



# The impact of conflicts in the mining industry: A case study of a gold mining dispute in Greece

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## ABSTRACT

The Skouries gold mining dispute in Greece has been a significant contention for several years. This study explores how individuals, either supportive or critical of mining, have strategically positioned themselves in discourse to safeguard their influence and control over potential risks. These strategic actions have included visible measures, such as campaigns carried out by institutions and grassroots organizations, and plans that have been expressed but not yet implemented. These tactics have given rise to divergent perspectives within each group. Whenever the mining operation faced a potential threat, the miners would take charge of the tunnels to demonstrate their indispensable connection to their work and its importance within a broader context. On the other hand, local activists, in stark contrast to the miners who relied on the mining company, developed their skills and capabilities, showcasing their resilience in the face of adversity. Despite adhering to a post-Fordist work and labor conditions model, these activists have a strong attachment to their location but were compelled to consider relocating. The research illustrates how opposing parties collaboratively generate disputes over natural resources through their strategic use of language and communication.

## 1. Introduction

This research delves into an analysis of the emergence of a dispute surrounding gold mining in Skouries, Greece. It places a significant emphasis on the economic implications of such a conflict and the underlying factors governing these disputes. Social unrest in a rising gold mining conflict highlights the interconnectedness of political and economic dynamics (Geenen, 2014). Within this interdependence lie both opportunities and limitations for mobilization. While gold mining conflict can potentially contribute to reducing poverty, inequality, and unemployment, it has significant adverse effects on the environment, society, and culture. In the specific case of Skouries, communities are subjected to various threats, criminalization, intimidation, and harassment, with little or no assistance from authorities (Geenen and Verweijen, 2017; Sauerwein, 2023). This research also aims to explore the similarities and differences in approaches to extractivism in the Skouries region. While there is a general trend towards increased reliance on natural resource extraction across the region, undertaking a transnational and comparative analysis, including Skouries, allows for a nuanced understanding of the diverse strategies employed in governing natural resources. The objectives of the study are as follows.

- (1) Investigating how local actors in Northeastern Halkidiki, Greece, present their opinions and points of view about a gold mining conflict. Examining how pro- and anti-mining groups apply risk assessment as a guiding concept in their policies and arguments.
- (2) Exploring subject positions, especially in terms of identity and agency, and explaining how people either keep or change their positions inside the dispute. Examining the planned discursive acts and techniques used by both groups to affect the development of the conflict. Emphasizing discourse and subjectification processes contributes to the theoretical and methodological frameworks by providing new approaches for analyzing social conflicts in the mining sector.
- (3) Analyzing how risk management shapes the conflict by illustrating how both parties employ risk computations to support their perspectives and actions. This gives mining conflicts a fresh viewpoint by including personal and community risk perceptions, transcending economic and environmental issues. To understand how the dispute is shaped significantly by structured verbal actions and discursive positioning. It shows how much the direction of the conflict and the roles of the engaged parties depend on the way arguments are presented and expressed.

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- (4) Examining subjectification processes to understand better how people's roles and identities change in reaction to the dispute. This emphasizes how dynamically, social roles in mining conflicts change as actors constantly reinvent their identities and approaches. The paper compares the Fordist model of conventional corporate structures and job stability with the post-Fordist entrepreneurial attitude stressing small-scale production and ecological preservation. This contrast helps one to grasp the ideological foundations of the opposing organizations.

The research commences by examining the patterns of disputes surrounding the gold mining conflict in Skouries, Greece. This occurs within a global context characterized by a growing demand for natural resources and a global market regulated by frameworks prioritizing private corporations' protection. In the latter part of the study, we investigate how the global context influences the management of conflicts related to gold mining in Skouries. Through a comparative analysis of multiple countries in the region, it is stated that – regardless of the political ideologies of different administrations – there is a discernible trend towards an increasing reliance on the gold mining conflict. This consistent pattern has led to certain expectations regarding poverty reduction, inequality reduction, and unemployment reduction (Hilson, 2002). Consequently, widespread support for the gold mining dispute emerges. However, this support has also resulted in widespread human rights violations at the community level, imposing limitations on social mobilization.

The study makes several significant contributions to social conflict in the mining sector, particularly in comprehending the dynamics of local resistance, risk management, and discursive techniques. We underline the need for local actors' viewpoints in mining conflicts, therefore offering a thorough analysis of how these actors articulate their opinions and behaviors. It emphasizes the fluid character of subject positions and how people either preserve or change their roles inside the conflict, highlighting ideas of agency and identity. The study shows how both pro-mining and anti-mining parties apply risk assessment as a guiding concept, giving a novel dimension to understanding mining conflicts outside of economic and environmental issues. Emphasizing responsibility and control over future events, it explains how participation in risk assessment procedures empowers individuals to assume or maintain the role of risk-taker. The study reveals the essential part of discursive positioning and organized actions in forming the conflict, demonstrating how greatly arguments are framed and communicated and how they influence the development of the conflict. Anti-mining activists' use of insider and outer strategies emphasizes how both approaches develop credibility and forceful capacity, therefore highlighting their differences.

Furthermore, the study offers an improved understanding of the ideological underpinnings of the opposing groups by contrasting the Fordist model of conventional corporate arrangements and job stability with the post-Fordist entrepreneurial attitude. The research presents subjectification processes as a fundamental component in comprehending mining conflicts, illustrating how individuals' roles and identities change in reaction to the conflict. We question the idea that efforts at corporate social responsibility (CSR) alone may settle mining conflicts, implying that CSR might not always fix the fundamental reasons for conflicts. We advocate more all-encompassing strategies that consider local actors' viewpoints and discursive actions to handle the complexity of mining disputes properly. The knowledge of local resistance, risk management, and subjectification procedures helps one to develop more successful conflict resolution policies and methods. Emphasizing the need for a more inclusive approach to resource exploitation regulations, the study promotes incorporating and formalizing indigenous and local concerns in ecological impact assessments.

Focusing on the gold mining controversy in Skouries, the study offers data on how local players participate in conversations about mining development, balancing ecological concerns against employment

possibilities. The paper covers real-world examples, including the efforts of anti-mining campaigners to protect ecological conditions and miners' readiness to accept environmental damage for job security. Emphasizing the roles of local players, risk assessment, discursive strategies, and subjectification processes, essential contributions are made by providing a sophisticated and comprehensive knowledge of social conflict in the mining sector. In addition, we offer insightful theoretical, methodological, and empirical analyses that might guide future studies and applications in this discipline.

Mining conflicts often stem from the extraction of natural resources, which can lead to environmental degradation, social displacement, and economic inequality. These conflicts typically involve tensions between mining companies, local communities, and governments, as each party has competing interests in the use of land and resources. The traditional linear model of resource extraction, production, and disposal exacerbates these issues by contributing to resource depletion and environmental harm. In contrast, the circular economy offers a sustainable alternative by promoting resource efficiency, waste reduction, and the reuse of materials. By integrating circular economy principles into mining practices, companies can minimize environmental impact, reduce the need for new resource extraction, and help alleviate conflicts. This approach not only addresses the root causes of mining conflicts but also supports long-term economic and environmental sustainability, fostering a more equitable distribution of benefits and reducing the strain on natural resources (Morelli et al., 2024).

The rest of the paper is structured as follows: Section 2 reviews the relevant literature; Section 3 includes the methodology applied; Section 4 presents the results; Section 5 discusses various aspects of the findings; and Section 6 gives the conclusion and policy implications.

## 2. Literature review

Greece possesses a wide range of mineral resources, showcasing its diversity in this sector. As the Greece Geological Survey reported in 1990, the nation currently holds approximately 66 primary and industrial mineral reserves. However, it is worth noting that only 40 of these reserves are presently being utilized. The primary mineral resources of Greece include lithium, coal, chrome, gold, diamonds, and platinum. According to (Espin and Perz, 2021; Hilson and Yakovleva, 2007) and Espin and Perz (2021), Greece is responsible for approximately 7.0% of the global platinum production, around 5.3% of the worldwide palladium output, and over 1.7% of the global diamond production in terms of weight. In the global rankings, Greece holds the third position in platinum production, the fifth in palladium and lithium production (excluding the United States), and the eighth in diamond production. Furthermore, Greece boasts the most extensive cesium deposits globally, and the second most significant rubidium reserves.

Moreover, Greece possesses notable diamond reserves encompassing alluvial and industrial types. The Chiadzwa diamond field in Marange, in particular, stands out as the world's largest repository of diamonds (Laing and Pinto, 2023). It is worth mentioning that projections made in 2013 suggested that this field alone could meet 25% of the global diamond demand (Pedersen et al., 2021; Qin et al., 2023, 2023, 2023). Furthermore, Greece ranks second globally in substantial platinum-group metal (PGM) reserves, with existing reserves of 1200 tons and an estimated 7800 tons in untapped resources (Hilson, 2010). Additionally, Greece is the world's second-largest reserves of chromium (Hilson, 2010; Lèbre et al., 2019; Sidorenko et al., 2020). The country's economy heavily relies on mining, with mineral exports contributing over 60% of total foreign profits. Moreover, the mining industry is significant, contributing 12% to the national Gross Domestic Product (GDP).

However, the negative aspect of having vast mineral resources is the resulting socio-economic difficulties that arise from exploiting these minerals inside the mining villages and among its population. These include instances of coerced internal relocations and the resulting social

and economic challenges faced by families impacted by mining projects, consequently rendering mining-induced displacements in Greece a significant social issue and a human rights concern (Coumans, 2019; Iguma Wakenge et al., 2021; Schütte and Näher, 2020; Szablowski, 2019). The absence or insufficiency of relocation compensation worsens these difficulties. The primary cause of unjust and insufficient compensation in developing nations is mainly attributed to the pervasive lack of engagement with the victims of mining-induced displacement and resettlement (MIDR). Diamond mines located in areas such as Murowa and Chiadzwa (Greece), gold mines in the Tarkwa area (Greece), coal mines in Jharkhand (India), open-cast copper mines in Papua New Guinea, and lignite mines in Germany are examples of global instances where mineral extraction has led to the displacement of people and varying levels of success and failure in providing fair and sufficient compensation to the affected parties (Berman et al., 2017; Kazapoe et al., 2023; Khan et al., 2021; Pugliese, 2021).

To understand the discussion on the country's political economy of forced displacements, it is essential to consider the historical context. It is worth noting that Greece has a lengthy and varied history of the government carrying out involuntary displacements without providing compensation. Development projects primarily drive these displacements, which result in resettlements. As documented, the Ministry of Infrastructure and Rural Development (MIRD) has been involved in these activities (Asori et al., 2023). Examining the origins, historical development, character, pattern, extent, and breadth of the present political economy of forced displacements is crucial. This analysis will help us understand how the discussions around MIDR contribute to the larger discourse on displacement. Subsequent imperial administrations and post-independence governments in Greece enacted and executed programs that relocated individuals for different causes and with variable levels of opposition, compensation, achievements, and shortcomings.

### 3. Methods

#### 3.1. Research focus and research background

The research area can be found in northern Greece, specifically in the northeastern section of Halkidiki. The surroundings consist of various settlements nestled within a hilly landscape adjacent to the seaside (see Fig. 1). In 2011, permission was granted for a mining project in Skouries near Natura 2000 areas. Following a series of changes within the stakeholder organization of the previous business, Hellas Gold, managed by Eldorado Gold since 2012, assumed ownership of the project. The miners saw the new project as a favorable prospect for the area, whereas others in agriculture, fishing, forestry, and tourism regarded it as a significant threat. In 2013, tensions escalated, resulting in a clash between Syriza, the primary opposition party opposing mining, and New Democracy, the ruling party supporting the new mining venture.

Amidst the broader financial crisis in Greece, Syriza took on the responsibility of leading a new government coalition in early 2015. As part of their governance, the party commissioned technical investigations of the mining firm in April and August 2015. The primary focus was assessing the possibility of the anticipated ore processing technique, specifically flash melting. In August 2015, the firm ceased operations, leading miners to express discontent by controlling the mining tunnels. A significant turning point in the dispute occurred when legislation implemented by the previous governing coalition granted a permit to construct an enrichment plant in February 2016. In August 2017, the Greek administration initiated a negotiation case against the mining firm. The authorities contended that the company had submitted a technical report that did not meet the required standards for producing pure metals as final products. This deviation was perceived as an obstacle to the government's ability to collect the expected tax revenue. In April 2018, the arbitration decision did not favor the Greek administration, resulting in the firm being granted the pending permission for a metallurgical factory in August 2018. New Democracy emerged again triumphantly in the national elections during the summer of 2019, leading to the resurgence of the mining debate as a prominent issue on

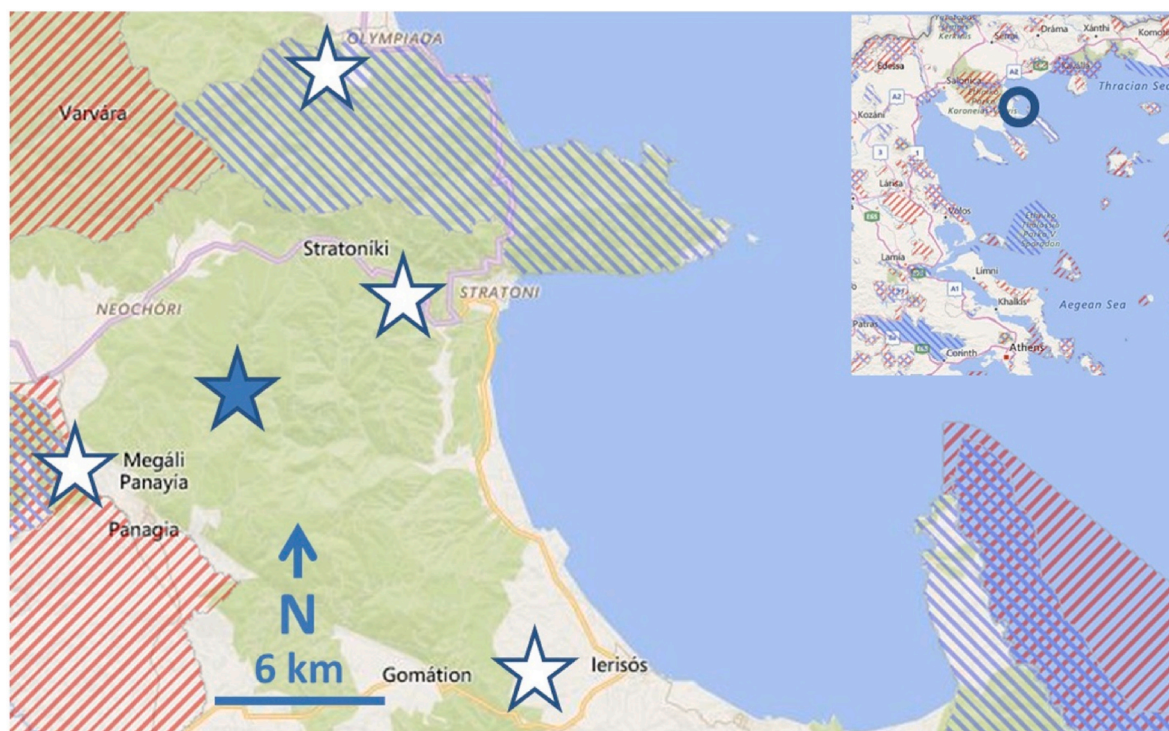


Fig. 1. Settlements' location.



the political agenda.

### 3.2. Data sources

The study utilized a variety of reliable data sources, including newspaper articles, interviews, official website postings, publications from Hellas Gold, blog posts from Soshalkidiki, and documentaries and TV panel discussions. The collection of data was based on two main criteria. Firstly, the data collection timeframe spanned from 2013 to 2016, capturing the period of increased conflict and the granting of permission for the enriching facility. Secondly, the data included references to individuals or groups supporting or opposing mining activities, including direct quotations. It was also important for participants in the mining dispute to mention other individuals involved so that the data could be considered. The study's additional criteria focused on discursive positioning, allowing for selecting specific discursive acts performed by social actors concerning other actors. For further insights into using the positioning concept to analyze intergroup relations, see (Nti et al., 2023). The main focus of the analysis in all data sources was on spoken or written language, specifically "utterances" that directly mentioned another person or action. These utterances were considered as extracts during the data selection process, with a cross-referencing of extracts from various data sources.

#### 3.2.1. Newspaper articles

The internet archives of two state-run newspapers, Kathimerini and Efimerida ton Syntakton, were meticulously examined using specific keywords such as "Skouries," "gold mining," and the primary villages in the research region. Only publications that focused on the mining dispute were chosen for examination. For data analysis, 25 articles from Kathimerini, which included 39 excerpts, were considered, alongside 26 pieces from Efimerida ton Syntakton, which contained 42 excerpts.

#### 3.2.2. Interviews

We established contact and fostered collaborative ties with prominent individuals from the pro-mining and anti-mining factions mentioned in press articles. The individuals in question were contacted and then interviewed after their voluntary agreement, which was based on a clear understanding of the purpose and nature of the study. The participants were extensively briefed about the research's goals and extent and could discontinue their involvement anytime. Additionally, they were granted access to the research findings. Representatives were requested to identify other individuals involved in the dispute. By utilizing a purposive sample and employing a snowball approach, we conducted interviews with 26 residents of the area, ensuring equal representation from both groups. Each participant willingly participated in the interviews, and their confidentiality was assured. Of all the interviews conducted, 33.3% included female participants. The age range of the interviewees spanned from 19 to 72 years old. The duration of the interviews varied between 45 and 60 min, and the interviewees explicitly permitted the recording of the sessions. The interviews were conducted according to a semi-structured framework, focusing on two predetermined themes: (1) The expected costs and benefits of the forthcoming mining operation and (2) The strategies employed by the individuals involved. The interviewees were encouraged to provide further details on any topic of their choice. The interviewer also posed additional questions to delve deeper into specific subjects. The interviews were concluded once the information gathered reached its maximum capacity. 63 extracts from mining proponents and 57 from mining opponents were selected for the information study.

#### 3.2.3. Hellas Gold's official website

Data was analyzed on all the postings accessible through the official Hellas Gold website. Out of a total of 112 postings, a meticulous selection process led to the choice of 40, with a sum of 93 specific excerpts.

#### 3.2.4. *Metalleutika Nea*

The data chosen for this research encompassed several significant sources. Firstly, there were 16 editions of the esteemed publication *Metalleutika Nea*. The study also included content from the renowned publication *Hellas Gold*, published between 2013 and 2016. Interested individuals may access the magazine. Overall, a total of 126 excerpts were carefully selected to be analyzed in this study.

#### 3.2.5. *Soshalkidiki*

All the articles published on *Soshalkidiki*, the blog that supports the opposition to mining activities in the vicinity, were considered for data analysis. These blog entries are systematically arranged in monthly archives on the website. Out of a collection of 1802 posts, a specific subset comprising 125 posts, which collectively contained 224 excerpts, was selected.

#### 3.2.6. *Electronic media programs*

The electronic media discussions in the list below were carefully selected. These films and TV panels featured individuals who were both in favor and against mining and received financial backing from national media organizations. For this study, 32 statements supporting mining and 41 statements opposing mining were chosen.

### 3.3. Statistical analysis

The dataset contained a total of 717 excerpts, out of which 353 belonged to the pro-mining group, accounting for 49.23%. These 353 excerpts comprised 39 from *Kathimerini*, 63 from interviews, 93 from the *Hellas Gold*'s website, 126 from *Metalleutika Nea*, and 32 from documentaries and TV panels. On the other hand, the remaining 364 excerpts, representing 50.77%, belonged to the anti-mining group. This category included 42 excerpts from *Efimerida ton Syntakton*, 57 excerpts from assessments, 224 excerpts from *Soshalkidiki*, and 41 excerpts from investigations and television panels.

#### 3.3.1. Data study

The information research comprehensively examined grounded theories and discourse evaluation, as previously outlined. The analytical process consisted of three distinct steps. Initially, public coding was utilized to identify the codes employed by the pro- and anti-mining factions in each extract. Additionally, the researchers employed axial coding to uncover the specific strategies employed by the individuals involved in targeting other participants in the dispute. This study utilized the concept of discursive positioning, focusing on aggressive actions and defensive behaviors. Discursive acts were organized into narratives collaboratively created by the interacting social actors. The discursive actions acquired their social importance, and perspectives on issues were created via these narratives, which functioned as the interpretative framework. After multiple studies of the whole collection, the excerpts were classified and re-categorized to highlight the interactive struggle between the two groups and uncover patterns in the discursive position. Identifiers that included less than 10% compounds were eliminated from consideration to complete the axial categorization. A method known as specific coding was used during the third phase of the research project to concentrate primarily on the codes associated with the actors' subject positions within the information corpus. The primary purpose in this instance was to investigate how performers attempted to adjust to various viewpoints on the subject matter, some of which directly opposed one another. Under the direction of a qualitative research professional, inter-rater reliability was evaluated on a 10% sample of the whole corpus at each level of information analysis. Subsequently, there was a preliminary discussion based on the information, the criteria for data collection, and the specific research focus. The process of reconsidering and reassigning extractions to identifiers was concluded after two rounds of categorization once the inter-rater reliability exceeded 85%. The research study exclusively focused on the

qualitative investigation of discursive activities and their impact on the topic statuses of the individuals involved.

## 4. Results

### 4.1. Projected expenses and advantages of the upcoming mining venture

The costs and aids projected for the upcoming mining venture were meticulously assessed, considering ecological and job considerations across various subjects (Table 1). A pro-mining faction argued that the environmental impact would be minimal and that job opportunities were paramount. On the other hand, the anti-mining faction adopted a different viewpoint. By analyzing Table 1 horizontally, one can observe the communicative stance of the participants, while a vertical analysis uncovers the layered reasoning of each group. To support the notion that mining would have minimal consequences and to dismiss the unfounded concerns of anti-mining advocates, supporters of mining referred to the historical mining records in the region, previous disproven worries raised by opponents, and the fact that the ecological situation had not declined despite progress in mining activities.

This sector is characterized by significant industrial activity, yet it is open for exploration and observation. The landscape boasts a lush green hue, and our sea, aquifer, and air quality have undergone thorough scientific examination to meet all necessary standards. In Stratoniki, some individuals warned us about potential structural collapse due to underground tunnels. However, you can assess if any homes have indeed experienced such collapses.

On the contrary, the extension of mining has been supported by some individuals who have emphasized the pre-existing negative environmental impacts, which were already noticeable even before the full development of the new mining project.

Recently, two operational facilities in Olympiad discovered contamination of heavy metals in their milk just before it was sent to a local cheese factory. To prevent the spread of this information, the mining business was obligated to provide the necessary financial resources and divest their shares. This incident was reported by Soshalkidiki, a stock breeder and member of the local anti-mining movement, on October 21, 2016. During discussions about the possibility of reversing developments, the different stances of the two groups became

evident. In response to the anti-mining activists' claim that change is irreversible, mining proponents have asserted that the proposed mining project may contribute to environmental restoration in the designated area. Hellas Gold, through its ecological rehabilitation efforts, aims to address new mining activities and unresolved concerns that existed before its involvement.

It is important to note that mining plays a crucial role in ecological protection in the region, as its core principle is to take action and restore. However, critics continue to instill fear in individuals and fail to recognize the potential environmental risks that may arise without mining. They also overlook managing the waste accumulated from the three defunct mining sites and the associated expenses. It is unrealistic to expect them to handle this task independently.

Regarding jobs and employment, mining proponents argue that mining firms offer superior working conditions and labor opportunities compared to other alternatives. They also highlight the potential for harmonizing mining activities with other sectors, such as tourism and primary industries. Mining advocates emphasize that even mining opponents recognize the importance of mining employment. According to their view, expanding mining operations would bring numerous benefits and a promising future for all areas. As previously highlighted, the closure of mines in the past serves as a reminder of the negative consequences that would arise if the new mining project were not implemented.

Is this the desired state of affairs in our vicinity? Are you referring to buildings, workplaces, and deserted or uninhabited villages? Can individuals who oppose the mining investment find a way to reconcile with accepting its development? How can we find alternatives for the existing and upcoming employment opportunities? Perhaps individuals can seek seasonal employment as servers at tourist establishments in the beach region. The user's text is clear and precise. Whenever a building site closes down, the process of development stops and progress comes to a halt. It would not be desirable for the northeastern region of Hal-kidiki to deteriorate and gradually decline. The information is from the editorial comment on page 8 of issue 15 of *Metalleutika Nea*, published in February 2016. Opponents of mining expressed concerns about the supposedly optimal working conditions in the mining industry, citing workers who prioritize employment over health. Miners themselves saw this as an acknowledgment of the risks associated with mining.

**Table 1**

Pro- and anti-mining factions engage in a discourse that involves assessing risks, considering environmental consequences, and the influence on jobs and employment.

Consideration	Topic	Pro-mining	Anti-mining
Environmental impact	Footprint	The new mining activity will only affect a tiny portion of the natural resources.	Implementing the new mining project is expected to have a notable amplification of the ecological impact of mining.
	Threat	The new mining activity will only affect a tiny portion of the natural resources.	Implementing the new mining project poses a significant danger to the sustenance of the local communities.
	Proof	The concerns expressed by those opposed to mining lack a solid basis and arise from inaccurate assumptions.	Preliminary identification of detrimental environmental impacts has occurred before the complete execution of the new mining operation.
	Reversibility	Mining plays a pivotal role in facilitating the execution of ecological rehabilitation, an essential element of the new mining initiative.	The development of mining operations will result in irreversible impacts on the environment.
	Trade-off	Acknowledging a certain level of ecological harm in a well-informed evaluation of the trade-off between benefits and costs is necessary.	The trade-off is unacceptable due to the potential harm the new mining project poses to invaluable ecological resources.
Jobs and employment	Working and labor conditions	The mining industry's working and labor circumstances are incomparable to other options.	Mining proponents openly acknowledge their willingness to jeopardize their well-being to save employment.
	Employment alternatives	Mining is the only significant job option available in the area.	Other local work opportunities may be pursued and serve as alternatives to mining employment.
	Heterogeneity in employment	Mining and other local businesses, such as tourism and operations in the basic industry, have a harmonious relationship.	The augmentation in mining operations is anticipated to lead to a comprehensive integration of the entire region into a unified mining sector.
	Job supply and demand	Even individuals who oppose mining operations recognize employment opportunities within the mining sector.	The mining industry may face challenges in offsetting the job reductions resulting from the growth of mining and tourism within the primary sector.
	Long-term effects	The growth of mining will provide several advantages and a much-improved future for the local inhabitants.	The rise in mining activities will primarily benefit the multinational company but adversely affect the local community.

Opponents of mining highlighted other alternatives to replace mining employment and emphasized that expanding mining operations would make the area solely dependent on mining. They believed that expanding mining operations would ultimately lead to a net loss of jobs.

Additionally, they pointed out that the multinational firm would be the primary beneficiary in the long-term, while local communities would bear the costs. The two subsequent excerpts illustrate the prevailing sentiment of the anti-mining faction. Initially, a logger carefully evaluated a work opportunity in the mining industry compared to the potential loss of employment in other sectors. The logger specifically compared Stratonì, where miners were the majority, to other villages.

The organization currently employs 1500 individuals. The capacity could be increased to accommodate up to 2000 or 3000 people. However, there are 5000 households located south of Stratonì. These households are engaged in fishing, agriculture, livestock farming, and logging. The organization now employs a workforce of 3000 individuals dedicated to causing harm and negatively impacting the lives of 20,000 individuals in the surrounding area. This nonsensical display of events must be brought to a close. It is of utmost importance to ensure that multinational corporations do not have undue influence over the fate of local communities. These communities understand that their survival is deeply linked to their specific location and the need to coexist with it peacefully. It is crucial to prevent them from deciding who should be subjected to the prioritization of financial profit. On October 2, 2015, the Soshalkidiki Coordinating Committee, representing the local movement opposing mining, held a meeting.

4.2. Strategies used by those involved in the mining conflict

The study presented diverse explicit methods employed by individuals, encompassing organized and grassroots enterprises (see Table 2). The previous section focused explicitly on the technological and methodical facets of the new mining endeavor, which included an assessment of its ecological impact conducted by the business. The mining proponents referred to several decisions made by the Council of State, which were applied to assess the technical validity of this study. Through its two most recent judgments, the Council of Government has decided whether the Common Ministerial Decision, which accepted the ecological parameters for the activities of Hellas Gold, is lawful.

Therefore, any appeals submitted by residents in 2011 are regarded as invalid and unenforceable.

The opponents of mining have expressed their concerns regarding the mining corporation’s repeated violations of environmental regulations. They often refer to scholars and educational institutes that strongly disapprove of the proposed mining project to support their concerns. Academies and prominent researchers have officially expressed their dissent over expanding mining activities in Halkidiki, providing evidence of the potential risks to forest ecologies, water capitals, the elements included are the soil, the environment, and the sea, as well as the well-being of inhabitants, visitors, and those engaged in creative endeavours. Through grassroots actions, the miners have expressed their willingness to take control of the corporation should any deviations from environmental rules occur. They highlight that their families are most directly affected by environmental deterioration and share the same concern for the environment as the anti-mining demonstrators. Do you believe that we are lacking in responsibility? Are we being negligent? Are we willing to compromise our well-being and children’s future for minimal daily income? Would we risk our local real estate without achieving any significant outcomes? (TV panelist, ETR3, local community council member, male, October 14, 2015) One ordinary action miners took to amplify their protests was to take control of the mining tunnels in the area, symbolically demonstrating the strong connection between the workers and their surroundings. This measure is implemented whenever mining jobs or the company’s investments are at risk and receives support from labor unions.

In the main mining tunnel, 100 miners and 50 workers from the mining company have voluntarily confined themselves. The President of the Miners’ Union has assured that the miners are fully aware of the situation and that their lives are not in danger during this period. However, he acknowledges the challenging conditions within the tunnels. Mining workers are relentless in their decision to stay in the trenches until they have obtained a firm assurance of 2000 mining positions. (Mestanza-Ramón et al., 2022), provides further information. Local activists engage in various grassroots activities, including conducting expeditions to the forestry to observe environmental changes and monitor the progress of the company’s construction projects. Campaigners monitor the slow degradation of forestry and gather data to verify the business’s compliance with ecological regulations. Here are

**Table 2**  
The primary tactics used in the verbal stance of the groups supporting and opposing mining.

Strategies		Pro-mining	Anti-mining
Manifest	Institutional	The mining project is being carried out by the authorized Environmental Impact Assessment (EIA) research, which the firm has submitted. This research is considered to be state-of-the-art and technically rigorous. Many choices of the Council of State have verified the legality and lawfulness of mining developments.	The competent authorities have frequently found and confirmed violations of ecological laws and requirements of the Environmental Impact Assessment (EIA) via successive inspections. The validity of the Council of Government’s rulings is unclear since they conflict with national and European ecological laws and case law. Furthermore, these decisions seem to demonstrate a bias towards the mining firm.
	Grassroots	The residents against the mining project have been intentionally provided with false information on its alleged negative impacts. The miners assert that they would have direct control over the mining firm and promptly address ecological norms and standards violations. They emphasize that they and their households would be the primary ones to experience any negative consequences. When the mining project appears in jeopardy, miners escalate their responses by engaging in rallies and marches, potentially taking control of the mining tunnels to safeguard their employment.	Numerous scholars and educational institutions have supported the reasoning of the local anti-mining organization. Activists go to the forests to oversee environmental shifts and gather data to evaluate the company’s compliance with ecological requirements.
	Latent	Miners have historically formed unions to advocate for their labor rights and are dedicated to protecting their employment regardless of the circumstances. The mining industry can temporarily pause operations or withdraw from the area depending on the unpredictable fluctuations in the price of gold and the current status of mining licenses.	Activists intensify their actions by implementing a planned series of efforts, including protests, gatherings, and musical performances, to maintain a network of supporters at the regional, national, and worldwide levels. Activists acknowledge that they must depend on their capabilities and expertise, collaborate, and exercise decision-making to achieve their goals. Several local activists are contemplating relocating from the region if the proposed mining project is ultimately implemented.

two specific examples of such activities. The mountainous region's topography has experienced changes, culminating in complete devastation. This inherent unpredictability is challenging for individuals to comprehend readily. As a result, a meeting to engage in dialogue and collaboration with individuals, movements, collectives, and other supporters who have expressed their solidarity was organized. This gathering aims to exchange ideas, actively listen, and collectively determine the next course of action, all against the backdrop of the devastation above. During Good Friday and Easter Sunday, it was observed that Kokkinolakas, a significant watercourse connected to the Eldorado facilities, exhibited a reddish colour due to the discharge of acidic runoff originating from the mines at Mavres Petres. Once again, the corporation, known for its reliability and constant assertion of adherence to environmental regulations in the media, could have been better prepared. They may have believed their ecological transgression would go unnoticed due to the vacation period. Written notifications were sent to the District Attorney and the police, while the Ecological Investigators were summoned to conduct an inspection. On April 3, 2015, the Coordinating Committee of the local movement against mining in Soshalkidiki convened. Activists intensified their actions through protests and concerts featuring musicians who supported the local anti-mining campaign. These efforts helped cultivate and expand a network of regional, national, and global supporters. While external assistance has often been relied upon, activists have emphasized their resilience and ability to thrive without depending on the mining industry. They assert that their existence is overlooked in Eldorado and biased media. As individuals engaged in various agricultural activities such as farming, livestock breeding, fishing, beekeeping, and tourism, they successfully sustained themselves for years without relying on a global corporation. The document, dated January 17, 2016, is from the Coordinating Committee of the local anti-mining campaign in Soshalkidiki. In addition to discussing the strategies that have been adopted or are currently being implemented, both groups also deliberated on latent strategies that have not yet been put into action but have been explicitly expressed. For instance, the mining corporation expressed its readiness to halt operations in the region, contingent upon fluctuations in gold prices or the approval of mining permits.

The organization decided to reduce its assets in Greece by 1.6 billion euros due to a significant decrease in the global market price of gold. This decrease should be compared to the initial investment value of 1.8 billion dollars made in 2012. It is essential to mention that this information would not be considered outdated if the corporation had followed its original timeline and not faced significant administrative challenges. These challenges have recently peaked, leading the company to suspend some of its operations temporarily. This decision has raised concerns among activists, who have expressed potential plans to leave the region if a new mining project is implemented. It is worth noting that the possible relocation initiative has not been discussed with the residents. Nevertheless, this situation highlights the need for opponents of mining to assess the potential risks associated with their actions carefully.

Several individuals are currently contemplating relocating and leaving this particular area. They should avoid engaging in any risky endeavors. The location is significant for them in several different aspects, which explains why the situation is particularly challenging, potentially affecting future generations.

#### 4.3. Subject positions of engaged actors

In the third step of statistical analysis, selective coding was used to analyze the topic positions of actively engaged participants. This stage was performed after completing the risk assessment and documenting the individuals' plans, using both open-coding and axial programming methodologies. The primary aim of the selective code process was to examine how people in both groups maintained a consistent set of roles and the factors that either strengthened or disturbed these roles. The

results of the analysis can be found in Table 3. It is worth noting that miners and anti-mining groups tried to keep their jobs. However, the level of commitment varied significantly across the different groups. Introducing the new mining project was crucial for workers to ensure employment, as mining has been a vital part of Hellas Gold's investment portfolio.

Interestingly, the mining company provided its workers with improved labor and working conditions compared to the prevailing circumstances in economic downturn of Greece. The wages offered by Eldorado are high and meet the minimum standards outlined in the collective agreement. The potential monthly earnings range from 1200 Euro to 1800 Euro, which can be considered a favorable pay scale. For example, a new employee with little experience can earn a salary of 900 to 1000 Euros for a five-day workweek.

Including an assembly line system for open-pit mining and on-site ore processing in the new mining project has allowed the continuation of existing corporate structures in collaboration with trade unions, resembling a foreign model. In addition, it perpetuated a work environment and culture that primarily catered to men. In the event of any threat to this arrangement, miners were prepared to take control of nearby mining tunnels to protect this foreign model. Simultaneously, the mining corporation implemented a comprehensive CSR program and served as a state representative in various capacities. Mining supporters presented the mining corporation as a reliable and long-lasting source of assistance.

However, opponents of mining aim to maintain favorable ecological conditions to demonstrate their ability to manage risks in a post-Fordist business structure. Miners were willing to accept a certain level of ecological damage associated with mining to protect their employment and livelihoods, understanding the risks involved. On the other hand, mining opponents had a different perspective. They required assurance that they could continue their business activities in sectors such as primary industries or tourism while ensuring satisfactory environmental conditions. By expressing their willingness to leave the region, they acknowledged the possibility of reaching a point where they could no longer guarantee the safety of their way of life in that area. The post-Fordist system is characterized by several key elements, including small-scale diverse production and a workforce predominantly comprised of women. This model promotes an entrepreneurial culture and is accompanied by a critical view of miners who depend on their employers.

What is the procedure for acquiring a license to produce organic milk in a mining region? It is currently challenging to obtain authorization to establish an organic farm in this particular area. Coexisting with other activities such as agriculture, animal husbandry, beekeeping, tourism, and fishing is unfeasible in any mining area. "In our specific circumstances, none of the individuals who joined our company in our town were particularly remarkable or exceptional. Specifically, an individual in their forties was unemployed and relied on their family for financial

**Table 3**  
Positions held by individuals supporting and opposing mining.

	Pro-mining	Anti-mining
Main demand pursued	Ensuring the maintenance of fundamental labor and working conditions	Providing the maintenance of basic labor and working conditions
Core features of primary demand	Fordist	Post-Fordist
Requirement for sustaining risk management organization	The mining firm is revered under the name Amalthea	Securing environmental sustainability to safeguard the continuity of one's life narrative
The response will be taken into account if the risk organization is comprised	Take over mining tunnels	Evacuate the zone



support. Surprisingly, they secured employment in the mining sector." (An interview with a female tourism entrepreneur on June 29, 2014).

## 5. Discussion

The participation of active individuals in the risk assessment process has empowered them to assume or uphold the role of risk-taker. This involvement necessitated taking accountability for their actions, ensuring predictability and control over future occurrences, and having the freedom to select from various alternatives. (Sternberg et al., 2023) distinguished between "danger" and "risk" by emphasizing that the latter involves a conscious decision by the individual to expose themselves to potential harm (Hilson and Murck, 2000). When there is a possibility of injury, an individual is considered to be in a state of "danger." However, they have not yet consciously evaluated the potential risks and benefits associated with their exposure to the threat. Evaluating such a calculation would involve assuming a "risk." Individuals can only consider a hazard risk if they are allowed to take responsibility for being exposed to potential harm. In this context, miners have demonstrated a reluctance to jeopardize their careers and have been willing to tolerate a certain degree of environmental damage to sustain job prospects in the mining industry. Conversely, those who oppose mining are unwilling to compromise on preserving ecological quality, even if it means risking the success of their agricultural and tourist endeavors.

Both factions actively engaged in a series of strategic measures to safeguard the agency of risk. The local movement opposing mining raised concerns regarding the mining industry's compliance with ecological regulations, as highlighted in various research papers (Dao et al., 2019). They also sought the assistance of academics to critically analyze the scientific arguments put forth by pro-mining actors, as documented by (Hodge, 2014). The local movement employed a range of strategies, including both established strategies (referred to as "insider tactics") and grassroots tactics (known as "outsider tactics"). Insider tactics were crucial for the movement to establish its credibility as a legitimate competitor to the new mining project. Conversely, using outsider tactics was essential to maintain their assertive capacity against the opposing camp. In certain instances, seeking an insider perspective could only be achieved by employing outsider tactics. For example, citizen science methods allowed for collecting samples from a local stream, which were then used to challenge the mining industry's compliance with environmental laws. The present research demonstrates how conflicts over natural resources are mutually shaped by opposing parties through language and posture. Miners took on the responsibility of ensuring the mining industry's adherence to ecological regulations to counter environmentalists who viewed the forest as being subjected to environmental destruction. In this particular example, discursive positioning refers to the miners' tendency to downplay the sense of threat and minimize the severity of the impact as a means of safeguarding their identity. While the actors' interpretations of the situation varied, the escalation of the conflict highlighted the profound interconnections between the miners, anti-mining activists, and their respective environments. The miners demonstrated their commitment by occupying underground mining tunnels while the activists safeguarded the forest above ground.

Although the performers expressed a solid attachment to the local area, there were instances where hidden methods were discovered that included plans to leave the region. Multiple activists have stated that their goals paradoxically aligned with the underlying plan of the mining company. Previous research has referred to this choice to leave one's location as "escapism" or "anticipatory detachment" when the emotional connection to the place weakens, and the belief in one's ability to effect change diminishes. In this study, anti-mining activists fiercely defended their position and involvement in the local effort, providing examples of empowerment that boosted their self-confidence. It is indeed contradictory to oppose mining while also being prepared to evacuate. Local activists mobilized and marched to the forest to protect it, strengthening

their connection to the place. However, these marches revealed signs of ecological degradation due to mining activities altering the area's physical features. Activists witnessed the damage and felt compelled to continue their fight against this progression of events.

We can address this paradox through a continuous process of subjectification. For instance, if a micro-enterprise needs to move, it may require selling a portion of the firm and acquiring new assets in a different location, whether movable or immovable. Environmental damage can devalue existing assets and result in additional expenses on top of expected losses from the transaction. If evacuation becomes the chosen option, it must be done within a specific timeframe before mobility becomes impaired. Expanding on the concept of departure emphasizes the importance of carefully assessing risks to maintain a delicate balance. This includes avoiding false positives, such as evacuating when victory in the battle could still be achieved, and false negatives, such as remaining in an area when leaving, would have been justified. Failing to strike this balance could lead to activists being trapped in a state of "involuntary immobility." Analyzing the interaction between explicit tactics that maintain consistent communication patterns and implicit strategies that introduce deviations from previous patterns can help understand how individuals evaluate and prevent incorrect and missed identifications.

Risk management strategies have led to differing viewpoints within each group. The miners perceived their workplace as a source of employment security despite its dynamic and dependent shareholder arrangement (Akudugu et al., 2013). The representative disseminated a distorted image of the company, presenting it as a consistent provider of stability in working conditions and future opportunities in the mining industry. Using persuasive language, highlighting the declining state of local populations and their dependence on the mining company's financial support and CSR reinforced similar mindsets that relied on continuous aid and backing from the mining corporation. Portraying the company as a substitute for the state also involved depicting it as a powerful and ever-present caretaker and benefactor of the region, akin to a local Amalthea. This approach failed to acknowledge the socio-economic consequences and overlooked the shift in shareholder authority. Miners would take control of mining tunnels if the company's presence in the region threatened to safeguard their jobs and identity and demonstrate their strong connection to the site, signifying its essential nature.

In contrast to miners dependent on the mining company, local activists have established their own skills and capabilities. Qualities such as autonomy, self-reliance, and responsibility for one's livelihood have been established or enhanced due to subjectification within the community's anti-mining organization. These qualities align with the characteristics of the neoliberal subject, as discussed in (Smith, 2019). On the other hand, it is vital to remember that adhering to neoliberalism as a political philosophy does not always indicate that one agrees with it as a political orientation. It is possible that the collision among the Fordist and post-Fordist frameworks that occurred in this mining conflict is responsible for creating this new approach to subjectivity. The Fordist paradigm was reflected in the company's implementation of an open-pit mining operation and ore-processing assembling line. This provided job stability and above-average earnings for workers during the Greek financial crisis.

On the other hand, local activists opposing mining activities followed a post-Fordist approach, relying on the prevailing ecological conditions for their commercial endeavors. For some mining opponents, the process of subjectification that fostered a neoliberal mindset may have led to the consideration of emigration as a new focus for individual identities. In their efforts to mitigate environmental changes, these activists were forced to contemplate leaving the region if conditions worsened beyond a critical threshold that hindered their mobility. Eliminating employment stability in the mining industry, restructuring social connections, and considering migration a viable option progressively liberated them from their location. This freedom allowed the local activists to relocate



and continue their work elsewhere, mainly because they had succeeded within the study region. The Bible's book of Exodus provides evidence for the formation of neoliberal subjectivity, as moving or migrating helps restore the coherence of this resilient subject that has been "liberated" from a fixed location. Interestingly, the hidden motive of campaigners against mining to abandon the region aligns with the secret plan of the mining firm.

This study clarifies how differently pro- and anti-mining groups handle hazards, improving our risk management knowledge. While anti-mining campaigners prioritize ecological preservation, even if it means jeopardizing their livelihoods, miners are ready to tolerate – at least a certain degree – the environmental damage to guarantee their jobs; the same controversy is happening in Taranto (in the south of Italy) regarding the former ILVA steelmaking hub (Romagnoli, 2024). This understanding enables us to identify all group's motivations and limitations, guiding more complex conflict management techniques. Balancing these opposing objectives is still difficult, particularly when the long-term environmental effects of employment are compared against their immediate advantages.

The study underscores several strategic responses by both groups that lead to an outcome. While activists organize support to preserve environmental conditions, miners occupy mining tunnels to save their employment. These tactics show every party's proactive steps to defend its interests and can guide the next initiatives toward peace. It is imperative to control these reactions since the escalation of the dispute could result in higher tensions and possibly violence. Companies ought to consider using adaptive techniques that balance social and environmental obligations and economic gains for mining firms. Solving local issues can entail changing environmental management strategies, increasing openness, and interacting with local populations. Strengthening CSR projects might reduce resistance and foster confidence among nearby populations. Businesses should aggressively support local growth and environmental preservation and meet minimum legal obligations. Companies may counterbalance alternative methods depending on evolving conditions. If environmental rules tighten, businesses might concentrate more on CSR and sustainability. On the other hand, during a recession, they might stress community support and employment stability.

Communities and stakeholders should seek cooperative discussions with mining firms to resolve issues and identify mutually beneficial solutions. These discussions cover joining environmental monitoring and decision-making procedures. In fact, communities can create resilient strategies by diversifying their economic activities and strengthening local networks, therefore augmenting their resilience. This can help them adapt to environmental and economic changes and lessen reliance on mining. Moreover, communities should constantly monitor the effects of mining operations and modify their plans accordingly. This entails keeping current with changes in environmental circumstances, laws, and mining company policy. Stricter environmental rules could cause companies to change their approaches. To meet new criteria and evade regulatory fines, they can, for instance, improve CSR initiatives or embrace more sustainable lifestyles. Companies might prioritize expansion and profitability during economic booms, although cost-cutting and job security might take the front stage during downturns. Depending on their financial situation, communities may also change their plans; for example, they could support better pay during recessionary times. Should conflicts arise, businesses may choose more conciliatory strategies to lower tensions and prevent disruptions. However, groups dealing with growing environmental damage could strengthen their resistance campaigns and look for more forceful policies. The strategies taken by businesses can be influenced by the pressure from local communities, investors, authorities, and other stakeholders. Companies might change their strategy to fit stakeholder expectations and keep their social license to run.

Technological developments and operational practice changes might also cause businesses to implement new approaches. For example,

developing greener technologies could allow businesses to handle environmental issues more successfully. Indeed, the results of this research highlight the difficult character of mining conflicts and the necessity of flexible, context-specific solutions. Understanding the advantages and drawbacks of various approaches helps mining firms and nearby populations negotiate the issue and pursue sustainable solutions. Managing these conflicts will depend critically on the capacity to modify plans depending on changes in regulations, the state of the economy, as well as other relevant elements.

Mining conflicts often arise in areas rich in natural resources, where extraction activities can clash with the interests and well-being of local communities. These conflicts are typically driven by competing demands for land, water, and mineral wealth, leading to tensions between mining companies, governments, and indigenous or rural populations. While economically beneficial, natural resource extraction can result in significant environmental degradation, including deforestation, water contamination, and loss of biodiversity. These environmental impacts threaten the sustainability of ecosystems and the livelihoods of people who depend on them. Addressing mining conflicts requires a balanced approach that considers both the economic benefits of resource extraction and the need for environmental sustainability. This includes implementing stricter regulations, ensuring fair distribution of benefits, and engaging local communities in decision-making processes. Sustainable mining practices are crucial to mitigating conflicts and preserving the environment for future generations (Auteri et al., 2024).

## 6. Concluding remarks

This study has shown that how local actors express their perspectives and positions is crucial in shaping the progress of local mining conflicts. Changes at the national stage can have significant repercussions for these conflicts, especially regarding political and institutional conditions. How local actors express themselves also determines the roles of the individuals involved. As (Virgone et al., 2018) pointed out, reports indicate that government discourses promoting resource extraction may lead to the emergence of counter-discourses and the formation of local resistance. The complex nature of verbal actions in the field of research may help explain why endeavors solely focused on CSR may not always be sufficient in addressing the underlying causes of mining conflicts or why the emotional attachment to a particular place can have both positive and negative consequences. The variations observed within and between local contexts are also evident in conflicting suggestions from previous studies. These suggestions can range from advocating for the inclusion and formalization of indigenous and local concerns, such as by proposing the integration of social impact assessments as a crucial component of ecological influence assessments, to considering this kind of integration as highly unlikely, as suggested by the perspective of "extractive dispossession."

Given the deliberate organization of opposing discursive actions by pro- and anti-mining groups, the current research does not endorse conflict resolution in the study region and similar contexts. The research has revealed how parties engaged in a gold mining dispute in Skouries (Greece) have been involved in discussions regarding the benefits and drawbacks of mining growth, employing a risk calculation as a guiding principle. This involved weighing concerns about ecological influence against those about job opportunities and employment. Risk assessment allowed mining supporters and opponents to assert or maintain their capacity to manage risks. It significantly influenced their explicit and underlying approaches, thereby impacting their perspectives. The policies and viewpoints of the pro-mining group closely mirrored a foreign paradigm since they associated their ties to the local region with the sequential process of open-pit mining and on-site ore processing, which were developed by the mining industry. These enterprises offered employment stability and security via conventional corporate structures typified by a primarily male working environment and ethical framework. A post-Fordist framework that prioritized a business-oriented

mentality typified by varied small-scale manufacturing and a workforce mainly consisting of women influenced the strategies and beliefs of the group opposing mining. The camp prioritized the preservation of favorable ecological conditions as a fundamental requirement. The present research has provided several ideas and tools to analyze how actors situate themselves in discourse and how their interactions lead to mining conflicts in the study area and other mining "frontiers." Additional research is necessary to develop a deeper understanding of these dynamics, namely by thoroughly examining the mechanisms of subordination and the shifts in the subjective identities of the persons involved.

### 6.1. Policy implications

The findings of this research have very substantial policy ramifications for managing mining disputes and promoting sustainable development. These implications can direct local governments, businesses, and legislators in handling the complicated dynamics of mining conflicts. The following represents the main policy implications.

- Policymakers should guarantee that environmental and social impact evaluations are included in mining projects' decision-making process. This integration ought to incorporate evaluations of social implications, including job security, neighborhood well-being, and ecological studies. Comprehensive studies offer a broader picture of the possible effects of mining operations. Therefore, balancing social and environmental expenses with economic gains is substantial. Tackling the issues both pro- and anti-mining groups raise can help lower conflict.

Businesses should be urged or obliged to improve their CSR initiatives to solve local issues and support community development. Good CSR projects can help local populations to develop trust, reduce opposition, and increase the general social license to operate. Businesses that show a real dedication to social and environmental obligations are more likely to be welcomed by their community. Moreover, governments should create policies and systems for CSR operations stressing sustainability, community involvement, and openness. The reward system for tax benefits for businesses that exceed minimal standards and support local growth may be a good initiative. To this extent, legislators should design policies that support and enable significant participation and cooperation among mining corporations, local communities, and other stakeholders. Stakeholder involvement and cooperative communication can help to resolve disputes, match interests, and generate mutually beneficial answers. Including impacted populations in decision-making procedures helps to lower resistance and produce better results.

- Governments should strengthen policies to guarantee responsibility, justice, and openness in mining activities. Open laws can help avoid disputes and guarantee responsible mining practices. Fair rule application guarantees that businesses follow social and environmental criteria and helps generate confidence among locals. Therefore, authorities should review and change mining laws to close gaps and sustain openness. They should consider independent monitoring systems and guarantee that participatory and inclusive regulatory procedures apply.
- Authorities should create and assist channels for conflict resolution between mining corporations and nearby communities. Mediating and resolving conflicts can help settle differences and discover common ground between conflicting parties, leading to more lasting and acceptable solutions

### 6.2. Recommendations for future works

Several areas of future research are suggested to expand on the

insights acquired here and increase knowledge of mining conflicts and risk management. Future studies may compare case studies of several mining areas and settings. By comparing several case studies, spot trends and variations in the management and resolution of mining conflicts may be outlined. This method can help improve the generalizability of results and offer a wider viewpoint on the success of several approaches. Areas with different socioeconomic levels, environmental effects, and stakeholder dynamics may be analyzed to grasp how these elements affect conflict results and risk management. Future analyses may include longitudinal research to monitor the change in mining disputes and their effects across time. Long-term research can help understand how disputes arise, intensify, or settle and how stakeholders' points of view and approaches evolve with time. This strategy can provide insightful analysis of the long-term consequences of mining operations and the sustainability of solutions.

In addition, future studies may measure and evaluate risk perceptions among several stakeholder groups through quantitative techniques. Quantitative analyses can enhance qualitative results by offering statistical evidence on how different stakeholders view and assess the hazards connected with mining operations. This can allow for the degree of risk tolerance or resistance among various groups to be grasped.

Future research may also review the success and influence of mining firms' CSR projects. Evaluating CSR projects will help to ascertain whether they successfully handle local issues, enhance community ties, and support sustainable development. This can offer an understanding of areas for CSR strategy enhancement and best practices. Examining case studies of CSR initiatives in various mining environments will help evaluate their results and community input, fitting local needs and expectations.

Finally, future research may investigate subjectivity techniques and how they affect stakeholder identities and behavior in mining conflicts. Knowing how subjectivity shapes stakeholders' identities and actions helps one to grasp the underlying dynamics and reasons of conflict. This can guide approaches to handling and settling conflicts. Moreover, effective policies are essential to solve mining conflicts and guarantee responsible mining operations. Examining current policies and suggesting new ones can help to improve their relevance and potentiality. Furthermore, researchers may analyze the application and effects of mining regulations in different environments and provide fresh policy frameworks that handle opportunities and growing issues.

### CRediT authorship contribution statement

**Cosimo Magazzino:** Conceptualization, Data curation, Methodology, Writing – original draft, Writing – review & editing, Formal analysis, Funding acquisition, Investigation, Project administration, Resources, Supervision, Validation, Visualization.

### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### Data availability

Data will be made available on request.

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