Oil of the Future: The Risk of Green Resource Nationalism on Lithium Extracting Countries in Latin America

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ABSTRACT

As the world approaches the 2030 mark to accomplish 17 Sustainable Development Goals (SDGs) as defined by the United Nations, the global demand for sustainable and clean energy sources is intensifying. In achieving the targets, unprecedented demand has emerged for some of the most critical materials used in renewable energy generation and storage. From solar panels to wind turbines, battery storage, electric vehicles and electricity cables, green technologies all relied on various minerals and metals. Among these critical materials, lithium has garnered the most interest as a key component for batteries, dubbed "oil of the future." Particularly, Latin America possesses more than half of the world's identified lithium reserves, positioning the region as a geopolitical focal point in the carbon transition. Policymakers in the region are increasingly pushing to secure a greater share of the revenues from lithium extraction by halting privatization and starting to nationalize the sector. A new concept, "green resource nationalism," has gained traction, aiming to reclaim control of the sector from foreign-owned companies. While proponents highlight potential benefits, critics raise concerns about potential price hikes and increased corruption risks due to weak institutional frameworks. Building on the traditional concept of resource nationalism focused on fossil fuels in resource-rich countries, green resource nationalism represents a contemporary evolution. This article analyzes the characteristics, domestic implications, and global repercussions of green resource nationalism through case studies of Chile, Mexico, and Bolivia. We employ a qualitative approach, combining literature review and discourse analysis of official documents to examine this concept.
Keywords: *carbon transition; critical minerals; multinational corporations.*

Introduction

"Just so it's clear: Lithium doesn't belong to the government or the state. Lithium belongs to the people and the nation of Mexico." Mexico's President Andres Manuel Lopez Obrador stated this comment as a response to foreign firms' lithium mining operations in the Sonora state. Furthermore, Obrador doubled down his statement by saying that lithium is going to be exploited for the benefit of Mexicans, for Mexicans and by Mexicans. Following the rapid growth of demand for green energy technologies, nationalist rhetoric such as these has emerged as a response from state actors in the Latin American region (Attwood & Averbuch, 2022). Latin America is especially significant because over 50 percent of the world's identified lithium reserves are in this region, which is Chile, Argentina, and Bolivia (Van der Molen, 2022). We found that the original definition of 'resource nationalism' could be shifted to accommodate this trend of increasing demand for critical minerals in the global energy transition.

After the 2015 Paris Agreement outlining global climate commitments were signed, the 17 Sustainable Development Goals (SDGs) were established as a framework to achieve

it. The United Nations General Assembly adopted the 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDGs), a set of 17 goals and 169 associated targets that are to be fully implemented by 2030. With the 2030 Agenda deadline approaching, carbon emissions from traditional energy systems have contributed significantly to the increase in atmospheric greenhouse gas (GHG) concentrations. A successful global transition to a renewable energy system is the central key to tackling climate change as well as meeting future energy needs. This is especially important to achieve global-mean temperature targets below 2 °C and pursuing efforts to limit it below 1.5 °C above pre-industrial levels and requires an unprecedented roll-up of renewable infrastructure, such as solar panels to wind turbines, battery storage, electric vehicles and electricity cables, green technologies (Peng Wang et al., 2022).

However, energy systems powered by low-carbon technologies differ profoundly from current systems of fossil fuel trade and infrastructure. The manufacturing of solar photovoltaic plants, wind farms, and electric vehicles (EVs) – technologies crucial to lowering emissions – generally requires considerable volumes of critical minerals, with mineral intensity varying greatly across different technologies (Woodley et al., 2024). Among these critical materials, lithium has garnered the most interest as a key component for batteries, dubbed "oil of the future" (van der Made, 2022; Maguire, 2024; Ozturk, 2024).

Today, Lithium-ion batteries primarily composed of raw lithium are among the most critical industrial items necessary to achieve the transition to lower carbon emissions worldwide. Essential to EVs and the effective delivery of solar and wind power throughout the electric grid, these batteries also charge a majority of consumer electronics products by providing the highest efficiency compared to other types of battery. While the supply chain for this battery is varied throughout the globe, the mining and processing of lithium is concentrated in just a few regions (Reinsch et al., 2024).

The critical raw materials essential for driving the global green transition are now at the forefront of geopolitical concerns. Major states around the world are emphasizing domestic production of green technologies through industrial policies, leading to increased subsidies and trade fragmentation due to geopolitical rivalry. This race among superpowers is motivated by considerations of resilience and security. Meanwhile, many countries in the Global South that possess critical raw materials are engaging in steps towards 'green resource nationalism', with policies such as imposing export restrictions (Karkare, 2024).

This paper will provide a theoretical outline of 'green resource nationalism' (hereafter GRN) and characterize the concept drawing from cases in Latin America and put forward two main arguments. First, lithium-rich countries have adopted the view that in order to benefit from the current wave of green technology, developing countries need to assert sovereignty over the country's natural resources. Second, we point out the flaws

within the logic of GRN strategies from state actors. The analysis for this paper is done through extensive literature review of this concept and sorting through the development of policies in each individual country. The main data source is publicly available documents from official sources and complemented by secondary sources that analyze lithium-rich states policies in Latin America.

The article proceeds as follows: the first section develops the theoretical framework of GRN,' its origin, its development from traditional resource nationalism, and its characteristics. The second section presents a typology of GRN using the case study of Chile (constructive approach), Mexico (confrontational approach), and Bolivia (middling approach). The third section discusses the prospects and risks of this concept in two levels, domestic and global. The last section discusses the future projections of this concept and concludes.

The emergence of 'green resource nationalism' – a theoretical framework

The traditional concept of 'resource nationalism' refers to various forms of state involvement in the extraction, processing and sale of natural resources. It is also generally used to describe the state's involvement with international companies operating within their national jurisdiction. Resource nationalism is linked heavily with the historic shift from production being dominated by Western powers and their companies, to its control by developing countries – and their representative body, the Organisation of the Petroleum Exporting Countries (OPEC). The study of resource nationalism was triggered by the OPEC export embargo in 1973–1974. Notably, the first direct use in English was in 1973 by the Japanese development economist Yoichi Itagaki.

The themes used to describe resource nationalism are generally similar, which is its effect on export supplies and prices, or the benefits gained by the country from this strategy. Since the 1980s, studies about this phenomenon have been losing popularity, but it returned in the 2000s as natural resource prices rose, made the potential of yields to be made from rents exponentially grown. Economic rent is the principal motivation of resource nationalism for state actors (Pryke, 2017).

Haslam and Heidrich (2016) described resource nationalism as a post-neoliberalism response in Latin America. They recognize this concept is used pejoratively to signify, interchangeably, nationalisations in the 1970s and government interference in the affairs of foreign firms in the 2000s. They identify a liberalisation period in the late 1980s to the late 1990s and a re-nationalising phase after the mid-2000s, in which some resource-rich countries reasserted their role and presence in the sector. In the late 2010s, the study of resource nationalism was remarked by some scholars as dead, especially in relation to Latin America. This claim was backed by the collapse in oil prices since 2014 that made this strategy lose relevance.

Wilson (2015) explains that political institutions pose incentives and constraints for governments, which in turn condition their policy objectives for resource industries. Rentier states prioritize direct state control of firms, while developing countries favor

industrial policy to drive economic growth. Meanwhile, developed economies prefers market-based policies to attract resource investment, limiting their nationalistic interventions to taxation. Thus, political institutions are essential to explain the heterogeneity of resource nationalism, as they shape the objectives of governments and their resulting policies. Resource nationalism is not a primarily instrumental response to changing global economic landscape, but is also being molded by the political institutions of resource-rich countries.

In explaining the arrival of GRN as an evolution of traditional resource nationalism, we can define three main characteristics of GRN as government strategies which is (1) *localisation measures*, which CRM-rich governments tend to rely on in the absence of fiscal capacity to provide competitive subsidies; (2) *export restrictions*, bans on raw exports of minerals, often driven by aspirations for domestic economic development through resource based industrialisation; and (3) *stringent tax policy*, introduced to achieve various objectives such as generating state revenues, addressing short term supply-demand mismatch, or promoting value addition.

Typology of green resource nationalism

After defining and characterizing states adopting GRN strategy, this section presents case studies from lithium-rich countries in Latin America. We introduce a typology visualizing a spectrum within the GRN approach adopted at each country. On the first end of the spectrum is the 'constructive' approach and at the polar opposite is the 'confrontational' approach. Between these two approaches is the 'middling' approach aiming for a moderate flavor of GRN. This typology is adapted from Karkare's (2024) argument dissecting the contrasting strategies of Indonesia and Chile in embracing GRN. It provides a framework to understand the diverse ways in which countries have implemented GRN policies. While this distinction is not intended to be the final word on categorizing different GRN strategies, it serves as a starting point for further dialogue and research.

1. Constructive approach: Chile

Chile under Gabriel Boric's presidency has sought to pursue both greater local value addition and the increase of foreign investments and expertise. This is shown by Chile's negotiation with the European Union to reserve a part of its lithium for domestic use at more favorable prices. The agreement resulting from this underscores Chile's commitment to draw economic benefits from GRN policies while also maintaining a conducive environment for foreign capital. Chile has successfully struck a compromise with the EU as a major importer of lithium and a key trade partner. In what is called 'National Lithium Strategy' by Boric himself, the new policy strengthens the hand of the state in future public-private partnerships in the lithium sector. Boric further outlined that Chile's government would not terminate existing contracts, but hoped companies would be open to state participation before they expire. This statement is directed towards the mining industry giants within Chile, specifically SQM, a company with significant Chinese investment, and Albemarle, a U.S-owned firm (Villegas & Scheyder,

2023; Tähtinen & Ziemer, 2023). This constructive approach has helped Chile align their objectives with external players and the international trading system (Karkare, 2024).

2. Confrontational approach: Mexico

In contrast with Boric's approach, President Andres Manuel Lopez Obrador has used a more confrontational tone in his GRN strategy and later ordered the creation of a new state-run lithium company, LitioMx. This is despite Mexico not yet having any commercial lithium production as of 2024. Loprez Obrador further calls for the creation of a "lithium OPEC" among lithium-rich countries in Latin America. A move that further shook potential trading partners and international markets (Tähtinen & Ziemer, 2023). The GRN strategy in Mexico is triggered by a lithium amendment to the country's mining law, personally supported by Loprez Obrador. This legislation prohibits private participation in the lithium market and all existing contracts in the lithium sector would be reviewed, setting the scene for potential clashes with investors (Madry, 2022). It has yet to be seen if this approach manages to pay off for Mexico's government. With global demand for critical minerals steadily rising, international firms could potentially have no choice but to agree with Mexico's terms to access their lithium.

3. Middling approach: Bolivia

Bolivia's rich lithium deposits have not been mined at a commercial level since the 1990s. For decades, successive governments have tried to jump-start Bolivia's lithium industry, attempting both pro-market and nationalists approaches, with unimpressive results. Efforts at privatizing the industry in the 1990s failed. So did attempts by previous President Evo Morales to expand the government's role in the industry through a state-owned lithium company CBC. These projects failed because indigenous and rural people who would be laborers for lithium production projects near their land and communities face skill gaps that make it difficult to provide them lithium mining jobs.

Besides those factors, there has historically been significant opposition to mining in Bolivia, particularly from communities in mineral-rich Potosí driving the incentives for radical GRM policies during the Morales presidency. Bolivia has a vibrant well-organized civil society that has toppled presidents and blocked private mining developments. Currently, Bolivia does not have the technical knowledge, infrastructure, and economic capacity to pursue expensive and extensive lithium extraction processes (Van der Molen, 2022).

In January 2023, Bolivia has chosen a consortium including Chinese battery giant CATL to partner CBC on direct lithium extraction from the country's Uyuni and Oruro salt flats. The partnership would give these firms the rights to develop two lithium plants, which could each produce annually up to 25,000 tonnes of battery-grade lithium carbonate (Ramos, 2023). This shows the abandonment of radical GRN strategies in the Evo Morales presidency. The current president of Bolivia, Luis Arce, opts to aim for the middle ground in pursuing a GRN approach. This is done in response to two big

constraints hampering the Morales lithium policy which is the fall of Bolivia's share in global lithium reserves between 64% in 2007 to 17% in 2017 and the low lithium concentration in the salt flats compared to neighboring countries, making the extraction process pricier (Obaya, 2021).

Discussion of prospects and risks

In this section, we will discuss the future prospects and risks associated with the adoption of GRN in lithium-rich countries. GRN policies are regularly blamed for the high prices of critical minerals needed for the energy transition, consequently making the fight against climate change more expensive. Other common conceptions on GRN are that these policy packages are often riddled by legal and administrative deficiencies and ineffective enforcement. It is also often thought of as a political vehicle for populist leaders' messaging and the resulting economic activity captured for patronage (Karkare, 2024).

In a more positive view of GRN, these policies present an opportunity for recovering a greater share of profits in the midst of the global energy transition, ultimately through more localized processing of lithium. Such vertical value chains would accelerate the creation of a green economy in the lithium-rich countries than the mere extraction of its resources would (Tähtinen & Ziemer, 2023). The expectations of state actors in adopting GRN goes as follows. First, establishing export restrictions to divert minerals away from raw exports to the domestic market. Second, process and add value to these minerals domestically. Finally, the economic activity created on the processing will spillover to other sectors and stimulate growth. This logic stems from the limited tools available to countries in the developing world. Policy interventions in the U.S., EU and China are centered on subsidies that are unaffordable. Other factors fueling the support of GRN are the tactics of foreign mining firms like transfer mispricing and underpricing which leads to economic resentments from local actors.

We argued that the logic supporting GRN strategies are flawed. Crucial factors such as weak institutional framework, inadequate administrative capacity, and unnecessarily complex or distortionary fiscal rents in lithium-rich countries severely constrains the attempt of these states to move up in the value chain (Nakhle, 2023). We will describe negative domestic implications of GRN policies, such as the complexities of the lithium mining sector; state capacity needed to deal with externalities; Chinese dependence; implementation gaps; and overinvestments. We wrapped this sector by discussing some global repercussions of GRN adoption.

In Bolivia, radical GRN strategies implemented since the late 2000s backfired because of the deterioration of the state's financial capacity before the mining projects generated a steady flux of income. Delays and the lack of an efficient manufacturing technology impede these efforts, prompting a shift of attitude towards foreign capital to realise the potential benefits of Bolivia's lithium deposits. Obaya (2021) argued that the technological and financial factors are the main factors behind this. The resources underpinning the original GRN strategies have eroded over the years.

Looking at other implications, analyses from Warburton (2024) provide several lessons learned from the GRN policies in nickel resources from Indonesia. First, dealing with externalities. The nickel smelting industry has created a devastating impact upon waterways and forests. It also depends on coal-fired power plants and driving up carbon emissions. While these smelters have created tens of thousands of jobs, stories continue to emerge of dangerous working conditions, and high wages are undermined by inflated living costs inside the industrial parks. There needs to be an upgrade on the state's capacity to properly respond to these externalities, Second, the dependence on Chinese firms and banks. China's domination of financial and institutional resources on green energy technologies usually forced these resource-rich countries to invite Chinese influence. If the state forces these Chinese companies to open processing plants staffed by foreign nationals, the value for the local economy will also be diminished (Dana, 2023).

Lessons from the oil sector also provide insights on challenges facing GRN policies. Many Sub-Saharan countries have reformed their extractive industry legal frameworks to improve the governance of their natural resources. However, they are failing to reap the full benefits of these policies due to the lack of implementation of the new rules, called the "implementation gap." This concept is defined as the difference between a country's legal framework for good governance and anticorruption, and the actual implementation or enforcement of that same legal framework (Diene & Woodroffe, 2021). We argue that the implementation gap will threaten the GRN policies effectiveness, especially since lithium mining is an extensive and expensive sector as shown in the Bolivian case.

Other lessons from the oil industry also include the potential of overinvestments. This is described as investing an astronomical amount of investment on a new processing project during a period of low prices. Overinvestment has long plagued the oil industry, since states always need the prestige of refining their own products (Lynch, 2024). In the global energy transition, some critical minerals such as nickel are constantly threatened by technological advancements, rendering it obsolete.

GRN adoption also had some repercussions on the global scale. With the production of critical minerals becoming more concentrated amongst a few countries, export restrictions on critical raw materials have seen a five-fold increase since 2009. Data also shows that 10% of global exports in critical raw materials are now facing at least one export restriction measure. Export taxes were the most common type of export restrictions used in 2020. This relates to the fact that WTO prohibits quantitative restrictions on exports while export taxes are not.
While both imports and exports of critical minerals become highly concentrated, trade of these materials remains relatively well diversified. This suggests that the possibility of significant disruption to the global energy transition by disturbances to import or export flows of critical raw materials is limited (Kowalski & Legendre, 2023).

Conclusion

By making a theoretical review and presenting a typology drawing from case studies, this article has sought to outline the risks associated with GRN policies. GRN is defined as state involvement in the economic activity of natural resources, specifically critical minerals needed for global energy transition. We have described the characteristics of GRN which are localisation measures, export restrictions, and stringent tax policy, while also explaining the centrality of political institutions on GRN outcomes. The three case studies from each country are used as tools to present a typology on GRN approaches, ranging from a constructive one in Chile, confrontational in Mexico, and the middling approach in Bolivia.

After that, we discuss the logic behind GRN strategies from state actors, and point out the flaws within it. Factors ranging from weak institutional framework, inadequate administrative capacity, and unnecessarily complex or distortionary fiscal rents in lithium-rich countries severely constrains the attempt of these states to move up in the value chain. We also argue that there are negative domestic implications from GRN policies, such as the complexities of the lithium mining sector; externalities from the processing sector; Chinese dependence; implementation gaps; and overinvestments. This article is wrapped by discussing global repercussions of GRN, which is a sharp increase of export bans on critical minerals, but has not been severe enough to threaten global energy transition. With GRN emerging as an attractive option to drive industrialisation for lithium-rich countries, historical precedents cast doubts about the likelihood of successful resource-led development. The rents from the mining sector have traditionally been difficult to translate into other sectors as an engine for economic growth and development.

We contribute to IR by advocating further evolution of the traditional resource nationalism concept. This is especially important in the wake of the significant demand arising from global energy transition away from fossil resources. Together these implications ask for more perspectives on this phenomenon to provide policymakers with more tools to understand the global political economy. The loose definition for the three typologies on GRN were meant for future scholars to better capture the nuances of different GRN practices around the world. In describing his attempts of GRN policies in a lithium context, Gabriel Boric remarked; "it would help build a Chile that distributes wealth we all generate in a more just way."

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