between economic growth and financial crisis on top of deeply engrained societal and political strife evoked by the legacies of populism and military rule.²¹⁴ Conversely, Chile has been a relatively stable democracy since the return of civilian rule in 1990.²¹⁵ By no means is Chile an idyllic state, however, experiencing its fair share of social instability. For example, political scandals surrounding investigations into SQM and its controller Julio Ponce Lerou for tax evasion, money laundering, and illegal campaign-funding²¹⁶ stalled progress on lithium-related initiatives.²¹⁷ Most recently, in 2019, Chile experienced visceral, nationwide uprisings, consisting of millions of people participating in street demonstrations—with many burning and looting businesses in a call for economic and social reform.²¹⁸ Indeed, the legacy of extractive colonialism continues to infiltrate discussions about lithium mining in each of the Triangle countries, embedded with concerns about deepening social and economic inequalities that were first entrenched under colonial rule.²¹⁹

Looking beyond a regional lens and on the global scale, the Triangle has struggled with stunted state capacity, slower economic development, weaker infrastructure, and high levels of income inequality.²²⁰ To date, all three countries are classified as “developing,” lagging behind the markers of developed countries.²²¹ Even if Chile’s stronger state capacity, higher GDP per capita, and relative governmental stability contribute

212. *The Lithium Triangle: How three countries in South America will determine our future*, *supra* note 62.

213. Alan Beattie, *Argentina: The superpower that never was*, *FIN. TIMES* (May 22, 2009), <https://www.ft.com/content/778193e4-44d8-11de-82d6-00144feabdc0>.

214. Diana Roy, *Argentina’s Struggle for Stability*, *COUNCIL ON FOREIGN RELS.* (Feb. 5, 2024).

215. *Freedom in the World 2024 Chile*, *FREEDOM HOUSE* (Feb. 2024).

216. Nikolaj Houmann Mortensen, *Much of the world’s lithium is being extracted from indigenous peoples’ territories against their will*, *DANWATCH* (Dec. 1, 2019), <https://danwatch.dk/en/much-of-the-worlds-lithium-is-being-extracted-from-indigenous-peoples-territories-against-their-will/>.

217. Gutiérrez & Ruiz-León, *supra* note 173, at 7856.

218. John Bartlett, *5 years after massive protests in Chile, what’s left of the desire for change?*, *NPR* (Oct. 20, 2024), <https://www.npr.org/2024/10/20/nx-s1-5158398/5-years-after-massive-protests-in-chile-whats-left-of-the-desire-for-change>.

219. Melisa Argento, *Challenging the future – Resistance to predatory colonial lithium extractivism*, *AEROCENE*, <https://aerocene.org/challenging-the-future-resistance-to-predatory-colonial-lithium-extractivism/> (last visited Apr. 19, 2025).

220. Tsounta & Osueke, *supra* note 22, at 6, 11, 20–21; Aldaz Peña & Baquero-Mendez, *supra* note 19, at 578.

221. *See supra* notes 47–53 and accompanying text.

to its stronger lithium production, they do not fully explain production disparities between the Triangle countries. In terms of sheer economic output, Argentina's GDP is nearly double that of Chile's (\$683.37 billion (U.S.)²²² and \$347.17 billion (U.S.),²²³ respectively). Moreover, both Bolivia and Argentina have excelled as leading global producers in other sectors: Bolivia in natural gas, gold, zinc, and silver;²²⁴ and Argentina in soybeans, wheat, meat, wool, and wine.²²⁵ Unlike traditional mining, commodity, and agricultural industries, the lithium industry presents unique challenges given the necessary specialized equipment, highly technical nature of processing methods, and the relatively recent boom in global demand for the mineral. In a region generally suffering from weakened state capacity and infrastructure—meaning it cannot rely on just local capabilities—such an industry demands a particular governance style, such as the one adopted by Chile, which permits it to significantly surpass Bolivia and Argentina in lithium production.

CONCLUSION

Climate change is one of the biggest crises of the modern day.²²⁶ Despite concerns about environmental harms resulting from lithium extraction,²²⁷ lithium is considered the white gold powering the clean energy transition.²²⁸ Chile's centralized, mixed public-private approach to lithium governance has empowered the country to excel as a top global producer of lithium. Chile's successful commercialization of the mineral presents valuable lessons for its neighbors Bolivia and Argentina, as they venture to correct the asymmetry of the Lithium Triangle. Furthermore, the Chilean model may benefit other countries who underperform in critical state capacity markers but possess opportunities to exploit natural resources requiring advanced processing.

222. *Argentina Datasets*, *supra* note 48.

223. *Chile Datasets*, *supra* note 47.

224. *Bolivia Exports*, TRADING ECONOMICS, <https://tradingeconomics.com/bolivia/exports> (last visited Dec. 5, 2024).

225. Robert C. Eidt & Tulio Halperin Donghi, *Economy of Argentina*, BRITANNICA, <https://www.britannica.com/place/Argentina/Economy>, (last updated Dec. 17, 2024).

226. *Climate Change 'Biggest Threat Modern Humans Have Ever Faced'*, *World-Renowned Naturalist Tells Security Council, Calls for Greater Global Cooperation*, UNITED NATIONS (Feb. 23, 2021), <https://press.un.org/en/2021/sc14445.doc.htm>.

227. Maeve Campbell, *In pictures: South America's 'lithium fields' reveal the dark side of our electric future*, EURONEWS (Jan. 2, 2022), <https://www.euronews.com/green/2022/02/01/south-america-s-lithium-fields-reveal-the-dark-side-of-our-electric-future>.

228. *This metal is known as the 'white gold' of the energy transition*, WORLD ECON. F., <https://www.weforum.org/videos/lithium-energy-transition/#:~:text=Also%20known%20as%20the%20'white,to%20the%20grid%20as%20needed> (last visited Apr. 19, 2025).