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## Exploring conditions for just lithium mining in South America. The case of the EU responsible sourcing strategy

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## LETTER

## Exploring conditions for just lithium mining in South America. The case of the EU responsible sourcing strategy

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**Abstract**

To advance its climate neutrality and electromobility goals, the European Union (EU) depends on a reliable supply of lithium. The “lithium triangle”, comprising Chile, Argentina, and Bolivia, contains 53% of the world’s lithium resources and supplies 85% of the EU’s lithium imports. In 2023, the EU and Latin America launched a new cooperation agenda under which the EU signed Memorandums of Understanding (MoUs) with Chile and Argentina aimed at jointly developing sustainable value chains for critical raw materials. That same year, the EU adopted the European Batteries Regulation (EBR), which mandates due diligence to address social and environmental risks in the mining of battery minerals. The EBR and MoUs form the foundation of the EU’s responsible sourcing strategy for lithium from South America. This study, using the energy justice framework and results from a Delphi survey, investigates whether the EBR and MoUs align with the conditions for a just lithium battery value chain for the lithium triangle. Our findings indicate that the EU-South America agenda reflects cumulative learning by addressing mutual interests, such as local industrialization. However, the current EU responsible sourcing approach overlooks critical local-level justice considerations—distributive, procedural, and recognition justice—that are highly relevant to the lithium triangle. We argue that for the EU to ensure a just lithium supply from South America, additional issues must be prioritized, including the equitable participation of local communities in the economic benefits of lithium mining, institutional strengthening, and the proper implementation of free, prior, and informed consultation with Indigenous peoples.

**1. Introduction**

The European Union (EU) remains committed to become climate-neutral by 2050 and, in such effort, is fostering the transition towards electromobility. The access to critical minerals like lithium, necessary to produce lithium-ion batteries, is a strategic challenge for the EU’s battery supply chain (European Court of Auditors 2023, Draghi 2024). In a context of green energy geopolitical contention (Sanchez-Lopez 2023), the region fully relies on imports, often from concentrated markets, to supply its industry.

Alongside efforts to build a resilient and diversified mineral supply, the EU is also committed to ensuring that mineral sourcing is ‘responsible’ (Graham *et al* 2021). This term has been used in the European Batteries Regulation (2023/1542) (EBR), covering four minerals used to produce lithium-ion

batteries, including lithium. Responsible sourcing is oriented to respecting social, economic, governance and environmental principles and seeks to prevent and mitigate the adverse socio-environmental impacts of mining (European Commission 2021b). This is a crucial objective that faces significant challenges, as mining is often associated with socio-environmental harm and the exacerbation of local injustices (Agusdinata *et al* 2018, Liu and Agusdinata 2020, Kramarz *et al* 2021, Marin and Goya 2021).

Alongside the push for responsible sourcing, there is increasing emphasis on integrating justice considerations into the broader discourse on the energy transition (Byskov *et al* 2021). A recent United Nations report offers recommendations and guiding principles aimed at promoting justice and equity throughout the critical mineral value chains that are essential for the energy transition (UN-SGPCETM 2024). This

report acts as an official caution, reinforcing what much of the energy justice literature, alongside civil society organizations and local communities, have long asserted: that unless justice issues are adequately addressed, the energy transition risks falling short of a truly sustainable transformation and could, instead, aggravate existing social and environmental inequities (Carley and Konisky 2020).

The energy justice framework is an evolving research field which applies justice principles to energy-related issues. Its traditional core tenets are: (i) distributive justice, which focuses on who receives benefits and who bears the burdens, including intergenerational fairness; (ii) procedural justice emphasizing fair and equitable procedures that engage all stakeholders in a non-discriminatory way; and (iii) recognition justice, which values the appreciation for the vulnerable, marginalized or under-represented populations, and the concerns raised by them (Heffron and McCauley 2014, Sovacool *et al* 2019).

At the intra-regional level, the EU has implemented the 'Just Transition Mechanism' which is designed to support regions and sectors most impacted by the shift to a green economy, 'making sure no one is left behind' (European Commission *n.d.*). This letter seeks to examine whether the EU has also developed tools to establish 'just' relations with its raw material suppliers in third countries. Specifically, we investigate whether the EU's current strategy for sourcing lithium from the so-called 'lithium triangle'—comprising Argentina, Bolivia, and Chile—creates the conditions necessary to build a just lithium battery value chain.

This paper is organized as follows. Section 2 outlines the research design, detailing the case study, analytical approach, and data sources utilized in the study. Section 3 presents findings from a Delphi survey (Obaya *et al* 2024a) analyzing the conditions necessary for developing a lithium battery value chain that is just for South American lithium-rich countries. In section 4, we analyze the EU's strategy to promote justice in the lithium triangle, focusing on the EBR and two memorandums of understanding (MoUs) on strategic partnerships for sustainable raw material value chains signed between the EU and the governments of Chile and Argentina. Finally, section 5 offers concluding remarks and reflects on the implications of our findings.

## 2. Research design

### 2.1. Presenting the case

The lithium triangle is a geographical region encompassing parts of Argentina, Bolivia, and Chile (figure 1), which collectively hold 53% of the world's lithium resources and 94% of lithium resources in Latin America and the Caribbean (LAC) (USGS

2024). It is a very arid area characterized by the presence of salt flats (in Spanish, *salares*) which contain lithium-rich brine underneath their surface. Chile and Argentina supply around 30% of the global lithium and cover 85% of EU's lithium imports, which explains their strategic importance for the EU (European Commission 2023d). Bolivia, despite possessing substantial lithium resources at the Salar de Uyuni and other salt flats, has so far been unable to produce lithium compounds at an industrial scale due to a combination of technical and political challenges.

In 2023 the EU signed MoUs with Chile and Argentina to advance the supply of 'strategic and critical raw materials' (including lithium), develop infrastructure, support research and development, and raise environmental, social and governance (ESG) standards (EU and Argentine Republic 2023, EU and Republic of Chile 2023). These agreements are predicated on the principle of 'mutual benefits' aligning with the broader EU-LAC agenda signed in 2023, which emphasizes the importance of cooperation for a 'fair' green transition (European Commission 2023b). Both regions acknowledge that LAC needs to address structural issues such as inequality, food insecurity, deforestation and 'extractivism' (Gudynas 2018, European Commission 2023b) as well as conflicts over natural resource governance<sup>1</sup>.

In that same year, the EU adopted the EBR (European Commission 2023c), the most important sustainability-related regulation for battery minerals (lithium, cobalt, natural graphite, nickel, and chemical compounds based on those minerals and necessary to manufacture active materials of batteries). Among other provisions, the regulation mandates that, from August 2025, operators placing batteries in the EU market—with an annual turnover over EUR 40 million—shall implement an independently verified due diligence policy<sup>2</sup> addressing social and environmental issues. Both the MoUs and the EBR represent the cornerstone of the current EU approach for the 'responsible sourcing' of battery minerals from South America.

The EBR is embedded within the broader framework of the European Green Deal, the EU's overarching policy initiative aimed at decoupling economic growth from resource consumption and achieving net-zero greenhouse gas emissions by 2050. Complementing this is the Green Deal Industrial Plan (COM/2023/62final), which promotes the development of net-zero technologies vital for meeting the

<sup>1</sup> According to the EJAtlas, Latin America is, globally, the region with the highest amount of mining-related conflicts.

<sup>2</sup> Following OECD guidance, due diligence refers to obligations related to a social and environmental risks management system that aims to identify, prevent, and address such risks in raw material-related activities.



EU's climate objectives while enhancing the EU's strategic autonomy by reducing reliance on external suppliers of critical raw materials (CRMs). A central element of this strategy is the CRMs Act (2024/1252), adopted in 2024, which seeks to ensure a secure and sustainable supply of CRMs—34 materials, including lithium—for the EU.

This regulation outlines the framework for establishing 'strategic partnerships' between the EU and CRM-supplying nations, as exemplified by the MoUs with Chile and Argentina. It also supports the development of domestic and international 'strategic projects', defined as CRM-supplying initiatives that meet specific criteria, including sustainability standards. For projects outside the EU, the regulation introduces certification schemes aimed at verifying compliance with social and environmental standards, mitigating associated risks.

Against this background, this article seeks to address the following research question: to what extent do the EBR and the MoUs integrate the

three core pillars of the energy justice framework—distributional, procedural, and recognition justice—into their responsible lithium sourcing strategies for South America? In the subsequent section, we outline the data sources and the analytical approach employed.

## 2.2. Analysis and data collection

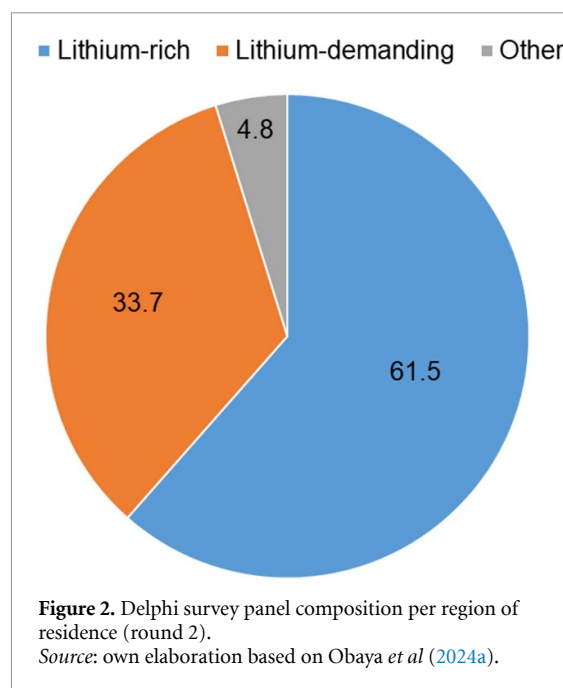
To address the research question, we compare the conditions that should be promoted so that the lithium battery value chain becomes just for lithium producers in the lithium triangle, as defined by experts, with the issues covered in the EBR and the MoUs signed between the EU, Argentina and Chile. In the latter case, references to 'justice' are absent, with the emphasis instead placed on 'sustainable' and 'responsible' raw material value chains. Consequently, we identified the 'areas of collaboration' outlined in the MoUs that could potentially impact justice-related dimensions. The EBR, while

also centered on sustainability, differs in that it explicitly requires economic operators to address ‘access to information, public participation in decision-making, and access to justice in environmental matters’ concerning the sourcing, processing, and trading of raw materials’ [EBR, Article 52(3)].

It is important to note that these instruments are still under development within the EU. For instance, the Global Gateway, which plays a crucial role in implementing the MoUs, is currently in progress. However, aside from this, there are no established mechanisms or dedicated resources in place to effectively support the achievement of these objectives.

Regarding the EBR, the legislation provides companies with the option to support their due diligence obligations through ‘due diligence schemes’—private sustainability standards that mining companies often voluntarily adopt to audit their operations. At present, stakeholders involved in the development and oversight of such schemes can apply to the European Commission for formal recognition of their schemes, justifying their equivalence to the regulatory requirements (EBR, Article 53(2)). Given the proliferation of voluntary sustainability standards in the market, the European Commission has established that it will publish a register of recognized schemes to provide further guidance (EBR, Article 53 (8)).

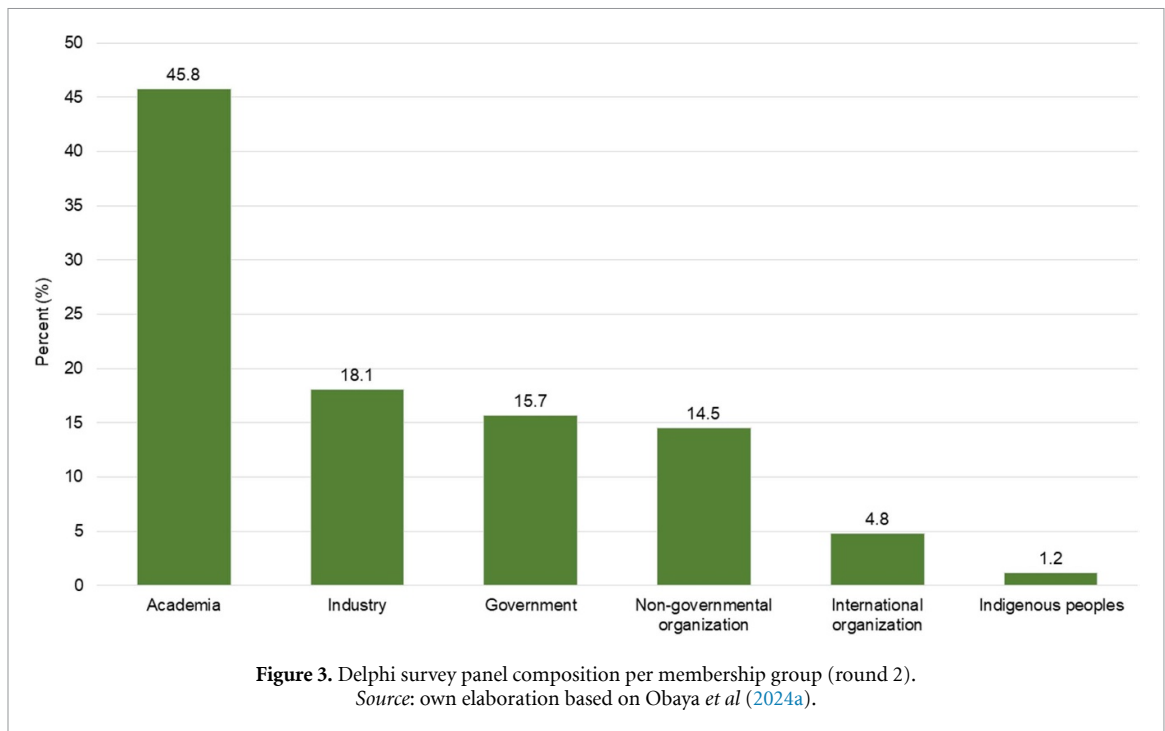
The information on the priority conditions so that the lithium battery value chain becomes just for South American lithium-rich countries is extracted from an online Delphi survey we conducted in 2022 (Obaya *et al* 2024a). The Delphi technique is a scientific method to organize and manage structured group communication processes with the aim of generating insights on current or prospective challenges. One of its advantages is that it can make use of rank-order questions, rating scales or open questions to examine levels of consensus among experts and determine priorities (Beiderbeck *et al* 2021). Our two-round survey was carried out anonymously with questionnaires in English and Spanish language and comprised responses from a diverse panel of experts, totaling 141 participants in the first round and 83 in the second. In two iterative rounds, participants were able to rank-order and reassess justice conditions, leading to a more refined consensus across the panel. Anonymity within the survey allowed participants to voice independent opinions, free from the influence of power dynamics that could otherwise skew responses. Moreover, the virtual nature of the survey enabled stakeholders from across the lithium triangle and Europe to participate, producing a more comprehensive, region-wide perspective. The confidentiality assured to respondents was particularly beneficial, encouraging participants to offer candid, independent insights without concern for institutional accountability. However, Delphi surveys also have notable limitations.



In our study a relevant one was the bias in the panel composition. In both rounds the panel was predominantly composed of participants from Argentina, Bolivia and Chile, which accounted for 61.5% of respondents in Round 2. Respondents from lithium-demanding countries came mostly from Europe (27.7%) and, to a smaller extent, from North America (6%) (figure 2). While we acknowledge that opinions of panelists from each country of the lithium triangle are different, in this paper we have not conducted a country-level analysis of justice priorities. Instead, and acknowledging the inherent bias, we have used the results of all participants from lithium-rich countries as a bloc to compare it against the EU’s responsible sourcing strategy as a whole.

We signal another bias with regards to the institutional affiliation of participants where the majority of respondents belonged to the academia (45.8% in Round 2), with fewer representatives from industry (18.1%) and government (15.7%) (figure 3). Given the virtual nature of the survey, Indigenous peoples were significantly under-represented, comprising only 1.2% of the panel. This limitation indicates that the perspectives of some of the most affected groups in the lithium triangle were not adequately captured, potentially limiting the survey’s ability to fully reflect the region’s socio-environmental challenges. Had they been better represented, most likely some issues, such as the need of formalised and culturally appropriate consultation with them would have had a more prominent position in sustainability and justice considerations.

However, given that some of the Non-governmental organizations’ (NGOs) representatives who participated in the panel work closely



with Indigenous peoples in the lithium triangle region, certain considerations from these communities have been indirectly included as a proxy via the NGOs' representatives' opinions. Additionally, to compensate for the under-representation of opinions from Indigenous peoples, in this study we take into consideration concerns of some members of Indigenous communities who have directly expressed them in publications (Cardozo *et al* 2021). We have also indirectly collected further concerns out of literature published by scholars who share a research agenda with some Indigenous communities in the area (Marchegiani *et al* 2020, Blair *et al* 2023, Lorca *et al* 2023).

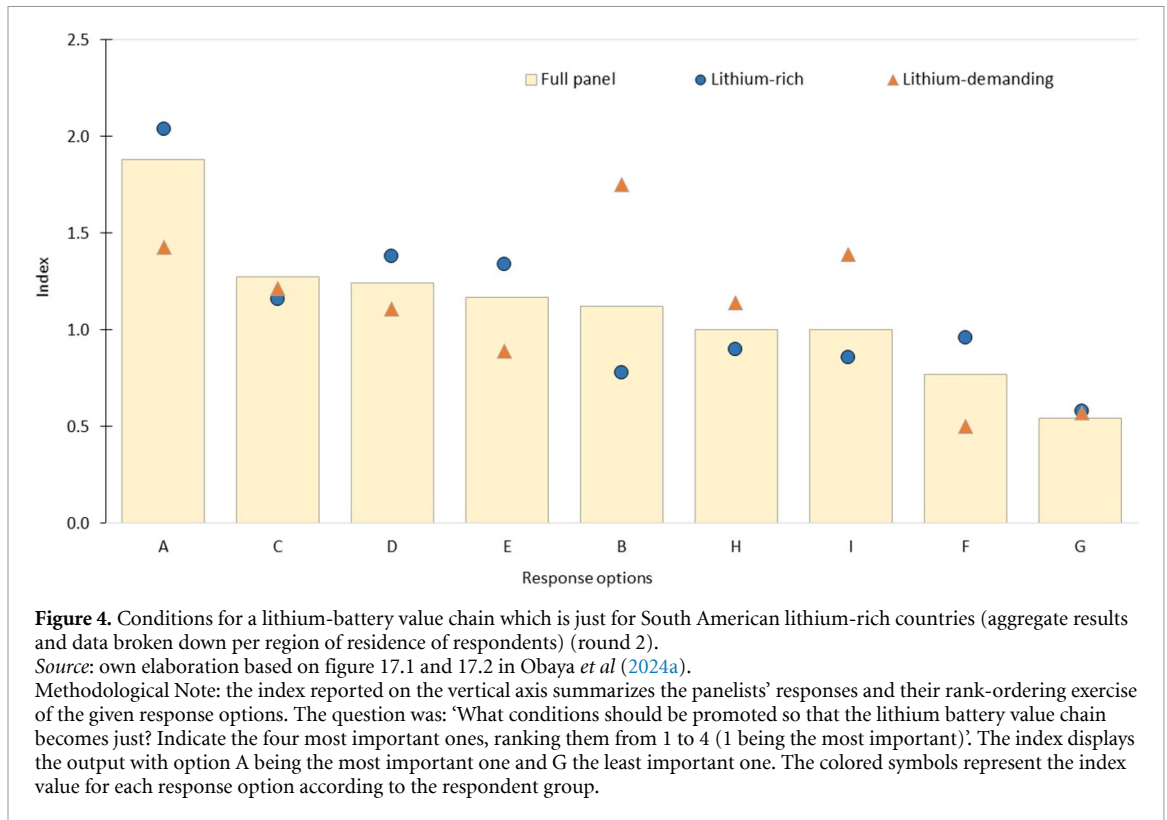
### 3. Conditions that should be promoted so that the lithium battery value chain becomes just for South American lithium-rich countries

Figure 4 ranks the conditions for a lithium battery value chain that is just for lithium producers in lithium triangle countries, as prioritized by experts. The bars represent the aggregate results, while the circles and triangles present information broken down per respondents' region of residence. The outcomes of the Delphi survey highlight the centrality of distributive justice as the key condition for a just value chain, with three of the top four priority conditions (A, D, and E, figure 4) falling within this dimension.

The top-ranked condition regards the intra-country distribution of the economic rent: 'Local communities receive economic benefits from lithium

mining' (A, figure 4). The other two distributive conditions, ranked 3rd and 4th, respectively, refer to inter-country issues: 'Countries importing lithium favor the transfer of production and technological capabilities to the countries where the resource is located' and 'Mining countries succeed in developing downstream activities in the value chain' (D and E, figure 4). In contrast, other distributive issues such as taxation and labor conditions (F and G, figure 4), were not considered among the top priorities. The option targeting a more structural change in production and consumption patterns (I, figure 4) did not achieve a high ranking in the entire panel but was selected as a high priority among respondents from lithium-demanding countries, especially by European NGOs.

When it comes to procedural justice, the second highest-ranked position is that 'Countries importing lithium promote compliance with social and environmental standards in countries where lithium mining takes place' (C, figure 4). This response, which regards the relation between lithium-demanding and producing countries, intersects with several top-ranked social and environmental sustainability challenges in the Delphi survey, including impacts on social and cultural practices, consultation with local communities and water and biodiversity management (Obaya *et al* 2024b). A domestic-based procedural justice condition, i.e. 'Local communities are involved in defining the terms under which lithium mining is carried out' (B, figure 4), occupies an intermediate position. However, interestingly, it is the top-ranked condition among respondents from lithium-demanding countries. Issues of recognition



Justice dimension	References	Response option
Distributive	A	Local communities receive economic benefits from lithium mining.
Procedural	C	Countries importing lithium promote compliance with social and environmental standards in countries where lithium mining takes place.
Distributive	D	Countries importing lithium favor the transfer of production and technological capabilities to the countries where the resource is located.
Distributive	E	Mining countries succeed in developing downstream activities in the value chain (e.g. battery production).
Procedural	B	Local communities are involved in defining the terms under which lithium mining is carried out.
Recognition	H	The rights and culture of local communities are respected.
Distributive	I	Significant changes in consumption, production and mobility patterns are promoted, especially in developed economies, in order to reduce the demand for lithium and the pressure on territories.
Distributive	F	Tax regimes in mining countries have the capacity to capture a substantial portion of the economic rent from lithium mining.
Distributive	G	Inclusive labor policies prevail and workers' rights are respected in the development of lithium mining.

Source: own elaboration based on Obaya *et al* (2024a).

justice expressed by minorities, such as 'The rights and culture of local communities are respected' (H, figure 4), were not ranked as top priorities by panelists.

Analyzing results broken down by region of residence of participants provides a more nuanced picture. It is clear that lithium-rich countries strongly prioritized distributive justice conditions. The

highest-ranked concern focuses on local communities' economic benefits from mining (A, figure 4), while the other two conditions—technological transfer and the potential for developing downstream segments of the battery value chain—have a broader national scope and involve relationships with lithium-demanding countries (D and E, figure 4). These conditions reflect the high expectations of

stakeholders in lithium-rich nations regarding lithium's potential to drive economic development, as evidenced by the industrial policies implemented over the past decade (Obaya 2022, Johnson *et al* 2024).

By contrast, as previously mentioned, experts from lithium-demanding countries top-ranked a procedural justice condition referred to the involvement of local communities in defining the terms for lithium mining (B, figure 4). It is worth noting that this question has shown the largest gap in perception between experts from lithium-rich and lithium-demanding regions, as the former view it as a secondary concern when it comes to ensuring that the lithium battery value chain is just for them.

In second place, experts from lithium-demanding nations ranked the distributive justice issue of local communities receiving economic benefits from mining (A, figure 4) as a priority. This highlights the focus of lithium-demanding stakeholders on local concerns, particularly the well-being of populations near salt flats, rather than broader, nation-wide objectives.

In the third position, as previously mentioned, responses ranked a domestic question with external implications pointing to the need of changing production and consumption patterns in developed economies so as to reduce lithium demand from lithium-rich countries (I, figure 4). Interestingly, the taxation question, a distributive justice issue, was ranked as the least important condition for lithium-demanding representatives (F, figure 4).

#### 4. EU tools to promote a just lithium battery value chain for the lithium triangle

As previously discussed, the EBR and the MoUs signed between the EU, Argentina and Chile are conceived as key instruments for establishing responsible sourcing relationships with EU battery material suppliers. Although both address justice-related concerns in their relations with third countries, they have distinct yet complementary emphases. The MoUs focus on cooperation opportunities and the potential for inter-regional investments and development, while the EBR adopts a more cautionary approach that highlights socio-environmental risks and strategies for their mitigation.

Table 1 outlines the key tools included in these two instruments with potential to promote a more just lithium battery value chain for the lithium triangle. The listed dimensions were synthesized representing collaboration areas in the MoUs and risk categories in the EBR (EBR, Annex X). In general terms, we observe that the MoUs emphasize areas of collaboration that highlight distributive justice issues. To support these efforts, the EU has introduced the Global Gateway as a key mechanism to de-risk investments that align

with this goal (European Commission 2023a). In contrast, the EBR requests the implementation of battery due diligence policies to prevent risks related to human rights, including that of Indigenous peoples, and environmental risks. In other words, it primarily focuses on procedural and recognition justice, which is largely driven by its core objective to “[...] prevent and reduce adverse impacts of batteries on the environment and ensure a safe and sustainable battery value chain for all batteries [...]” (EBR, Recital 12 of the preamble).

In the following we discuss if the mentioned EU tools match the justice priorities raised in the Delphi survey.

##### 4.1. EU initiatives for distributive justice: the challenge of addressing development aspirations in the Lithium Triangle

The distributive justice concerns relevant to the countries of the lithium triangle are primarily addressed through the MoUs, under the umbrella of a partnership based on ‘mutual benefits’. In contrast, the due diligence provisions of the EBR do not encompass these issues. As indicated in table 1, the scope of the topics covered by the MoUs is broad, ranging from research and innovation to taxation, trade, and investment.

This is a key cooperation objective as it aligns both regions with long-standing aspirations of South American countries of going beyond a commodity export-led development model by moving downstream in the natural resources value chain. This ambition is conspicuous in the results of the Delphi survey (figure 4). In the case of lithium, this is clearly visible in the consolidation of a socio-technical imaginary among some stakeholders of the lithium triangle countries who envision science and technology as drivers of ‘added value’. This perspective suggests that industrializing lithium can serve as a pathway out of extractivism and redefine the relationships the region maintains with global markets (Barandiarán 2019). At domestic level this reflected in a variety of industrial and technological policies adopted by the countries of the lithium triangle (Obaya 2022).

As seen in figure 4, the question of the participation of local communities in reaping the economic benefits of lithium mining is the highest-ranked condition for a just value chain in the eyes of experts, in particular of those residing in the lithium triangle. This topic, often known in the literature as (community) benefit sharing, does not feature among the risk categories of the EBR nor among the MoU’s objectives or Global Gateway example projects. Yet, this topic is of high relevance for South American countries and features as a condition for responsible mining, for instance, in the mining policy



**Table 1.** Justice issues covered in the EBR and the MoUs on strategic and critical raw materials.

Energy justice framework dimension		
<i>Distributive</i>	EBR	MoUs
Trade, investments and joint project development	X	✓
Research and innovation	X	✓
Support to industrialization	X	✓
Hard and soft infrastructure investments	X	✓
Training, skills development and quality employment	X	✓
Domestic revenue mobilization (improving tax collection systems)	X	✓
<i>Procedural and recognition</i>		
Leverage ESG and align with international standards	X	✓
Capacity building	X	✓
Human and labor rights, including child and forced labor	✓	X
Meaningful consultation and engagement processes with local communities	✓	X

Source: own elaboration based on the EBR, MoUs between the EU, Chile and Argentina. A check mark (✓) indicates the topic is covered by the instrument. A cross (X) indicates it is not covered.

framework promoted by the Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development (see ‘Local economic benefits’ at IGF 2023), the principal international platform where 85 member governments, including those of the lithium triangle countries, discuss the mining sector regulation.

The issue is also of critical importance for Indigenous peoples and is recognized in the International Labour Organization (ILO) Convention No 169 as a key safeguard for their right to determine their own social, cultural and economic development (Marchegiani *et al* 2020). As highlighted by members of Indigenous communities collaborating with the Pluri-national Observatory of Andean Salt Flats, benefit sharing involves much more than distributive justice aspects, such as local employment or revenue distribution among Indigenous peoples’ institutions. According to testimonies from community members (Cardozo *et al* 2021), benefit-sharing in lithium mining should encompass both procedural and recognition justice. This includes evaluating cultural and spiritual impacts and ensuring early, good-faith consultations to develop environmental protection measures for both ecosystems and salt flats. Such approaches not only respect the rights and identities of local communities but also align with the principles of equitable resource management.

The issue of benefit-sharing with communities has largely been, in practice, left to the discretion of mining companies, which typically rely on company-community agreements under their corporate social responsibility programs to address it. However, the literature indicates that monetary compensation is a complex and possibly insufficient approach. Rather than resolving disputes, it can lead to new inter- and intra-community tensions (Lorca *et al* 2022) and may fail to address risks such as ‘elite

capture’ where certain community members are subjected to undue influence and bribery (Marchegiani *et al* 2020).

The collection of government revenue from domestic minerals and their value chains, also referred to as domestic revenue mobilization, is highlighted as one of the objectives in the MoUs. Although this is not among the top-ranked conditions in the Delphi survey (F, figure 4), it is a question of growing concern among governments (IGF 2023, 2024), particularly of Argentina and Chile due to previous experiences of suboptimal revenue capture by the state linked with lithium mining (Risso 2023, Taquiri *et al* 2024). While primarily a distributive justice issue, it also intersects with the need to build capacity within national authorities responsible for monitoring and controlling state revenue capture, particularly in complex cases like lithium, which involve challenges such as base erosion and profit shifting. As seen below, these governance aspects are not adequately covered in the biregional relations.

#### 4.2. Procedural and recognition justice: in need of prioritization of local-level aspects

In terms of procedural and recognition justice, the relative importance of the two instruments under analysis—the EBR and the MoUs—is reversed when compared to their relative significance for distributive justice. Some of the procedural and recognition justice conditions resulting from the Delphi survey are covered in the EBR by the social and environmental risk categories to be included by the due diligence obligations set by the regulation. In the case of the MoUs, they are more vaguely addressed under the objective of ‘cooperating to leverage ESG criteria’.

Conducting a meaningful consultation with local communities is key to achieving both procedural and recognition justice aspects. This topic is required

by the EBR to companies as part of their due diligence obligations. The regulation states that: ‘Economic operators should hold informed, effective and meaningful consultations with affected communities’ (EBR, Recital 84 of the preamble). This provision has the potential to elevate the consultation standards for companies subject to the EBR. However, its effectiveness is constrained by governance deficits in the countries of the Lithium Triangle, which undermine the fairness of consultation processes with local communities. Some of the most salient barriers are knowledge asymmetries between companies and communities (Müller *et al* 2023), problems for communities in understanding complex information and in accessing public environmental information with sufficient time prior to consultation (Clavijo *et al* 2022) as well as limitations to the participation of communities during public hearings (barriers to registration, insufficient time for communities to speak, etc) (Escosteguy *et al* 2022). These barriers help explain the ineffectiveness of environmental impact assessment procedures (the only legally binding public instances where local communities can express their concerns over lithium mining projects) in integrating socio-environmental considerations into the decision-making (Calle and Ryan 2016).

With regard to Indigenous peoples, the topic is absent in the MoUs. The EBR covers the issue succinctly and references ‘community life, including that of indigenous peoples’ as a risk category (EBR, Annex X, point 2c). However, the regulation notably omits the United Nations Declaration on the Rights of Indigenous Peoples, which requires states to consult to obtain the free, prior and informed consent (FPIC) before the approval of projects affecting Indigenous peoples’ land, territories and other resources, particularly in connection with the development of mineral, water or other resources. It also fails to mention the ILO’s Convention No 169, which enshrines the right to consultation with the objective of achieving agreement or consent, from its list of referenced international instruments (EBR, Annex X, point 3). The lack of prioritization of this issue is surprising given the several complaints from communities in Chile and Argentina regarding the inadequate enforcement of their consultation and FPIC rights (Marchegiani and Rausch 2016, Marchegiani *et al* 2020, Cardozo *et al* 2021), a fact that has led to ongoing tensions and conflicts (Ciftci and Lemaire 2023). In Bolivia, which has one of the highest proportions of Indigenous populations in Latin America, there are no publicly available state records of lithium-related consultation processes. Similarly, in Chile, most projects that enter the national environmental impact assessment process proceed without consultation with Indigenous peoples (Olivera Andrade and Lorca 2023).

While the EU’s approach to consulting with Indigenous peoples emphasizes that the process must be ‘meaningful’—aligning with best international practices—it fails to address the inherent power imbalances between companies and communities, nor does it recognize the need to empower vulnerable groups prior to consultation. This contrasts with the standard of the Initiative for Responsible Mining Assurance (IRMA), widely regarded as one of the most rigorous for responsible mining. In its section on ‘Obtaining Community Support and Delivering Benefits’, the IRMA standard stipulates that, upon community request and if not provided by public authorities, companies must fund mutually agreed experts to aid in the participatory process (IRMA 2018). Thus, while the EU’s framework aligns rhetorically with global best practices, it inadequately addresses the issue in practice, leaving significant discretion to companies in defining what constitutes ‘meaningful’ consultation.

Likewise, another very relevant recognition justice aspect missing in the current EU responsible sourcing approach for battery minerals is the respect for the rights and culture of local communities (H, figure 4), especially of Indigenous communities. Respecting the social practices and cultural heritage of Indigenous peoples necessitates the protection of their territories, environments, and livelihoods, all of which are deeply interconnected with water availability—regarded as sacred by Indigenous communities in the Puna region. As mentioned by some members of those communities, the earth (*Pachamama*), the water and salt flats are closely interconnected and form the core of their cosmology and cultural identity. In the region, lithium extraction is often referred to as ‘water mining’ by Indigenous communities, who argue that their ancestral subsistence livelihoods are incompatible with extractives mining practices. They claim that such activities deplete water sources vital for agriculture and cattle raising, leading to the ‘drying up of the region’ (Cardozo *et al* 2021, Lorca *et al* 2023) and severely altering their livelihoods (Blair *et al* 2023). This issue is highly complex and deeply localized. Its absence from the EU’s responsible sourcing approach reinforces existing literature, such as Owen *et al* (2021), which argues that local-scale effects are frequently overlooked in resource curse analyses. Additionally, it highlights the limited scope of research on the socio-environmental impacts of lithium mining at the local level, as noted by Agusdinata *et al* (2018).

#### 4.3. Transversal capacity building for strengthening governance

A weak governance structure and low standards can exacerbate social and environmental problems in mineral-rich countries. This risk is acknowledged

by the EBR (EBR, Recital 78 of the preamble). Governance, particularly regulatory alignment, is highlighted in the MoU with Chile as a key area for regional collaboration. However, while strengthening governance requires alignment with international standards, it extends beyond this, encompassing capacity building and other measures aimed at enhancing institutional quality—an essential approach to mitigating the risks associated with the resource curse (Cabrales and Hauk 2011, Orihuela 2018, Murguía and Bastida 2024, Orihuela and Serrano 2024).

In the MoUs, capacity building primarily focuses on labor standards and skills development, with limited attention to enhancing the capabilities of regulatory authorities in lithium-rich countries. From the perspective of these countries, institutional weaknesses and an insufficient state capacity to enforce socio-environmental standards are viewed as major obstacles to advancing a just lithium-battery value chain (Obaya *et al* 2024a).

For instance, one of the primary sustainability concerns regarding brine-based lithium mining is its impact on regional water availability for local flora, fauna, and communities. This is a complex issue that demands significant investment and collaboration between companies and governments in hydrological research and modeling to assess the pressures of mining activities, manage uncertainties, and issue evidence-based permits for water extraction and brine pumping. Yet, there remains a widespread perception that the authorities in the lithium triangle countries lack the necessary capacity to sustainably manage the resource. According to the Delphi survey, 68% of the panel expressed agreement with the statement ‘Currently, there is a lack of sufficient information and reliable models to evaluate the impact of freshwater and brine pumping associated with lithium mining on the hydrological balanced of the salt flats’ (Obaya *et al* 2024a). While the MoUs advocate for government-to-government cooperation on research and innovation to reduce the ‘environmental and climate footprint’, and the EBR requires companies to mitigate water-related risks, neither document emphasizes the importance of strengthening institutional capacities of government authorities in mineral-rich countries—a critical element for achieving a just lithium-battery value chain.

## 5. Concluding remarks

The concept of a ‘just transition’ is central to the European Green New Deal. While the EU aims to decarbonize its economy and diversify its mineral supply chains, it will remain significantly reliant on imports of CRMs. Ensuring the ‘responsible sourcing’

of these materials has therefore become a key objective across EU policies and strategies focused on securing supply.

Domestically, the European Green New Deal seeks to decouple resource use from economic growth, fostering a sustainable, low-carbon economy that is both fair and inclusive, ensuring that ‘no one is left behind’. This includes mitigating the social and economic impacts of structural changes, promoting the development of new capabilities and ‘green’ jobs, and providing support to the regions most affected by the transition (European Commission 2021a). This article examined, using the case of lithium in South America, whether the EU promotes justice in its relationships with critical mineral suppliers.

The EU’s responsible sourcing strategy in the lithium triangle suggests that some lessons from the past have been addressed, as it incorporates tools aimed at fostering more sustainable practices and creating a more equitable lithium value chain for lithium-rich countries. In this article, we showed that distributive justice receives particular attention in the bilateral relations, with a focus on promoting local industrialization. In terms of procedural and recognition justice, the EU seeks to enhance ESG standards among lithium suppliers. However, the EU’s approach to responsible sourcing overlooks critical local-level considerations related to distributive, procedural, and recognition justice, which are of significant importance to stakeholders within the lithium triangle.

Regarding the existing instruments, more questions than answers remain about whether the MoUs and the Global Gateway will effectively leverage ESG criteria and generate long-term positive developmental impacts in the lithium triangle. While the EBR-mandated due diligence will likely enhance accountability and transparency, stakeholders in the Delphi survey emphasize the need to move beyond corporate-centered approaches. They advocate for institutional strengthening as a prerequisite for a distributive and procedurally just lithium battery value chain. This requires not only enhancing the capabilities and resources of local authorities but also modernizing the legislative framework to address complex challenges, such as conducting cumulative environmental impact assessments for lithium projects operating within the same hydrological basin. Additionally, it is crucial to acknowledge the power and knowledge asymmetries between companies and local communities, and to incentivize the removal of barriers to empower these communities, making consultation processes genuinely ‘meaningful’.

Future research should further explore misalignments in the EU’s responsible sourcing strategy and the concerns of stakeholders in other countries or regions crucial for the supply of other battery minerals.

## Data availability statement

All data that support the findings of this study are included within the article (and any supplementary files).

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