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Working Paper

Civic Power in Mining Conflicts: Barrier or Catalyst for a Just Energy Transition?

CITP Working Paper, No. 021

Provided in Cooperation with:

Centre for Inclusive Trade Policy (CITP), University of Sussex Business School

Suggested Citation: Marin, Anabel; Palazzo, Gabriel (2025) : Civic Power in Mining Conflicts: Barrier or Catalyst for a Just Energy Transition?, CITP Working Paper, No. 021, Centre for Inclusive Trade Policy (CITP), University of Sussex Business School, Brighton

This Version is available at:

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Civic Power in Mining Conflicts: Barrier or Catalyst for a Just Energy Transition?

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April 2025

Centre for Inclusive Trade Policy
Working Paper No.021



Economic
and Social
Research Council

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Abstract

This paper explores the global landscape of civil resistance to mineral extraction and its implications for the political sustainability of the energy transition. As global demand for critical minerals accelerates in association with the energy transition, there is a growing imperative to secure mineral access while improving environmental and social outcomes. However, mining activities face significant resistance worldwide, posing major challenges to the justice and viability of the energy transition. Using an original dataset derived from the GDELT Project between 2015 and 2022, we provide the first systematic global mapping of conflict and cooperation in mining regions, spanning diverse socio-political contexts and offering novel insights into the economic, environmental, and justice-related drivers of these dynamics. Our findings reveal that resistance to mineral extraction is not confined to poorer, emerging economies but is instead widespread, occurring wherever mineral deposits are found, regardless of a country's income level. This resistance frequently reaches high levels of polarisation, often leading to costly delays and project cancellations. Although cooperation sometimes accompanies conflict, high-commitment cooperative actions are limited and less frequent in highly polarised situations. These insights highlight the need to move beyond traditional Corporate Social Responsibility (CSR) approaches and existing public participation efforts within Environmental Impact Assessments (EIAs). A just, sustainable, and democratic transition requires a deeper democratisation of investment decisions through inclusive governance frameworks that tackle the several injustices associated with mineral resource extraction.

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Suggested citation

A, Marin; G, Palazzo (2025) Centre for Inclusive Trade Policy, Working Paper 021

Non-Technical Summary

The global energy transition relies heavily on minerals such as copper, lithium, and nickel, essential for technologies like electric vehicles, solar panels, and battery storage. Yet, while demand for these critical minerals is expected to rise dramatically—potentially fourfold by 2040—the extraction of these minerals frequently sparks social and environmental conflicts. Our research addresses a crucial question: What happens if local populations say “no” to expanded mineral extraction? What would widespread resistance mean for the feasibility of a just and democratic energy transition?

To provide robust insights into these issues, we built an original global database of mining-related conflicts and cooperative events using the GDELT Project, which systematically compiles data from news reports worldwide. Our dataset covers events occurring between 2015 and 2022. By doing so, we identified 36,017 conflict events related to mining activities across 4,293 locations around the world. This number of documented conflicts is approximately six to seven times greater than the cases previously identified by widely cited global mapping initiatives, significantly broadening our understanding of the prevalence of these conflicts.

One of our key findings is that opposition to mining activities is far more geographically widespread than commonly thought. Conflicts are not confined to poorer, less institutionally robust countries; rather, they emerge in all types of countries, including economically prosperous and institutionally mature democracies such as Australia, Canada, and the United States. In other words, conflict occurs practically everywhere significant mineral deposits are found, regardless of national income or governance quality. This challenges the common assumption that strong institutions alone are sufficient to prevent or mitigate conflict over resource extraction.

Additionally, our analysis shows that these conflicts are often highly polarised. Specifically, we classified events according to their intensity and found that 62% of all conflict events involve moderate to high polarisation—meaning they often entail substantial protests, legal challenges, confrontations, or even violence. Our data also reveal that once conflicts reach these heightened levels, resolution becomes much more difficult, frequently leading to prolonged delays, cancellations, or suspensions of mining projects. Real-world cases illustrate this clearly: conflicts in Chile, Argentina, and Peru, among other places, have led to massive financial costs, prolonged uncertainty, and the abandonment of several high-profile mining initiatives.

Interestingly, our data show that cooperative events—efforts by communities, governments, and companies to negotiate or reach agreements—occur even more frequently (63,867 events) than conflicts. At first glance, this might indicate promising paths toward resolution. However, deeper analysis reveals a critical caveat: most cooperation events are relatively superficial, involving low-commitment actions such as general expressions of willingness to engage or public relations announcements. Only about 21% of cooperative events entail high-commitment actions, such as substantial policy reforms, significant redistribution of benefits, or binding agreements that address fundamental community grievances.

This gap between superficial and meaningful cooperation has profound implications. While cooperation frequently coexists with conflict, our findings suggest that meaningful cooperation becomes considerably less likely once disputes escalate into highly polarised conflicts. Trust, once broken, is notoriously difficult to rebuild. Therefore, if conflicts are not adequately addressed early through genuine and meaningful participation, the opportunities for deep and transformative cooperation significantly diminish.

Our research also sheds light on what narratives lie behind these mining-related disputes. While environmental concerns—particularly water scarcity and contamination—are often cited, newspaper articles frequently record issues related to dissatisfaction about economic inequality,

inadequate governance, lack of transparent decision-making processes, and insufficient sharing of economic benefits from mining operations. These underlying issues underscore the need for a more comprehensive approach than traditional Corporate Social Responsibility (CSR) programs or late-stage Environmental Impact Assessments (EIAs). Instead, we argue for stronger frameworks of economic democracy, which provide a better balance of decision-making power and equitable benefit-sharing arrangements for local communities.

Finally, our findings pose important implications for policy. If widespread local resistance to mineral extraction persists or intensifies, the viability of securing sufficient mineral resources to sustain the global energy transition may be at risk. Moreover, without working to improve local acceptance, countries may resort to undemocratic practices or face increasing political tensions. Alternatively, integrating local communities from the outset—by ensuring transparency, meaningful consent, and fair economic participation—could support a transition that is not only environmentally sustainable but also socially just and politically robust.

Our comprehensive mapping of global mining conflicts underscores the urgency of rethinking how mineral resources are governed and highlights the critical need for inclusive decision-making to secure both the legitimacy and feasibility of a just energy transition.

Civic Power in Mining Conflicts: Barrier or Catalyst for a Just Energy Transition?

Anabel Marin¹ and Gabriel Palazzo²

Abstract

This paper explores the global landscape of civil resistance to mineral extraction and its implications for the political sustainability of the energy transition. As global demand for critical minerals accelerates in association with the energy transition, there is a growing imperative to secure mineral access while improving environmental and social outcomes. However, mining activities face significant resistance worldwide, posing major challenges to the justice and viability of the energy transition. Using an original dataset derived from the GDELT Project between 2015 and 2022, we provide the first systematic global mapping of conflict and cooperation in mining regions, spanning diverse socio-political contexts and offering novel insights into the economic, environmental, and justice-related drivers of these dynamics. Our findings reveal that resistance to mineral extraction is not confined to poorer, emerging economies but is instead widespread, occurring wherever mineral deposits are found, regardless of a country's income level. This resistance frequently reaches high levels of polarisation, often leading to costly delays and project cancellations. Although cooperation sometimes accompanies conflict, high-commitment cooperative actions are limited and less frequent in highly polarised situations. These insights highlight the need to move beyond traditional Corporate Social Responsibility (CSR) approaches and existing public participation efforts within Environmental Impact Assessments (EIAs). A just, sustainable, and democratic transition requires a deeper democratisation of investment decisions through inclusive governance frameworks that tackle the several injustices associated with mineral resource extraction.

Acknowledgements: We received support from two projects for conducting the research that led to this article: the Centre for Inclusive Trade Policy Innovation Fund, ESRC [grant number ES/W002434/1], and "Revisioning Territorial Rights in Brazil in the Face of Resource Extraction" (funded through the Ecosystems, Rights, and Justice research theme of the Sussex Sustainability Research Programme, University of Sussex).

Keywords: energy transition, critical minerals, mineral extraction, social resistance, environmental justice, economic democracy, mining conflict

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1. Introduction

As the world transitions to a low-carbon economy, the demand for critical minerals such as copper, lithium, and nickel is expected to rise significantly, with some projections suggesting a fourfold increase by 2040 (IEA, 2024). This surge in demand presents major challenges for two groups of countries: those aiming to lead the energy transition and those focused on supplying these essential minerals (Bainton et al., 2018; Kalantzakos, 2020; Marin & Goya, 2022).

Current production meets only a fraction of the projected demand, with existing and planned projects expected to fulfil just half of the lithium and cobalt needs and 70% of copper requirements. Moreover, mineral processing is heavily concentrated in a few countries, particularly China (IEA, 2024). This concentration has spurred policy responses, such as the EU's Critical Raw Materials Act and the U.S. Inflation Reduction Act, aimed at expanding production and securing access. At the same time, the environmental risks of mining—including soil, air, and water contamination, and the fact that water-intensive processes threatens agriculture and food security—remain a significant concerns (Bainton et al., 2018; Agusdinata et al., 2018; Bebbington, 2012; Agboola et al., 2020; Worlanyo and Jiangfeng, 2021). To address these challenges, initiatives such as the Responsible Mining Index and the Consolidated Mining Standard Initiative promote responsible practices³, while emerging technologies like seawater desalination and direct lithium extraction aim to reduce environmental harm.

However, a critical question remains: What happens if local populations reject the expansion of mineral extraction? This possibility is often underestimated, poorly understood, and inadequately addressed. As this article suggests, such resistance could undermine the entire energy transition.

Social resistance to mineral extraction is not new (Le Billon, 2015) but it has recently gained greater prevalence and momentum⁴. This resurgence stems from negative past experiences with extraction projects, heightened awareness of environmental risks, and the broader environmental crisis, which has prompted a reassessment of dominant development models⁵ (Svampa, 2015; Schoderer and Ott, 2022; Temper et al., 2020).

³ For a comprehensive explanation of these initiatives, visit <https://www.responsibleminingfoundation.org> and <https://miningstandardinitiative.org>

⁴ Civil society resistance to mineral extraction refers to the collective actions and advocacy efforts by communities, organisations, and social movements opposing mining activities. These efforts can take various forms, including protests, legal challenges and policy advocacy. In this paper, we use the terms "events of resistance" and "events of conflict" interchangeably to refer to this phenomenon.

⁵ Dominant economic development models have historically prioritised capital accumulation and technological progress to drive production, consumption, and societal well-being. In response to the environmental crisis, the 2012 Rio+20 Conference introduced "green growth," aiming to decouple GDP

A substantial body of research has explored civil resistance to mineral extraction, documenting its growing prevalence, diverse causes, and the institutional and political transformations it has triggered through various forms of contestation and cooperation (Temper et al., 2018; Vela-Almeida & Torres, 2021; Bebbington & Bury, 2009; Conde & Le Billon, 2017; González & Snyder, 2022; Fraser, 2021; Cui & Brombal, 2023; Toumbourou et al., 2020; Haslam & Godfrid, 2020). This research frequently conceptualises resistance as a response to unequal power dynamics and systemic injustices (Bebbington et al., 2021; Temper et al., 2018; Lander et al., 2021; Paredes, 2022). Several forms of injustice have been identified (Bainton et al., 2021), including distributive justice (fair allocation of benefits and burdens), procedural justice (equitable participation in decision-making), recognition justice (fostering belonging and inclusion), and restorative justice (addressing historical wrongs) (Schlosberg, 2004; Agusdinata et al., 2023; Lacey-Barnacle et al., 2020).

This has prompted discussions and proposals to actively involve local populations affected by mineral projects in the distribution of benefits and the decision-making process, aiming to address these different dimensions of injustice as a pathway toward a just energy transition (Newell et al., 2023).

However, while often framed as a normative imperative, emerging evidence suggests that including local populations and those directly impacted by investment projects may also be critical to ensuring the viability of the energy transition itself. Civil resistance has shown its capacity to disrupt mining projects (González & Snyder, 2022; Fraser, 2021; Cui & Brombal, 2023), leading to material consequences that could jeopardise global green transitions (Frank et al., 2014; Marin, 2023). In Chile, conflicts with local communities have caused delays or suspensions in the mining sector, impacting an estimated \$25 billion in investments (Observatorio de la Productividad, 2020). Similarly, in Argentina, where conflicts affect roughly 50% of mineral projects, half of these projects ultimately end up being blocked (Walter & Wagner, 2020; Marin, 2023). Such disruptions are costly; conflict-related delays have been estimated to cost companies up to \$20 million per week (Banerjee, 2017).

growth from carbon emissions. Critics advocate for degrowth, urging reduced production and consumption in wealthy nations to stay within planetary boundaries. Building on these critiques, post-development theory links ecological and social crises to capitalist growth and proposes alternatives like recognising the rights of Nature and de-economised ways of life.

Multiple case studies from around the world illustrate the disruptive impact of resistance. Projects such as Pascua Lama and La Dominga in Chile (Urkidi, 2010; Haslam, 2018), Agua Rica in Argentina (Mutti et al., 2012), and Tía María in Peru (Dunlap, 2019) were halted due to socio-environmental conflicts. Similarly, the Panguna Mine in Papua New Guinea (Filer, 2017), Tampakan in the Philippines (Martínez-Alier, 2023), and Carmichael in India (Macdonald et al., 2017) were abandoned. In Europe, Serbia's Jadar project (Stefanovic et al., 2023) and the Twin Metals project in the USA (Randall, 2024) further illustrate how resistance can halt mining initiatives.

The Tía María conflict in Peru exemplifies how disputes over mining projects can escalate into highly polarised situations, ultimately resulting in broken trust and the blocking of project developments (Dunlap, 2019). The conflict arose from community concerns about water contamination and harm to agriculture in the Tambo Valley, compounded by Southern Copper Corporation's failure to deliver on promises of environmental safeguards and community benefits. Violent clashes during protests in 2011, 2015, and 2019, along with heavy-handed government responses, further deepened mistrust and entrenched opposition. As a result, in an environment of intense polarisation and fractured relationships, despite several efforts of the government and companies to re-launch the project, the project never advanced.

This evidence underscores the urgent need for more comprehensive research to better understand civil resistance's broader diffusion and implications. One critical issue demands attention: Is civil society resistance, along with the several impacts it generates, unique to specific contexts, or does it represent a global challenge to the mineral extraction industry with the potential to fundamentally disrupt dominant institutions, practices, and technologies? Existing research cannot fully address this question, as it often focuses on small-scale case studies with a limited geographical scope (exceptions are Haslam and Tanimoune, 2016 and Schoderer and Ott, 2022).

We believe that this is a vital question, as only widespread resistance across multiple regions might prompt multinational companies, powerful governments, and international organisations to implement significant changes to improve the industry's environmental and social performance. The mineral extraction sector urgently needs these changes, as it relies on governance structures and technologies that, despite their flaws, have remained dominant for decades (St-Laurent and Le Billon, 2015; Klitkou et al., 2015) (for instance, the principle of free entry and extraction methods involving hazardous chemicals has seen little innovation over the past 60 years).

This article contributes to understanding civic power and its role in shaping just transitions—affecting both justice and viability—by offering a novel, systematic approach to studying these dynamics. Using an innovative dataset derived from the GDELT

Project's global collection of newspaper articles, we present the first global mapping of conflicts over mineral extraction. This dataset complements initiatives such as EJAtlas and OCMAL, which rely on manual data collection and have a limited geographical scope. While invaluable, these initiatives end up having regional biases, for instance, with the overweight of Latin American cases. In contrast, our dataset provides significantly broader and more consistent global coverage, addressing the regional and other biases of previous efforts.

Furthermore, to the best of our knowledge, this is the first time that cooperation events related to mining activities have been systematically recorded, offering new insights into the interplay between contestation and cooperation in the mining sector.

In our dataset, a conflict event arises when an actor (group, individual, social movement, company, or government) publicly opposes and/or resists mineral activities, a mining company's operations (whether local or international), and/or mining regulations, policies, or legislation. In contrast, a cooperative event involves positive and constructive intentions or actions related to mineral activities and/or involving mining companies and local actors. Both conflicts and cooperation can be verbal, expressing a stance of opposition or collaboration, or material, involving physical actions.⁶

Based on this data, we mapped conflict and cooperation events surrounding mining worldwide, classified them according to their level of polarisation and commitment, and examined the underlying issues behind these events. To interpret these findings, we drew on evidence from case studies. By combining global-scale quantitative analysis with qualitative insights, we gained a more nuanced understanding of the dynamics at play.

Our analysis reveals four key findings. First, resistance to mineral extraction is more widespread than previously recognised, occurring wherever mineral deposits are located, regardless of a country's income level. Second, polarised conflicts often become entrenched, diminishing trust between stakeholders and making resolution difficult (Walter & Wagner, 2021; Dunlap, 2019). Third, cooperation often arises in conflict-prone contexts, a finding that aligns with case study-based evidence that conflicts can coexist with negotiations and lead to changes in regulations or projects (González & Snyder, 2022; Fraser, 2021). However, meaningful cooperation is significantly less likely in regions with highly polarised conflicts. Finally, while struggles over decision-making, social justice, and environmental concerns are prominent, economic and distributive

⁶ In our dataset events of conflicts or resistance can manifest in various forms, including verbal expressions of disapproval, organised protests, legal demands, strained relations, displays of force, and, in some cases, violence.

issues remain central. This finding challenges recent claims emphasising non-economic drivers of resistance (Hanaček et al., 2024; Urkidi & Walter, 2011).

This paper is organised as follows: Section 2 details the methodology, including key concepts and data collection efforts; Section 3 presents the main results; Section 4 discusses policy and conceptual implications; and Section 5 concludes.

2. Database and method

To systematically identify conflict and cooperation events surrounding mineral activities, we used data from the GDELT Project, which compiles and summarises information from newspaper articles worldwide.⁷ GDELT provides two relevant datasets: Global Knowledge Graph 2.0 (GKG) and Event 2.0 database.⁸ The GKG contains thematic information on newspaper articles, while the event database identifies specific events or actions involving one or two actors in specific locations mentioned in each piece of news. The GKG enables us to identify a specific subset of news related to mining activities, while the event database provides information on conflict and cooperation events related to this subset of articles. Both datasets were linked through the *Mention Table* provided by the GDELT.⁹

We first identified the subset of articles related to mining through a thorough data-gathering and filtering process. We did so by leveraging the GKG's "Themes" column, which automatically tags all topics covered in each article and provides the approximate character position¹⁰ where the topics were found. We selected articles with mining-related

⁷ Previous efforts have been made to quantify mining-related conflicts using information from newspaper reports. Albrieu and Palazzo (2020) is a relevant background although it only covers mining conflicts in Chile, Peru, Australia and Canada.

⁸ For a comprehensive overview of the datasets, refer to their respective codebooks at http://data.gdeltproject.org/documentation/GDELT-Event_Codebook-V2.0.pdf and http://data.gdeltproject.org/documentation/GDELT-Global_Knowledge_Graph_Codebook-V2.1.pdf.

⁹ The GDELT Project has been utilised in articles published in leading economics journals to study various socio-political phenomena, including AI governance (Beraja et al., 2023), the resource curse (Armand et al., 2020), protests (Cantoni et al., 2024), and political mobilisation in Africa (Manacorda and Tesei, 2020). These applications highlight GDELT's value as a reliable tool for analysing global patterns in development and socio-political dynamics.

The GDELT Project has been applied in top economics journals to explore a range of socio-political phenomena, such as AI governance (Beraja et al., 2023), the resource curse (Armand et al., 2020), protests (Cantoni et al., 2024), and political mobilisation in Africa (Manacorda and Tesei, 2020). These applications suggest that GDELT is a helpful tool for studying global patterns in development and socio-political dynamics.

¹⁰ The article has a total character count—let's say 10,000. The character position tells you the position of each topic, for instance that the Indigenous topic is found around character 30, mining around character 40, and so on. This information helps us identify the main themes of the article since an article will mention its key topics first, while less important topics appear later, toward the middle or end.

themes such as “Mineral Resources, Mining Policy Laws and Regulations, Metal Ore Mining,” and “Conflict Minerals” (see List A.1 in the Appendix).

However, the presence of a mining theme in an article does not necessarily mean that mining is the primary focus; some articles may mention mining only tangentially, potentially inflating estimates of mining-related conflicts. To address this problem, we applied three additional filters.

- **Theme Position Filtering:** We retained only articles in which mining-related themes appeared among the first ten topics mentioned, ensuring that mining was the primary focus.¹¹ The position of the theme served as a proxy for identifying the main topic of the article. If a mining-related theme appeared at the beginning of an article, it was considered a strong indicator that mining was one of the main issues discussed. We leveraged the rich variety of themes identified by GDELT and specified that, among the first 20 themes, at least one must relate to conflicts, negotiations, or potential causes of mining disputes (see List A.1 in the Appendix for the full list of themes used).
- **Exclusion of Non-Relevant Mining News:** We excluded articles primarily focusing on financial performance (such as stock prices) or oil and gas activities, as these topics fall outside the scope of our analysis. Articles mentioning these within the first ten themes were filtered out (see List A.1 in the Appendix).¹²
- **Mention of a mining company:** Taking advantage that the GKG database records all the organisation names mentioned in each article, we retained only articles mentioning at least one mining company, based on a comprehensive list of mining companies from the COMPUSTAT database and stock market information. We use a fuzzy matching algorithm to allow minor variations in company names, like character misspellings or transpositions.¹³

Second, we used the Event 2.0 database to analyse the conflict and cooperation events mentioned in those articles, as well as their geolocalisation¹⁴. The coordinates are mainly identified by the names of the towns, provinces/states or countries mentioned when the

¹¹ The median number of topics mentioned in our sample is 73, the average 90.4, the maximum of 2707, and the minimum of 3.

¹² Financial articles discussing the performance of mining companies may provide valuable insights into how conflicts impact a company’s performance and reputation, potentially creating pressure for changes in its behavior. However, after reviewing a sample of 500 articles, we found that most of those focusing primarily on financial performance originated from financial centers like London and New York and primarily discussed issues such as stock market volatility, without linking this performance to conflict or cooperation events involving local communities or governments.

¹³ We use a Jaro-Winkler-based fuzzy matching algorithm to identify similar organisation names, with a 0.10 threshold suited for short names to account for minor errors while minimising false positives.

¹⁴ For more information, see Leetaru (2012).

action is identified¹⁵. GDELT identifies and categorises these events using the Conflict and Mediation Event Observation (CAMEO) framework.¹⁶ Events are detected automatically using dictionaries of verbs (or verb phrases) to classify them depending on the action (verbs) involving different actors. These events are classified based on a detailed list of the different types of cooperation or conflict events. Verbs or phrases such as “agreed upon to negotiate a new contract of mining operation” are classified by GDELT as “express intent to cooperate economically” (cooperation event), while phrases like “accuse of violating human rights” are classified as “accuse of human rights abuses” (conflict event).

To enhance reliability, we only included events identified by at least two sources. In addition, the event database provides information on the confidence level regarding the algorithm's accuracy in identifying each event. These confidence levels assess the complexity of the syntax in sentences or paragraphs used to identify actions and actors. To ensure the robustness of our data, we excluded events with confidence levels below 20%.

Using the full event classification provided by GDELT, we further grouped conflict events by their level of polarisation (high, medium, or low) and cooperation events by their level of commitment (high, medium, or low) (see Table A.1 in the appendix). This categorisation builds on the distinction between verbal and material events in the CAMEO framework, with low-polarisation conflicts corresponding to verbal events only, and high-polarisation conflicts to material events. Medium levels include a mix of verbal and material events, reflecting mid-range values in the CAMEO classification, which we refined based on our interpretation of qualitative evidence about conflicts. Finally, our analysis is limited to English-language articles and relies on international press coverage for non-English-speaking countries. This approach likely provides a lower-bound estimate of conflicts, as it may overlook events covered exclusively by local newspapers in other languages.¹⁷ Additionally, this limitation could introduce bias into our indicator, overrepresenting conflicts in English-speaking countries.

To address this potential bias, we present the results in two complementary ways. First, all descriptive analyses (Tables 1, 2, 3, and Figures 1, A1, and A2) use the raw data without adjustment, offering intuitive and transparent insights into the number of conflict

¹⁵ The coordinates are mainly identified by the names of the towns, provinces/states or countries mentioned when the action is identified.

¹⁶ The CAMEO framework was designed to categorise a wide range of political interactions, including mediation and negotiation, rather than focusing solely on conflict-related actions. This framework updated and replaced the World Events Interaction Survey (WEIS) dictionary classification of verb phrases. For a detailed explanation, refer to the CAMEO codebook for a detailed explanation (<http://data.gdelproject.org/documentation/CAMEO.Manual.1.1b3.pdf>)

¹⁷ We plan to expand the analysis in future research to include translated articles to reduce language biases.

events and their geolocalisation worldwide. Second, we adjust the conflict indicators for potential biases in all correlation analyses (Figures 2, 3, 4, and A4, and Tables A2 and A3) by using residuals from a regression model that controls for relevant factors. Specifically, we estimate the residuals by regressing the conflict data on a dummy variable indicating whether English is an official language (as provided by the University of Groningen, 2016) and the Voice and Accountability index from the Worldwide Governance Indicators (WGI).¹⁸ The Voice and Accountability index reflects citizens' perceived ability to participate in government selection and their freedoms of expression, association, and access to free media.¹⁹ The dataset compiled consists of 147,159 news articles on mining activities and 110,698 conflict and cooperation events related to mining, covering the period from 2015 to 2022. The starting point reflects the launch of the GKG 2.0 and Event 2.0 databases in 2015, which provided the foundation for our data collection. The endpoint, 2022, was determined by the timeline of data cleaning and preparation, which began in 2023.²⁰

3. Results

We discuss the results in three subsections: (1) diffusion and distribution of conflicts, (2) impacts, and (3) the underlying issues behind cooperation and conflict events.

3.1 Widespread diffusion of conflicts and intensity

First, our analysis revealed that conflicts around mineral extraction are far more widespread than previously acknowledged. Table 1 presents the total number of identified conflict events, broken down by polarisation intensity and location count, with locations clustered within a ten-kilometre radius to avoid double-counting nearby conflicts. Table 2 shows the continental distribution of conflicts, conflict locations, and major nonfuel mineral deposits.

¹⁸ The regression model is: $Conflict_i = a_0 + b_1 English_i + b_2 Voice\&Accountability_i + u_i$, where $Conflict_i$ measures the number of conflict events or locations in country “*i*”. The residuals (u_i) capture the number of conflict events or locations after accounting for the potential bias introduced by language and freedom of expression.

¹⁹ Our results are robust to substituting the Voice and Accountability variable with other proxies for civil liberties or freedom of expression from the V-Dem database (see Tables A2 and A3). For details on the Voice and Accountability index, see Kaufmann et al. (2010), and for critical reviews, see Langbein and Knack (2010) and Thomas (2010).

²⁰ Due to the time period covered by our dataset, events prior to 2015, including the impact of milestones like the Paris Agreement, are not captured. While the dataset allows us to examine how other specific events, such as the announcement of the European Green Deal, may have influenced conflict and cooperation, a detailed analysis of these events was beyond the scope of this paper due to space limitations.

Between 2015 and 2022, we identified 36,017 mining-related conflict events across 4,293 locations worldwide, six to seven times more than the Environmental Justice Atlas (EJAtlas), one of the most referenced global maps of socio-environmental conflicts^{21/22}.

Table 1: Global Number and Locations of Conflicts by Type

Type of conflicts	Number of events	Number of different localisations	Number of different: Clustering localisations <10km
High polarisation	8974 (25%)	1681	1581
Medium polarisation	11596(32%)	2045	1902
Low polarisation	15447(43%)	2857	2657
Total general	36017	4293	3910

Source: Author’s elaboration based on GDELT project database, Global Atlas of Environmental Justice and United States Geological Services (USGS). Our database covers the period from 2015 to 2022.

²¹ It is important to notice that this substantial difference would likely be even greater, given that, as explained in the methods section, our estimate is conservative by focusing only on conflict events reported in English-speaking media.

²² Other efforts to collect data on socio-environmental conflicts include the Observatorio de Conflictos Mineros de América Latina (OCMAL) database and the Global Witness Report (2024), though these have limited geographical coverage

Table 2: Number of conflict events and localisations with conflicts by type and region

Regions	Number of conflict events	% of conflict events by region	% of High polarisation conflict events by regions	Number of localisations with conflicts	% of location with high polarisation conflict events by region	EJAtlas	% of conflicts in EJAtlas by region	Number of Mineral deposits	% of mineral deposits by region
North America	12234	34%	22%	1328	35%	45	6%	512	16%
África	8655	24%	27%	879	39%	98	12%	997	32%
Asia	5095	14%	30%	708	44%	169	21%	693	22%
Australia & New Zealand	4101	11%	21%	514	39%	4	1%	65	2%
South America	2469	7%	23%	325	44%	272	35%	219	7%
Europe	2307	6%	22%	331	39%	102	13%	566	18%
Central America & Caribbean	901	3%	39%	173	42%	79	10%	98	3%
Pacific Islands	255	1%	23%	35	31%	17	2%	11	0%
Total	36017	100%	25%	4293	39%	787	100%	3161	100%

Source: Author’s elaboration based on GDELT project database, Global Atlas of Environmental Justice and United States Geological Services (USGS). Our database covers the period from 2015 to 2022.2022.

Our second key finding on diffusion concerns regional distribution. Conflicts are widespread across all continents and tend to be more frequent in countries with higher mineral deposits (Figures 1(a) and 1(b)). Figure 1 presents the raw data on mining conflict events without controls; Figures 2(a) and 2(b) incorporate regression analyses to account for potential biases. As noted earlier, our regression analyses control for a dummy variable indicating whether English is an official language and for the Voice and Accountability index, which serves as a proxy for press freedom and civil liberties. Figures 2(a) and 2(b) confirm a positive relationship between mining deposits and both conflict events and conflict locations, respectively. The regression analyses ensure that the observed correlation between conflicts and mining deposits is robust and not influenced by variations in language coverage or press freedom.

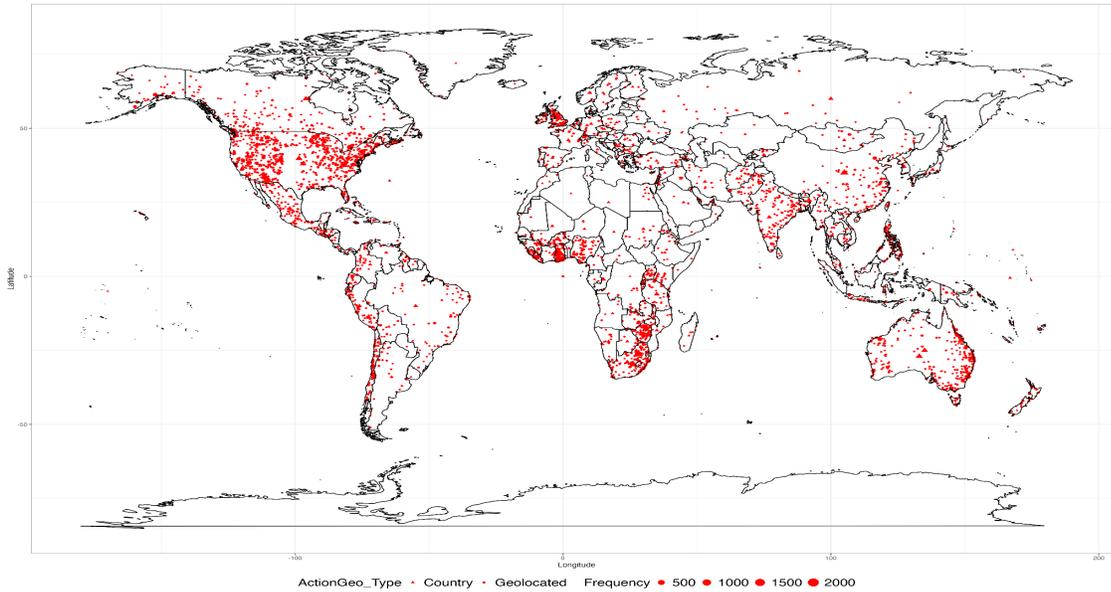
Interestingly, Figure 2 highlights that countries rich in critical minerals—particularly Australia, the USA, Canada, and China—are notably conflict-prone. Additionally, the Philippines, Indonesia, Brazil, Chile, Peru, Ghana, and Tanzania experience more conflicts than would be expected based on their deposits alone.

Our estimates differ notably from those of previous mapping efforts. For instance, while the EJAtlas data suggest that South America is highly conflict-prone, our data indicate that it accounts for only 7% of global conflicts, consistent with its 7% share of major non-

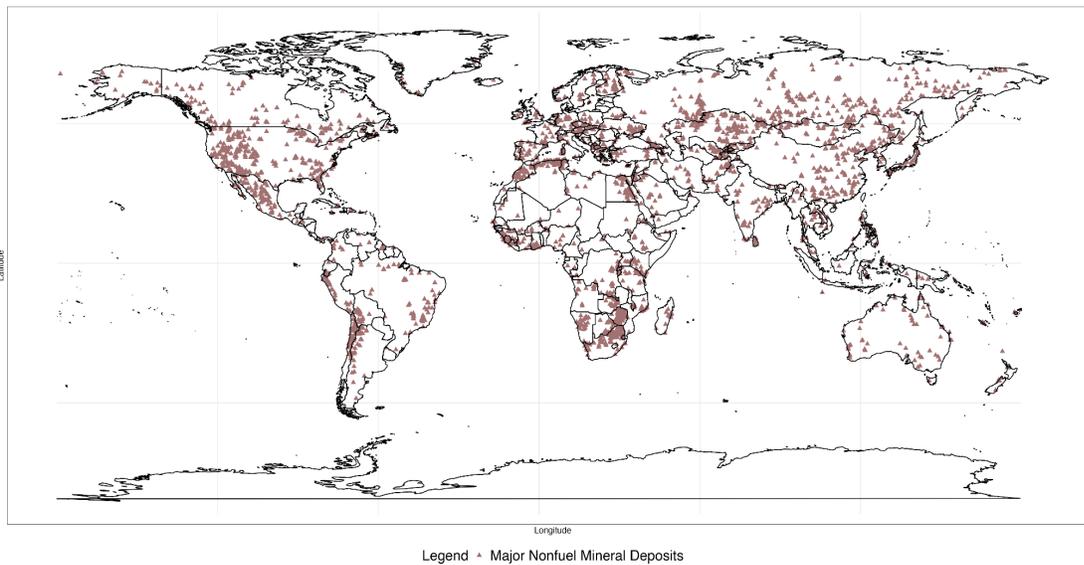
fuel mineral deposits. Interestingly, regions typically considered less conflict-prone, such as the USA, Canada, and Australia, emerged in our analysis as some of the most conflict-affected areas (Table 2). In contrast, the EJAtlas reports only 7% of the conflicts in these countries. Similarly, recent Global Witness estimates, based on Armed Conflict Location & Event Data Project (ACLED) data, show that nearly 90% of violence and protests from 2021 to 2023 occurred in low and middle-income countries. However, our findings present a significantly different perspective; we do not observe a clear relationship between mining conflict and a country's level of development, as previous databases have suggested. Instead, we identify a widespread correlation between mining regions and the occurrence of conflict events. As discussed earlier, given our dataset's broader and more systematic coverage compared to EJAtlas and Global Witness, we believe these results warrant serious consideration.

Figure 1: Conflicts and Nonfuel mineral deposits

(a) World map of conflicts

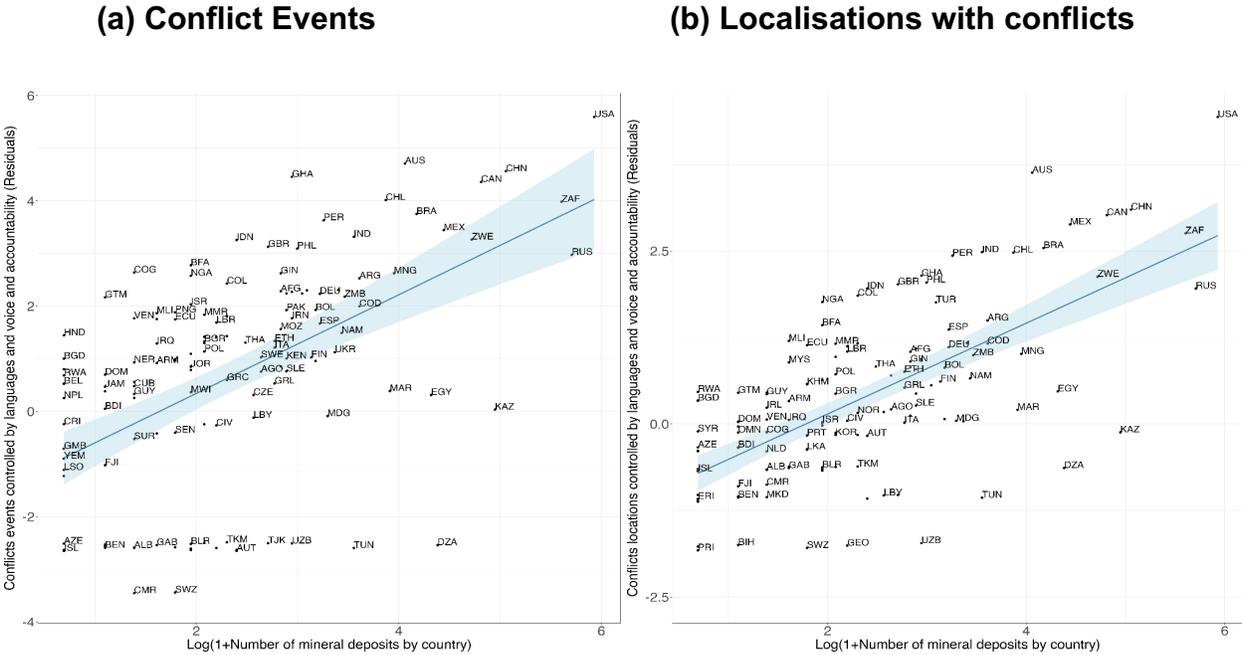


(b) Major Nonfuel Mineral Deposits of the World



Source: Own elaboration based on USGS (<https://mrddata.usgs.gov/major-deposits/>) and the GDELT Project databases. Our database covers the period from 2015 to 2022.

Figure 2: Conflict Events, Conflict Locations and Mineral Deposits by Country – Adjusted for Language and Voice and Accountability



Source: Author’s elaboration using data from the GDELT project, USGS, University of Groningen (2016), and Worldwide Governance Indicators (WGI). Our database covers the period from 2015 to 2022.

Finally, we confirmed these findings with a country-level regression analysis, as shown in Tables A.2 and A.3 in the Appendix. Consistent with earlier observations, the analysis found no significant correlation between GDP per capita and the number of conflict events or locations. This result holds across various proxies for civil and political liberties and when dividing countries by income quartiles. These findings further challenge the assumption that conflicts are more frequent in poorer countries with weaker institutions and less capacity to address local demands.

3.2 Impacts

3.2.1 Blocking the way?

Polarisation is a key factor in understanding the impact of conflicts. In our data, 62% of conflict events were classified as highly or moderately polarised, while 87% of conflict

locations involved medium- or high-polarisation events. Figure A.1 in the appendix illustrates that the global distribution of conflicts follows a similar pattern, regardless of whether we consider only high- or medium-polarisation conflicts. This finding indicates that areas with mineral deposits tend to experience conflicts across the full spectrum of contestation levels, with no regions or countries entirely free from medium- or high-polarisation conflict events.

The widespread occurrence of these types of events is a noteworthy finding, as extensive case studies show that higher levels of polarisation — characterised by disapproval, rejection, strong protests, threats, strained relations, displays of force, coercion, assault, fighting, and violence—often lead to project delays or shutdowns (Wagner and Walter, 2020; Temper et al., 2020; Pérez-Rincón et al., 2019; Jerez B.P., Bolados P.; Torres R.; 2023; Soupplet, 2019; Badillo Mendoza and Marta-Lazo, 2019; Espinosa, 2019; Conde and Le Billon, 2017).

3.2.2 *Transforming the Future?*

However, conflicts can also lead to negotiations and various forms of cooperation, resulting in significant changes in mining projects (Fraser, 2021; Fragkou & Budds, 2020; Agusdinata and Liu; 2023).

Our data allow us to examine this phenomenon by analysing cooperation events, which, alongside conflict data, serve as a useful proxy for the presence of negotiations among companies, local movements, and governments in response to conflicts. We identified 63,867 cooperation events from 2015 to 2022, resulting in a cooperation/conflict ratio close to 1.7 (see Table 3).²³ Figure A.2 in the Appendix shows that cooperation events are regionally distributed in a similar way to conflict events and mineral deposits. Additionally, Figure A.3 in the Appendix demonstrates that areas with more conflict experience higher numbers of cooperative events.

Table 3: Global Number and Locations of Cooperation Events by Type

²³ The ratio can be higher than one because a single conflict event could lead to multiple cooperation efforts, such as a protest potentially resulting in agreements between a company and the local community, as well as with the government. Additionally, cooperation events might occur without preceding conflicts, such as agreements for new mining projects. These possibilities reflect the variety of interactions captured in the data.

Type of cooperation events	Number of events	Number of different localisations	Number of different Clustering localizations <10km
High commitment	13617	2628	2480
Medium commitment	11779	2387	2254
Low commitment	38471	4466	4085
Total general	63867	6021	5424

Source: Author’s elaboration based on GDELT project database, Global Atlas of Environmental Justice and United States Geological Services (USGS). Our database covers the period from 2015 to 2022.

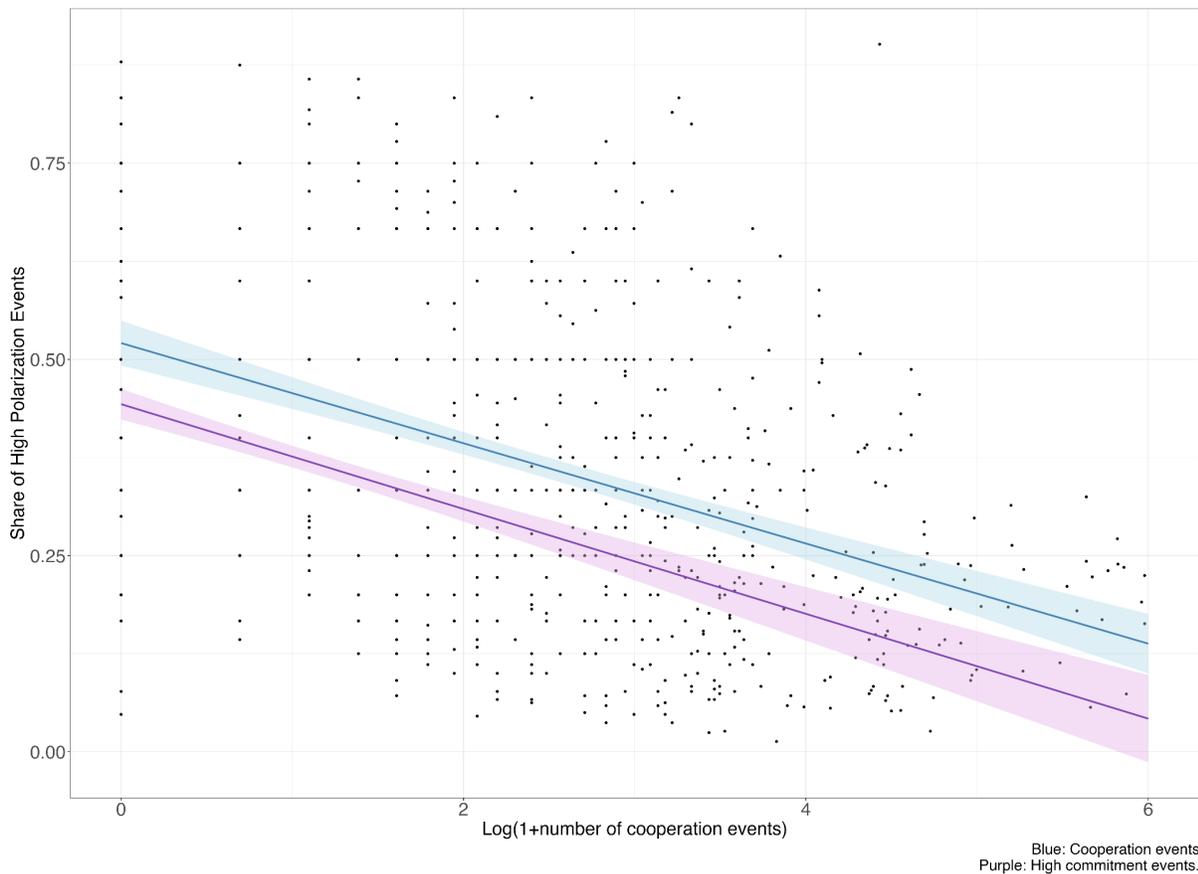
A key question is whether these cooperation events might be signalling genuine transformations to address the sector’s challenges or are merely token efforts. Our data offer insights by identifying the varying levels of commitment within these events. Disappointingly, most (60%) involved low-commitment actions such as positive public statements, expressions of intent, or initiating discussions. However, a notable 21% includes high-commitment actions—for instance, policy changes, granting rights, or other institutional modifications—with greater potential for tangible impact.

Another important question is what enables meaningful cooperation. Our analysis reveals a key insight: Conflict polarisation does not favour cooperation, especially high-commitment cooperation. As disputes intensify and polarisation increases, the likelihood of meaningful cooperation declines. Figure 4 shows a negative relationship between high-polarisation events and both the total number of cooperative events and high-commitment cooperative events.²⁴ Moreover, this negative relationship is confirmed in Figure A.4, using the total number of high polarisation conflicts and high commitment events after controlling for the total number of events that occurred in each localisation.

This finding is aligned with the case study evidence showing that polarisation does not support collaboration. Similarly, case study evidence suggests that highly polarised conflicts are challenging to de-escalate, reducing the potential for collaboration (Dunlap, 2019; Ugarte Cornejo, 2020).

²⁴ The negative relationship stands for all the different categories of cooperation events (high, medium and low cooperation events).

Figure 3: High polarisation conflicts and number of cooperation events²⁵



Source: Our own elaboration based on the GDELT Project database. Our database covers the period from 2015 to 2022.

3.3 Underlying issues

Finally, we used the themes and labels identified by the GDELT Project to explore the underlying issues driving these events. We classified them into four broad categories: (a) Economy, (b) Governance, (c) Social Issues, and (d) Environment and Common Resources (see Table 4). The category “General” in the table includes all themes used to identify articles related to mining activities.

We acknowledge that categorising diverse themes into broad categories can be challenging. For instance, themes related to human rights might intersect with Economics or Governance, while topics on education could also fall under Economics. Although there

²⁵ In this analysis to avoid including locations with very few events and where mining activity is not relevant, we include only locations with above-the-median events (3) and countries with above-the-median deposits (7).

is no definitive way to define our categories, we have aimed to create a classification that allows us to connect our findings with relevant discussions in the literature. Table 5, however, shows a higher disaggregation, allowing the readers to reclassify and reinterpret the underlying issues as they wish.

Table 4: Broad category of issues under dispute and negotiation

General narratives	Themes frequency	% frequency	% frequency of classified topics (excl. general)	Number of themes included	% themes included
Economy	7.992.896	13.2%	29.8%	150	2.1%
Governance	6.812.188	11.2%	25.4%	80	1.1%
Social Issues	6.716.717	11.1%	25.1%	118	1.6%
Environment and Common Resources	5.282.434	8.7%	19.7%	55	0.8%
General	23.284.037	38.3%	-	61	0.8%
Unclassified	10.688.959	17.6%	-	6817	93.6%
Total	60.777.231	100.0%	-	7281	100.0%

Source: Author's elaboration based on GDELT project database²⁶, Global Atlas of Environmental Justice and United States Geological Services (USGS). Our database covers the period from 2015 to 2022.

Economic themes are the most prevalent in our database, comprising nearly 30% of the topics, followed closely by governance and social issues. Environmental and common resource themes, while significant, accounted for a smaller share (approximately 20%). These findings underscore the enduring importance of economic, governance, and social concerns.

Table 5 provides a detailed breakdown of the main subtopics within each category, highlighting the most frequently discussed themes. In the economic category, labour issues stand out as the most prominent (25%), followed by infrastructure (9.4%), macroeconomics and growth (7.8%), and private sector development (7.2%). Other relevant topics include the business environment (5.6%) and areas such as taxes, technology and innovation, and agriculture and food security (each around 5.4%).

Governance discussions were dominated by sector regulation (17%) and government policies (16.5%), with justice (12.2%) and legislation (11.4%) also frequently mentioned.

²⁶ The themes used to identify narratives and sub-narratives are available upon request.

Additional topics, such as public sector management, dispute resolution, democracy, and transparency, reflect the importance of procedural justice and institutional frameworks in managing mining-related conflicts.

Table 5: Frequency of sub-narratives mentioned in the newspaper articles

Economy		Governance		Social issues		Environment and common resources	
Labour	25.4%	Regulation	17.0%	Health	39.6%	Man Made disaster	40.3%
Infrastructure	9.4%	Policy	16.5%	Violence	17.2%	Water	19.1%
Macro and growth	7.8%	Justice	12.2%	Safety	14.0%	Fauna	6.9%
Private sector development	7.2%	Legislation	11.4%	Education	10.8%	Ecosystem	2.4%
Business environment	5.6%	Corruption	6.8%	Indigenous	3.9%	Forest	1.7%
Taxes	5.4%	Public sector management	6.3%	Human rights	3.6%	Renewable energy	0.9%
Tech & innovation	5.4%	Dispute resolution & negotiation	4.6%	Gender	2.4%	Natural disaster	0.8%
Agriculture & food security	5.4%	National security	3.8%	Migration	2.4%	Protected areas	0.7%
Financial	3.3%	Democracy	2.6%	Religion	1.8%	Environmental Social Movement	0.7%
Uncertainty	2.6%	Ban & veto	1.5%	Activists	0.9%	Mitigation	0.5%
Social protection and retirement	1.8%	Transparency	1.1%	Insurgency and rebels	0.8%	Impact assessment	0.4%
Trade	1.7%	Local government	0.7%	Social cohesion	0.4%	Biodiversity	0.2%
Poverty	1.1%	Non-state security actors	0.5%	Youth and gender violence	0.3%	Green infrastructure	0.01%
Tourism	1.0%	International law & standards	0.5%	Extremism	0.2%	Others	25.5%
Closure	0.4%	Intellectual property rights	0.4%	Crackdown	0.2%		
State-owned enterprises	0.1%	Policy reform	0.3%	Elderly	0.2%		
Foreign investment	0.1%	Antitrust	0.3%	Social inclusion	0.2%		
Green growth	0.1%	Safety	0.2%	Discrimination	0.2%		
Others	16.0%	Others	13.3%	Others	1.1%		

Source: Author's elaboration based on GDELT project database, Global Atlas of Environmental Justice and United States Geological Services (USGS). Our database covers the period from

2015 to 2022. The themes used to identify the narratives and sub-narratives are available upon request.

Social Issues centred on health (39.6%) and violence (17.2%), followed by safety (14%) and education (10.8%). However, issues such as Indigenous Peoples' rights (3.9%) and human rights (3.6%) appeared less frequently. In the Environment and Common Resources category, human-made disasters (40.3%) and water (19.1%) were the most discussed, while fauna, ecosystems, and forests (11%) received comparatively less attention.

4. Discussion

The mineral intensity of the energy transition is drawing increasing attention, as it becomes evident that ensuring supply, access, and environmental sustainability is challenging. Justice implications are also gaining attention, particularly in terms of recognition justice, as mineral deposits are often located near Indigenous and other vulnerable, traditionally marginalised communities (Owen et al., 2023). This has sparked proposals to include their voices in a “just transition” (Soto-Hernandez and Newell, 2023; Newell et al., 2023).

Our analysis reveals that resistance and conflict emerge wherever mineral deposits are found, not only in poor and marginalised areas, highlighting a substantial, often under-recognised challenge: the widespread and global nature of opposition to mineral extraction. We interpret this pervasive opposition as signalling a new dimension of political unsustainability within the energy transition, compounding existing environmental and social concerns. This is primarily driven by the exclusion of affected communities from political decision-making processes (Ostrom, 1990; Stirling, 2015; Scoones et al., 2015; Jordan and O’Riordan, 2023). Addressing this issue calls for a fundamentally different perspective, potentially involving a more radical shift in approaches to mineral investment policies and projects, both national and international. This shift aligns with demands of procedural justice, acknowledging an emerging or demanded redistribution of power as civil society groups worldwide increasingly assert their right to challenge or negotiate the economic, social, and environmental conditions of mineral exploitation (Marin, 2023). Economic democracy has been proposed as a way of addressing procedural justice by rebalancing “economic resources and decision-making away from the rich and powerful and towards the pursuit of the common good” (Cumbers, 2019). Initially, the ideas of economic democracy were more concerned with income redistribution. Most recently, however, emphasis has turned towards redistributing economic authority within and outside firms (Johanisova and Wolf, 2012; Cumbers, 2020).

Case evidence strongly supported by our analysis indicates that misguided approaches to engaging with citizens, which do not address issues of procedural justice centrally, can lead to situations that are difficult to reverse. Once trust is broken, governments and companies may struggle to restore it, leading to potential spillover effects (Walter and Wagner, 2021; Bebbington et al., 2008; Urkidi and Walter, 2011; Conde and Le Billon, 2017). Current narratives around responsible business practices, along with various global standards and Corporate Social Responsibility (CSR) initiatives that address only some of the challenges, as well as policy approaches that involve citizens late in the process (e.g., through Environmental Impact Assessments (EIAs) after projects have been decided), need serious reconsideration (Filer, 2017, Mutti et. al, 2012; Vela-Almeida and Torres, 2021).

Our analysis shows that positive developments sometimes accompany conflicts, as negotiations and cooperation events often occur in the same mineral areas characterised by conflict. These negotiations and cooperation efforts can create opportunities to democratise processes and address procedural and distributive justice issues, offering pathways toward more equitable and inclusive outcomes. Furthermore, while not widespread, our data shows that some of these cooperative events demonstrate high levels of commitment, suggesting that meaningful actions and tangible changes may result rather than remaining limited to discussions or intentions.

This finding aligns with case studies highlighting positive outcomes from complex negotiations during conflicts. For instance, González and Snyder (2022) reported that negotiations between communities, governments, and companies in Argentina led to agreements that mitigated environmental harm and enhanced socio-economic benefits. In Peru, discussions with communities following several conflict events prompted Freeport-McMoRan to establish an agreement with the local government and communities, resulting in investments in wastewater treatment to protect water sources (Fraser, 2021). Similarly, in Chile, conflicts with local communities led to negotiations over freshwater use in the Atacama Desert, prompting the government to cooperate with companies to limit aquifer extraction and promote desalination, resulting in 14 desalination plants now in operation (Odell, 2021; Toro et al., 2022). Finally, in Niyamgiri, India, community resistance led to negotiations recognising tribal consent rights, strengthening indigenous control over resource projects (Banerjee et al., 2023).

However, it remains unclear why cooperation occurs in some cases in connection with conflicts, what forces drive it, and how it unfolds. This highlights the need for a deeper understanding of the broader connections between conflicts, negotiations, and cooperation, an important area that has received less attention in the literature.

Finally, we would like to emphasise that our findings on the underlying issues behind conflicts and cooperation, particularly the prominence of economic concerns, should not

be interpreted as downplaying the importance of other areas, as these challenges are deeply interconnected. Instead, our results underscore the need for an integrated approach that addresses these domains. Recognising the interconnectedness of these issues, rather than adopting a post-economic framework, may foster more constructive progress by bringing diverse actors together to the table (e.g., authorities in low-income countries facing significant economic challenges).

5. Conclusions

Our evidence and analysis suggest that widespread resistance to mineral extraction raises critical concerns about the justice of energy transition as well as its legitimacy and viability in a democratic world. We interpret this as indicating a new kind of sustainability challenge associated with the energy transition, one that is social and political as much as environmental. A key issue here is how to integrate diverse actors into policy, economic, and investment decisions about mineral resources, and more broadly, about shared resources. Large-scale projects that rely on common resources and deeply impact the lives of people living near mining areas must be negotiated in new ways.

This may signal a far-reaching challenge that has emerged alongside the environmental crisis and the expansion of the green transition: public opposition to economic activities that depend on common resources. Addressing these conflicts through procedural and distributive justice will be critical as clean energy projects, which require vast amounts of resources, continue to expand. In this context, we believe that ideas of economic democracy—focusing on redistributing economic authority within corporations, governments, and affected communities—deserve more serious consideration, not only for social justice but also to enhance our capacity to address these overlapping crises in a democratic world.

The alternative concerns a future where resistance to these projects leads to a significant slowdown in progress or shifts environmentally damaging activities to authoritarian regimes, where extraction is imposed by force. Without effective agreements across social groups, especially in countries under economic pressure and reliant on these industries for stability, the expansion of authoritarianism becomes more likely, with governments increasingly using force to push such projects forward unchallenged.

Our methodological approach not only highlights key research questions on conflict and cooperation in mining but also provides a systematic way to explore them, offering insights that can help address these critical issues. For example: Why are some countries more conflict-prone than others while others experience more meaningful cooperation? What role do institutions play? Are recent institutional developments regarding transparency, prior consultations, and environmental impact assessments contributing to

reducing conflicts by addressing social demands? Are conflicts regionally contagious? Do different types of companies and technologies influence their spread?

Another set of questions concerns the relationship between conflict and cooperation. Our research shows that high polarisation reduces the likelihood of meaningful cooperation, but do specific conflict causes shape different cooperation dynamics? For instance, are distributional conflicts more likely to lead to cooperation than those driven by recognition or procedural injustices? Addressing these questions will provide invaluable guidance for designing a just and democratic energy transition and help us avoid extractivist patterns of the past.

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Appendix A: tables and figures

Table A.1: Event Classification

Event	Classification	Sub-classification
Make a pessimistic comment / Deny responsibility*	Conflict	Low polarisation
Criticize or denounce*	Conflict	Low polarisation
Demand	Conflict	Low polarisation
Appeal	Conflict	Low polarisation
Demonstrate or rally for changes/engage in political dissent*	Conflict	Low polarisation
Disapprove (excl. criticize or denounce)	Conflict	Medium polarisation
Exhibit force posture	Conflict	Medium polarisation
Reduce relations	Conflict	Medium polarisation
Threaten	Conflict	Medium polarisation
Reject (excl. veto)	Conflict	Medium polarisation
Obstruct passage/block / Conduct hunger strikes / Conduct strikes or boycotts*	Conflict	Medium polarisation
Protest violently*	Conflict	Medium polarisation
Assault	Conflict	High polarisation
Coerce	Conflict	High polarisation
Fight	Conflict	High polarisation
Use unconventional mass violence	Conflict	High polarisation
Veto*	Conflict	High polarisation
Make a public statement***	Cooperation	Low commitment
Express intent to cooperate	Cooperation	Low commitment
Consult	Cooperation	Low commitment
Engage in diplomatic cooperation	Cooperation	Medium commitment
Investigate	Cooperation	Medium commitment
Engage in material cooperation	Cooperation	High commitment
Provide aid	Cooperation	High commitment
Yield	Cooperation	High commitment

Make a statement not specified in other categories/Decline comment**	Unclassified	Unclassified
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Source: Author's elaboration based on the GDELT Project database and CAMEO classification. *These categories belong to the most disaggregated classification provided by CAMEO. **These categories were not classified anywhere because they do not have a clear negative or positive tone, and their high frequency might bias the rest of the analysis. ***Excluding "Make a pessimistic comment" and "Deny responsibility". This mainly includes making optimistic comments or engaging in symbolic acts.

Table A.2: Regression table. Number of conflict events

Dependants	log(1+n events conflicts)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(Intercept)	2.549*** (0.20089)	2.599*** (0.20178)	3.232*** (1.18118)	2.622*** (0.29002)	1.694** (0.86568)	1.978*** (0.91920)	2.025** (0.98931)
ENGLISH	1.184*** (0.22311)	1.135*** (0.22349)	1.050*** (0.24971)	0.970*** (0.25819)	1.213*** (0.23728)	1.194*** (0.24782)	1.218*** (0.24906)
log(n_deposits)	0.633*** (0.07329)	0.621*** (0.07313)	0.655*** (0.08108)	0.669*** (0.08250)	0.624*** (0.08037)	0.620*** (0.083092)	0.616*** (0.08396)
z_voice_accountability		0,171 (0.10568)	0.311* (0.16502)	0.350** (0.17469)			
log(GDP_per_capita)			-0,075 (0.12618)		0,092 (0.09130)	0,061 (0.09947)	0,058 (0.10719)
GDP_per_capita Q.2				0,205 (0.30609)			
GDP_per_capita Q.3				-0,364 (0.33865)			
GDP_per_capita Q.4				-0,284 (0.45139)			
z_freedom_expression						0,200 (0.14127)	
z_civil_liberties_index							0,145 (0.13920)
R2	0.510	0.522	0.524	0.532	0.506	0.519	0.514
Adj R2	0.501	0.509	0.504	0.501	0.490	0.498	0.494
Obs	108	108	100	99	100	99	99
Model	OLS						

Standard deviation between parenthesis. * Significant at 90%; ** 95%; *** 99%.

Notes: GDP per capita refers to the Gross Domestic Product (PPP) of the year 2022, measured in constant 2021 international dollars and divided by population. Q.2, Q.3, and Q.4 represent the quartiles of the GDP

per capita. The variables `z_freedom_expression` and `z_civil_liberties_index` are based on expert estimates and the index from V-Dem, normalised to have a mean of zero and a standard deviation of one.

Table A.3: Regression table. Number of locations with conflict events

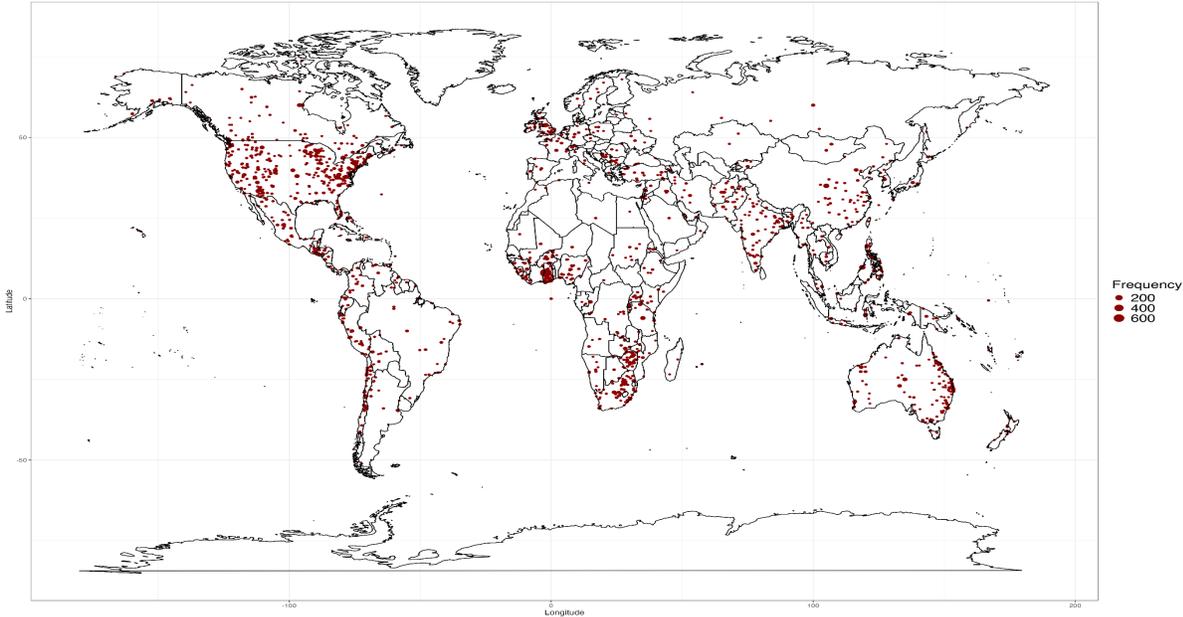
Dependants	log(1+n conflict locations)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(Intercept)	1.092*** (0.14646)	1.134*** (0.14664)	1.818** (0.86613)	1.212*** (0.21476)	0,666 (0.63529)	0,759 (0.67027)	0,874 (0.71825)
ENGLISH	1.028*** (0.16266)	0.988*** (0.16242)	0.951*** (0.18311)	0.910*** (0.19119)	1.074*** (0.17413)	1.093*** (0.18070)	1.094*** (0.18082)
log(n_deposits)	0.552*** (0.05343)	0.542*** (0.05314)	0.562*** (0.05945)	0.572*** (0.06109)	0.538*** (0.05898)	0.524*** (0.06059)	0.526*** (0.06096)
z_voice_accountability		0.139* (0.07680)	0.233* (0.12100)	0.275** (0.12936)			
log(GDP_per_capita)			-0,077 (0.09252)		0,048 (0.06700)	0,040 (0.07253)	0,028 (0.07782)
GDP_per_capita Q.2				0,002 (0.22666)			
GDP_per_capita Q.3				-0,235 (0.25077)			
GDP_per_capita Q.4				-0,354 (0.33426)			
z_freedom_expression						0,113 (0.10301)	
z_civil_liberties_index							0,108 (0.10106)
R2	0.598	0.610	0.602	0.602	0.587	0.599	0.599
Adj R2	0.590	0.599	0.585	0.576	0.574	0.582	0.581
Obs	108	108	100	99	100	99	99
Model	OLS						

Standard deviation between parenthesis. *
Significant at 90%; ** 95%; *** 99%.

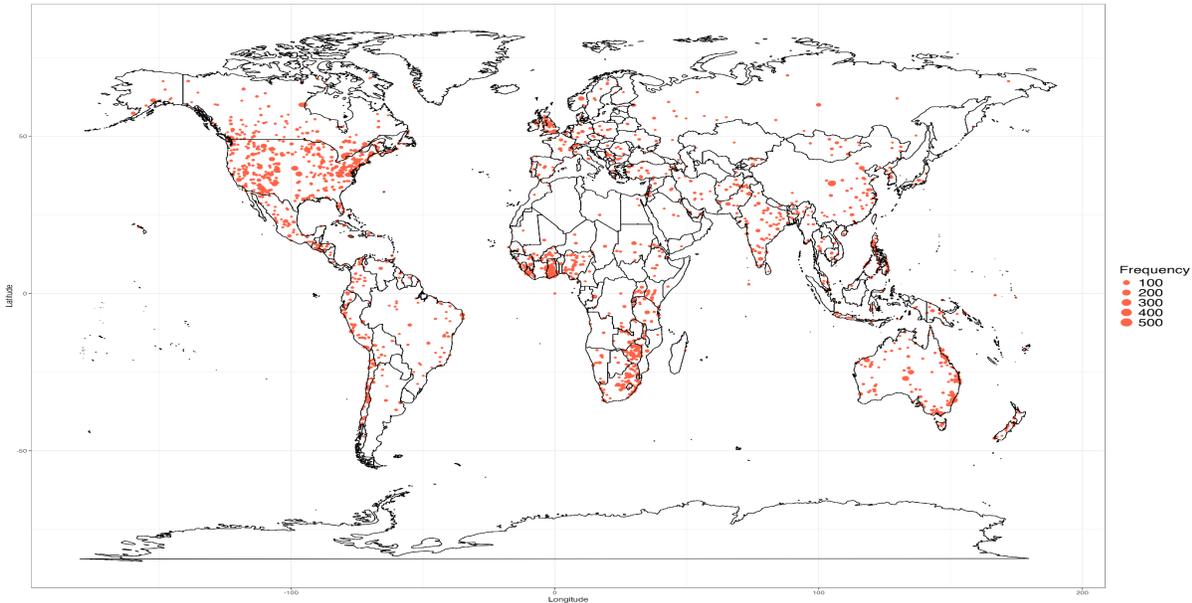
Notes: GDP per capita refers to the Gross Domestic Product (PPP) of the year 2022, measured in constant 2021 international dollars and divided by population. Q.2, Q.3, and Q.4 represent the quartiles of the GDP per capita. The variables z_freedom_expression and z_civil_liberties_index are based on expert estimates and the index from V-Dem, normalised to have a mean of zero and a standard deviation of one.

Figure A.1: Mapping High and Medium polarisation conflicts

(a) High polarisation

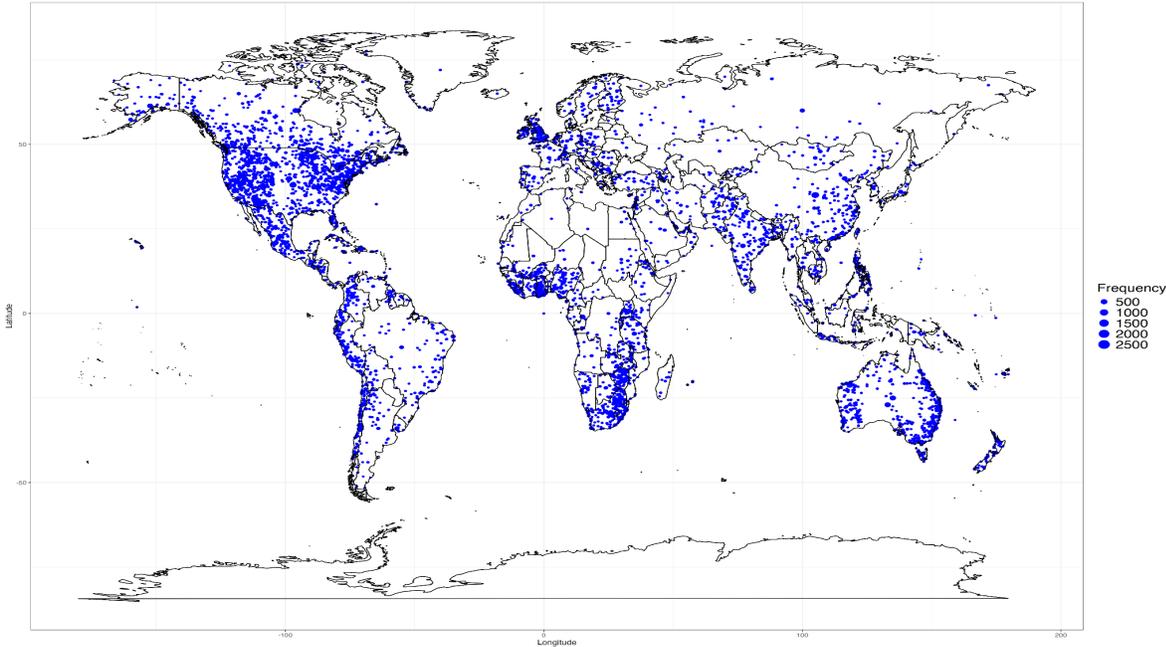


(b) Medium polarisation



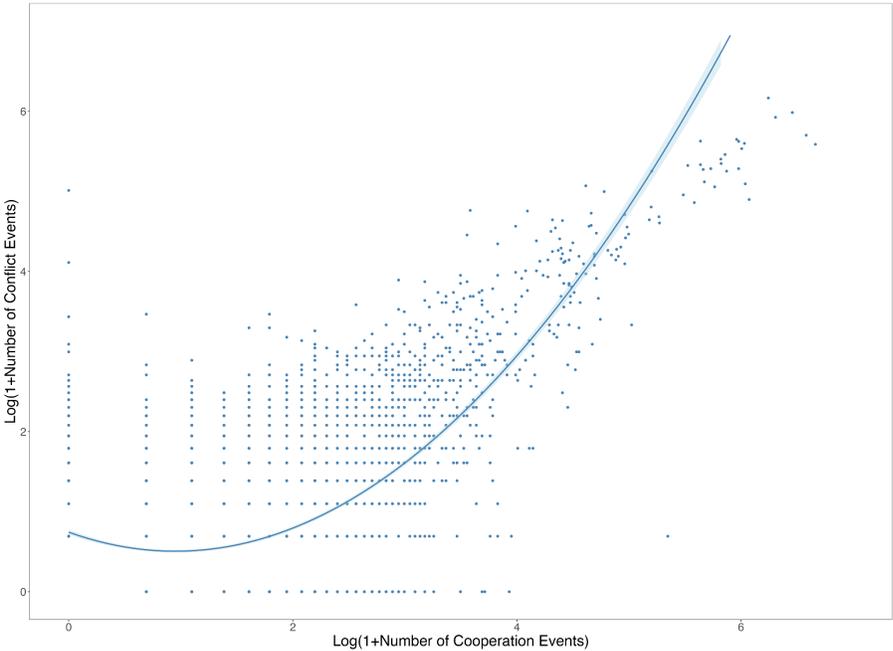
Source: own elaboration based on the GDELT Project database. Our database covers from 2015 to 2022.

Figure A.2: World map of cooperation events related to mining activities.



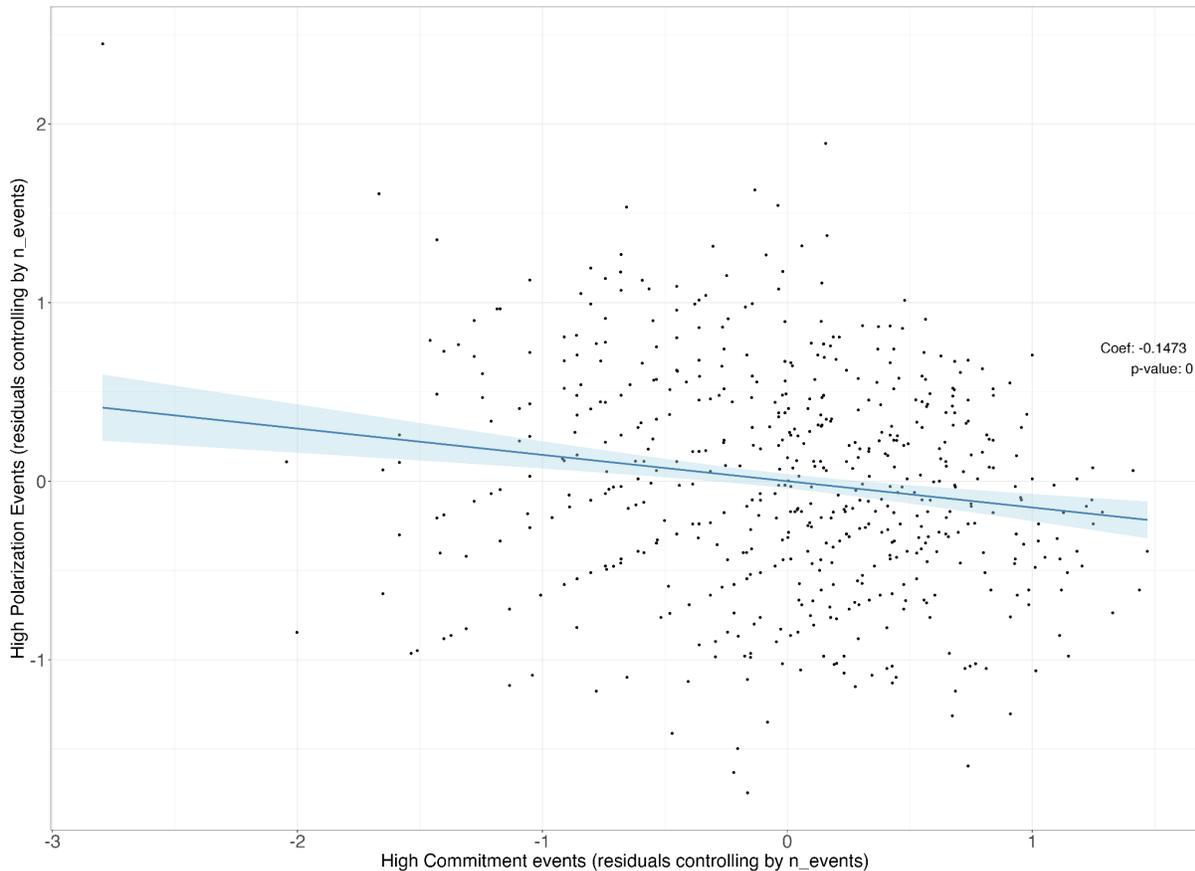
Source: own elaboration based on data from the GDELT project. Our database covers from 2015 to 2022.

Figure A.3: Cooperation Events and Mineral Deposits



Source: our own elaboration based on data from the GDELT project. Our database covers from 2015 to 2022.

Figure A.4: High polarisation conflicts and high commitment cooperation event by localisation, adjusted by the number of total events.



Source: Our own elaboration is based on data from the GDELT Project. To avoid including locations with very few events and where mining activity is not relevant, we included only locations with above-median events (3) and countries with above-median deposits (7). High polarisation conflicts and high commitment cooperation events were adjusted by the total number of events. In this way, we adjust for the fact that regions with mining show more events in general, but we are interested in the relative intensity of different types of events.

List A1: Themes used to identify mining articles

- a. Mining related themes: mining_systems, metal_ore_mining, env_mining, nonmetallic_mineral_mining_and_quarrying, mineral_resources, coal_mining, mining_policy_laws_and_regulations, mining_laws_and_regulations, artisanal_and_small_scale_mining, mining_services, mining_regulation,

black_carbon, governance_for_mining, mining_engineer,
mining_licensing_and_registration, manmade_disaster_mining_accident,
extractive_industries_transparency_initiative,
manmade_disaster_mining_disaster, conflict_minerals,
mining_fiscal_policies_and_revenue_collection, mineralogist,
government_institutions_for_mining, mining_cadastre,
mining_environmental_management, state_mining_enterprises,
licensing_and_contracting_of_minerals, safeguards_for_mining, and
mining_capacity_building.

- b. Oil and gas-related themes: env_oil;
oil_and_gas_policy_strategy_and_institutions; ppp_in_oil_and_gas;
env_naturalgas; econ_oilprice; fuelprices; upstream_oil_and_gas;
oil_and_gas_systems; oil_and_gas_pipeline; env_biofuel;
manmade_disaster_gas_explosion; mid_and_downstream_oil_and_gas;
econ_natgasprice; liquefied_natural_gas; governance_for_oil_and_gas;
national_oil_companies; oil_and_gas_export; econ_heatingoil;
manmade_disaster_oil_spill; econ_gasolineprice;
gas_transportation_storage_and_distribution; gas_fired_power; fuel_taxes;
oil_and_gas_distribution; gas_to_power; oilfield_services; oil_and_gas_refining;
manmade_disaster_gas_main; fuel_subsidies; oil_and_gas_production_sharing;
gas_utilization; profit_oil; cost_oil; oil_fired_power;
offshore_oil_and_gas_production; oil_merchant; gas_poisoning;
oil_and_gas_capacity_building; government_institutions_for_oil_and_gas;
pipeline_incident_gas_explosion; oil_baron; oil_barons;
onshore_oil_and_gas_production
- c. Financial performance-related themes: econ_stockmarket; tax_econ_price.
- d. Conflict, negotiations, and potential drivers-related themes:
manmade_disaster_implied; water; regulation; crisislex_c07_safety;
fragility_conflict_and_violence; policy_law; justice; indiginous; kill;
legal_and_regulatory_framework; policy_regulation; social_protection_and_labor;
environment_and_natural_resources; policy_legislation; policy_regulatory;
armedconflict; protest; conflict_and_violence;
peace_operations_and_conflict_management; alternative_dispute_resolution;
dispute_resolution; negotiations; crisislex_t03_dead; criminal_justice;
ethnicity_indigenous; crisislex_c03_wellbeing_health; ban; crime_violence;
human_rights; mining_policy_laws_and_regulations;
diplomacy_and_negotiations; negotiation; crisislex_c06_water_sanitation;
crisislex_t01_caution_advice; self_identified_human_rights; movement_general;
arrest; soc_generalcrime; crisislex_t02_injured; water_security; transparency;
sanctions; unrest_belligerent; climate_change; social_development;

env_climatechange; climate_change_action; regulators; activists;
social_assistance; political_violence_and_war; property_rights;
clean_water_sanitation; crisislex_o02_responseagenciesatcrisis; econ_unions;
water_resources_management; strike; anti_corruption_legislation;
bribery_fraud_and_collusion; property_laws_and_regulations;
crisislex_t08_missingfoundtrappedpeople; public_accountability_mechanisms;
human_rights_abuses_and_violations; victims; water_management_structures;
business_law_and_regulation; public_international_law; labor_standards;
mining_laws_and_regulations; responses_to_human_rights_abuses;
environmental_safeguards; environmental_management; impact_assessment;
social_inclusion; ecosystem_management; dams_and_reservoirs;
mining_regulation; social_cohesion; protected_areas_systems;
rebels_guerrillas_and_insurgents; activist; social_safeguards;
indigenous_peoples; indigenous_peoples; rebellion; regulator;
revolutionary_violence; environmental_and_social_assessments; water_supply;
mining_licensing_and_registration; scandal; environmental_sustainability;
env_waterways; displaced; waterways; climate_change_mitigation;
soc_polarized; blockade; movement_environmental; water_treatment;
political_turmoil; soc_slavery; unrest_crackdown; short_lived_climate_pollutants;
political_violence_and_civil_war; kidnap; pollution_management;
law_enforcement; post_conflict_reconstruction; terrorism;
population_resettlement; crisislex_t09_displacedrelocatedevacuated; veto;
evacuation; harassment; international_standards_and_technical_regulations;
rebels; self_identified_atrocity; antitrust; econ_trade_dispute; env_deforestation;
human_rights_abuses_human_rights_abuses; violent_unrest; crime_looting;
governance_for_mining; water_allocation_and_water_economics; trade_unions;
environmental_laws_and_regulations; grievances; torture;
water_demand_management; state_of_emergency; torture; rule_of_law;
unsafe_work_environment; air_pollution; mediation; working_conditions;
cadastre_and_land_registration; human_trafficking; confiscation;
aidgroups_human_rights_watch; insurgency; justice; crisislex_t05_money;
striker; ombudsman; ombudsmen; extractive_industries_transparency_initiative;
forced_labor; human_rights_abuses_torture; demonstrators; vandalize;
open_government_and_transparency; inequality; ceasefire; militia;
peacekeeping; right_to_information; poverty_and_social_impact_analysis;
social_impact_assessment; environmental_policies_and_institutions;
gender_equality; self_identified_enviro_disaster;
crisislex_c01_children_and_education; anticartel_enforcement;
unrest_ultimatum; sustainable_forest_management; strikers; movers;
insurgency; collective_bargaining; discrimination_race_racism;

vulnerability_and_risk_assessments; self_identified_humanitarian_crisis;
lobbyist; economic_transparency; peace_processes_and_dialogue;
disaster_risk_management; environmental_management_and_mitigation_plans;
vulnerable_groups; union_members; manmade_disaster_toxic_waste;
manmade_disaster_environmental_disaster; reparations; conflict_minerals;
insurgents; land_reclamation; paramilitaries; unrest_checkpoint;
human_rights_abuses_tortured; movement_other;
civillian_police_and_security_services;
market_based_climate_change_mitigation; human_trafficking; econ_boycott;
inequality_and_shared_prosperity; conciliation; persecution;
discrimination_race_racist; hazardous_wastes; movement_social;
water_quality_standards; environmental_health; common_law;
unrest_hungerstrike; minimum_wages; assassination; negotiator;
climate_change_impacts; insurgent; water_quality_monitoring; freespeech;
land_use_laws; labor_force; land_reform; social_protection_and_labor_systems;
solid_waste; social_conflict; manmade_disaster_mining_accident; enforcer;
social_insurance; access_to_justice; mediator;
disarmament_demobilization_reintegration;
demobilisation_disarmament_and_reintegration; forceposture; water_law;
health_and_safety_conditions; movement_womens; community_outreach;
environmental_crime_and_law_enforcement; ecologist; environmental_crime;
health_laws_and_regulations;
reduced_emissions_from_deforestation_and_degradation; conservationist;
curfew; income_inequality; counter_terrorism;
human_rights_norms_and_mechanisms; climate_services;
unrest_acquire_weapons; investment_protection; humanitarian_law;
community_development_agreements; community_driven_development;
political_economy_of_reform; social_worker; unrest_stonethrowing;
harmthreaten; human_rights_abuses_extrajudicial; safety_nets; civil_law;
occupier; human_rights_abuses; mine_closure_regulation;
mining_environmental_management; social_workers;
drinking_water_quality_standards; forced_displacement; hate_speech;
civil_liberties; water_allocation_and_water_supply; coup_plotter;
ethnicity_aborigines; union_member; strikebreakers;
human_rights_abuses_police_brutality; unrest_policebrutality;
marine_protected_areas; income_inequality; indigenous_education;
human_rights_abuses_mass_graves; occupational_health_and_safety;
groundwater_management; human_rights_abuse; climate_change_adaptation;
enforcers; unrest_self_identified_hate_speech; ethnicity_apache_tribes;
unrest_self_identified_hate_crime; customs_unions; environmental_governance;

manmade_disaster_chemical_spill; spatial_inequality; unrest_mass_arrest;
hazardous_waste_management; toxic_pollution;
wastewater_treatment_and_disposal; unrest_day_of_action; trade_unionists;
environmental_impact_assessement; soc_forcedrelocation;
judicial_independence; violence_prevention; demonstrator; occupational_injuries;
unskilled_workers; teacher_unions; monopolization_and_abuse_of_dominance;
reservists; trade_unionist; surface_water_management;
involuntary_resettlement; wastewater_reuse; regulatory_enforcement;
cultural_property_protection; riparian_rights; ethnicity_aborigine;
human_rights_abuses_enforced_disappearances; tribal_chief;
weapons_water_cannon; instigator; voice_and_agency;
environmental_law_enforcement; welfare_workers; strike_leader; strike_leaders;
informal_employment; child_workers; land_registries; underemployment;
informality; paramilitary_forces; human_rights_abuses_forced_disappearance;
climate_resilient_development; ethnicity_aboriginal_australians; unrest_stoning;
regulatory_impact_assessment; policemilitarization;
social_resilience_and_climate_change;
human_rights_abuses_forced_disappearances; unrest_human_shield;
disaster_resilience; illicit_work; environmental_offsets; tribal_chiefs;
unrest_molotovcocktail; conflict_of_laws;
human_rights_abuses_forced_migration; ethnicity_hill_tribes;
religion_indigenous_religions; social_demand_for_education; ethnicity_hill_tribe;
water_safety_plans; religion_indigenous_religion;
human_rights_abuses_enforced_disappearance; conflict_of_interest_legislation;
human_rights_abuses_forced_migrations