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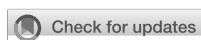
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Artisanal cobalt mining communities in the Democratic Republic of the Congo: resilience against cannibal capitalism

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Artisanal cobalt miners in the Democratic Republic of the Congo (DRC) confront exploitative working conditions, hazardous labor, and societal degradation. This paper employs Nancy Fraser's cannibal capitalism framework to both theorize and empirically ground an analysis of artisanal cobalt mining in the DRC. Critical discourse analysis of documentary evidence demonstrates the harmful effects of capitalist extraction on social reproduction, democratic institutions, and environmental sustainability. Beyond theoretical application, this research contributes new empirical insights into the debate on extractivism and responsible minerals sourcing, revealing how capitalist systems systematically extract value from both human labor and environmental resources. Located at the intersection of human settlements, resources, and law, this research focuses on transformative policies and legal frameworks that prioritize equitable resource governance, social justice, and human rights. By centering community voices and examining both exploitation and resistance practices, this paper fosters understanding of long-term and equitable development pathways in the DRC and contributes to critical conversations about extractive industries by underlining linked oppressions and the necessity of community-led initiatives.

KEYWORDS

artisanal cobalt miners, cannibal capitalism, DRC, extractivism, mining communities, resilience

1 Introduction

As the global demand for clean energy surges, artisanal mining plays a critical yet often overlooked role in the global supply chain of cobalt. While large-scale operations dominate the industry visibly, artisanal mining contributes between 10% and 30% of cobalt output in the Democratic Republic of Congo (DRC) (Horn et al., 2020), where the country controls over 70% of the world's cobalt reserves. The demand for cobalt has escalated dramatically in recent decades, driven primarily by the global transition toward clean energy technologies and the production of lithium-ion batteries for electric vehicles and electronic devices. Between 2000 and 2020, the demand for cobalt to manufacture batteries increased 26-fold, with China alone increasing its cobalt refinery production 78-fold during this period. Despite this critical contribution to the global economy, artisanal mining remains an informal activity characterized by human rights abuses, environmental degradation, and unsafe working conditions (Baumann-Pauly, 2020; Amnesty International, 2016).

This paper pursues two interconnected and mutually reinforcing objectives: (1) to empirically ground Nancy Fraser's theoretical concept of cannibal capitalism through detailed analysis of artisanal cobalt mining in the DRC, thereby making an original contribution to extractivism debates; and (2) to provide new empirical insights into the systemic nature of capitalist extraction and the mechanisms through which multinational corporations and local elites benefit while artisanal miners remain trapped in poverty and hazardous conditions. Rather than merely applying theory to predetermined data, this paper demonstrates how the lived experiences of artisanal miners both substantiate and complicate Fraser's theoretical framework, revealing insights into capitalist exploitation mechanisms and possibilities for resistance and transformation.

Specifically, this paper examines three key case study locations—Lubumbashi, Kolwezi, and Likasi–Goma—where artisanal cobalt mining is most prevalent in the DRC. Through critical discourse analysis of documentary evidence, the paper reveals how capitalist systems devour human and environmental resources in the pursuit of profit, while simultaneously documenting the agency, resilience, and collective organizing efforts of mining communities. The paper argues that understanding extractivism in the Global South requires moving beyond descriptions of victimhood to recognize how marginalized communities actively resist and reimagine their futures even within structurally constrained circumstances (Beaule, 2023).

2 Literature review

This section explores Fraser (2019) critique of capitalism through the lens of her cannibal capitalism theory, which examines the destructive dynamics of contemporary capitalism. It delves into the exploitation of human and environmental resources, the reproduction of inequality, and the urgent need for transformative justice. The section further expands Fraser's framework to situate cobalt mining in the DRC as a critical site of both exploitation and potential resistance. Connecting Fraser's theory to the realities of artisanal mining in the DRC highlights both the systemic challenges and opportunities for fostering equitable and sustainable practices in resource extraction.

2.1 Cannibal capitalism

Fraser (2019) concept of cannibal capitalism provides a critical framework for understanding the exploitation and degradation associated with resource extraction. Cannibal capitalism focuses on how capitalism requires and relies on non-economic zones—including social reproduction, nature, and democratic institutions—while simultaneously cannibalizing them, creating a vicious cycle of destruction and dependency (Hill, 2011). Croce (2023) posited that capitalism relies on non-economic zones and is cannibalizing them, creating a destructive cycle. Glaesser (2023) explored the pervasiveness of capitalism and suggested practical solutions, including universal basic income and reduced market roles, to end cannibal capitalism and its crises. In her analysis, Fraser critiqued how capitalist economies extract value from both human labor and natural resources, ultimately leading to social and environmental degradation.

In particular, Fraser outlined how capitalist extraction is inherently cannibalistic, devouring its own social and environmental

foundations to sustain a system of continuous profit accumulation. This framework is particularly relevant in the context of artisanal cobalt mining in the DRC, where miners work in unsafe conditions for meagre wages, while multinational corporations and local elites benefit from the wealth generated by cobalt extraction (Kara, 2023). According to Fraser, capitalist systems operate by devouring both human labor and the environment, often prioritizing profit over social justice and sustainability. In the artisanal mining sector in the DRC, this exploitation is evident in the low wages (Keaney, 2023), poor working conditions, and lack of social protection for miners, while multinational companies such as Zijin Mining and Glencore reap significant profits.

2.2 Fraser's critique of capitalism: theoretical framework and critical engagements

Fraser's concept of cannibal capitalism is built on a multi-stranded critique of neoliberal capitalism and its destructive effects on both people and the environment. Her framework combines three distinct but interconnected critiques: (1) a functionalist critique of capitalism's tendencies toward crisis; (2) a normative critique of domination and injustice; and (3) a political critique of unfreedom. At the heart of her theory is the idea that capitalism is an inherently exploitative system that thrives by commodifying both human labor and natural resources. In this system, the extraction of wealth occurs at the expense of laborers, natural resources, and ultimately, the socio-ecological balance of the communities involved.

However, like all theoretical frameworks, Fraser's approach has limitations that warrant explicit engagement. Bueno (2017) noted that the critique of capitalism by Fraser oscillates between two incompatible standpoints and may neglect important destabilizing tendencies within the system. According to Conroy (2022), Fraser's critique of capitalism fails to adequately theorize how capitalist crises are produced and resolved in space and obscures the relational-dialectical constitution of spatial processes. Eversberg et al. (2023) argued that Fraser's conception of capitalism and emancipation requires refinement to accurately address contemporary capitalist crises, particularly regarding how transformative justice operates across different geographical and institutional scales.

These critiques are not peripheral to our analysis but rather central to understanding the limits and possibilities of applying Fraser's framework to artisanal mining in the DRC. While Fraser's cannibal capitalism concept excellently illuminates exploitation mechanisms and the systemic nature of capitalist extraction, it may undertheorize the spatial dynamics through which value is extracted and redistributed across global supply chains. Additionally, Fraser's emphasis on systemic victimhood and structural domination, while analytically powerful, may obscure the agency, resistance practices, and alternative institutional arrangements that mining communities develop. Our empirical analysis both confirms and complicates Fraser's theory by documenting how artisanal miners simultaneously experience systematic exploitation, and engage in collective organizing, cooperative formation, and community-led resistance.

2.3 Human and environmental exploitation

Fraser's framework highlighted how capitalist systems extract value not just from labor, but also from the environment, compounding

inequalities and environmental degradation. In the DRC, this theory is particularly relevant in the context of artisanal cobalt mining. Miners often work under informal, unregulated conditions that expose them to life-threatening hazards such as toxic chemical exposure, dangerous mine collapses, and long-term health issues. The environmental impact of cobalt extraction is equally severe. The process involves significant earth removal without consideration for ecological consequences, resulting in widespread deforestation, soil erosion, and contamination of local water sources with toxic substances such as sulfuric acid and heavy metals. These environmental harms primarily benefit multinational corporations that profit from cobalt, while local communities bear the ecological costs (World Bank, 2021). This situation aligns with Fraser's understanding of capitalism's consumption of essential resources, destabilizing both social and ecological systems.

2.4 Capitalism and the reproduction of inequality

Fraser (2017) analysis highlighted the role of capitalist extraction in perpetuating inequality, particularly evident in the cobalt mining sector of the DRC. In this context, multinational corporations, local intermediaries, and state actors derive substantial profits from cobalt, while the artisanal miners who extract it remain impoverished. These miners endure long hours under hazardous conditions, yet they receive only a fraction of the wealth generated from their labor (Curty, 2020). Multinational corporations such as Zijin Mining and Glencore are central to this exploitation, often depending on artisanal mining operations to enhance their formal extraction activities while maintaining distance from direct responsibility.

Fraser's concept of cannibal capitalism illustrates how capitalist economies not only extract resources but also undermine local communities' potential for sustainable development. In the DRC, this is reflected in the persistent poverty faced by artisanal miners, who are largely excluded from the formal economy and lack access to essential services such as education and healthcare. The governance structures in the DRC, often swayed by corporate interests, fail to meet community needs, exacerbating poverty cycles (Balyaminu, 2025). Capitalism, as practiced in this context, resembles organized crime more than a system based on natural laws, rooted in land dispossession, privatization, and colonial legacies.

2.5 Fraser's call for transformative justice

A critical aspect of Nancy Fraser's theory is her call for transformative justice, a framework advocating for political and economic reforms that address not only economic disparities but also social and environmental degradation. For Fraser (2008), this involves more than mere wealth redistribution; it necessitates a fundamental rethinking of how resources are governed, produced, and consumed. Transformative justice is characterized by a system devoid of punitive measures and repressive forms of social control, instead promoting peace and social justice (Daly, 2002). Unlike transitional justice approaches that focus narrowly on individual accountability, transformative justice addresses the root causes of structural human rights violations and systemic exploitation.

Evans (2018) argued that transformative justice employs a different toolkit, incorporating networks of social movements, non-governmental organizations, and trade unions to remedy structural violations of human rights. This approach emphasizes reconciliation tailored to

specific contexts and responsive to transitional conditions. In the context of artisanal cobalt mining in the DRC, transformative justice would necessitate a radical shift in governance over cobalt resources. This could involve policies prioritizing the welfare of miners and local communities, ensuring fair wages, access to healthcare, and participation in resource management. Furthermore, it would require developing sustainable mining practices that minimize environmental harm and ensure equitable sharing of long-term benefits among all stakeholders.

2.6 On the tension between systemic critique and reform: expanding Fraser's vision

We recognize a tension that critics have identified between systemic critique and reformist solutions, and we address this explicitly. While our paper employs Fraser's systemic critique of capitalism's inherent exploitative nature, our policy recommendations necessarily operate at the level of structural reform rather than systemic transformation. However, we argue that this does not represent a contradiction but rather reflects how transformative justice itself functions as a bridge concept. Transformative justice—as Fraser herself conceptualizes it—operates precisely at the intersection of immediate material improvements and longer-term systemic change.

Our recommendations for corporate accountability, equitable resource governance, and community-led initiatives represent not abandonment of systemic critique but rather intermediate steps toward genuine transformation. To strengthen this analysis, we have integrated insights from David Harvey's work on spatial production and accumulated dispossession, which illuminates how local-level extraction connects to global processes of capital accumulation. Additionally, Martín Arboleda's concept of the "planetary mine" helps theorize how artisanal mining in the DRC is embedded within planetary-scale processes of resource extraction and environmental destruction. These frameworks suggest that improvements in artisanal miners' working conditions, while necessary and important, must be understood within larger systemic transformations in how resources are governed globally. Thus, incremental improvements are both necessary AND insufficient—a position consistent with transformative justice approaches and with the theoretical insights of contemporary critical geography.

2.7 Expanding Fraser's theory: cobalt mining as a site of resistance

While Fraser's theory centered on the destructive nature of capitalist extraction, it also opens space for resilience and resistance. Despite the oppressive conditions they face, artisanal miners in the DRC continue to demonstrate resilience, forming informal networks of solidarity and support. These communities often engage in forms of collective action, such as organizing protests or negotiating for better working conditions, which represent a form of resistance against the exploitation described in Fraser's theory. Artisanal miners in South-Kivu in the DRC resist dispossession by multinational corporations through both words and actions, highlighting the need for closer attention to their practices and discourses.

Community-led initiatives, such as cooperatives and local advocacy groups, have emerged as a response to the inequalities perpetuated by both multinational corporations and the DRC state. These

initiatives seek to challenge the status quo and demand more equitable systems of resource governance (Nederman, 2008; Nocella, 2011). By expanding Fraser's framework to include these forms of resistance, this paper highlights the agency of artisanal miners, even in the face of systemic oppression. Their resilience and efforts to create more equitable conditions offer a hopeful vision of what transformative justice might look like in the context of the artisanal mining sector of the DRC.

2.8 Connecting Fraser's theory to artisanal mining reality in the DRC

Nancy Fraser's cannibal capitalism theory provides a critical framework for understanding the entrenched inequalities and exploitation within the artisanal cobalt mining sector in the DRC. This theory highlights how capitalist systems prioritize profit over human welfare and environmental sustainability, leading to severe consequences for marginalized communities and ecosystems. In the context of the DRC, this framework illuminates how artisanal miners, operating in regions such as Kolwezi and Lubumbashi, face precarious working conditions that reflect broader dynamics of systemic exploitation. Artisanal miners in the DRC often endure hazardous environments where exposure to toxic substances leads to long-term health challenges. The informal and unregulated nature of this sector exacerbates these risks, perpetuating cycles of poverty, social degradation, and ecological harm. Such conditions exemplify what Fraser described as the devouring nature of capitalism, which consumes both human and natural resources with little regard for their intrinsic value.

The artisanal mining sector in the DRC is particularly vulnerable to these dynamics, given the global demand for cobalt in technologies such as electric vehicle batteries—a demand that has yet to translate into tangible benefits for local communities. Fraser's theory also offers a vision for transforming these exploitative systems, centered on the empowerment of local communities and ensuring they have agency in shaping the development of their natural resources. This involves holding corporate actors accountable and adopting sustainable and responsible mining practices.

3 Methodology

This study employed a qualitative methodology, using critical discourse analysis combined with content analysis to examine documentary evidence on artisanal cobalt mining in the DRC. Documentaries served as primary data sources, offering rich visual and narrative insights into the lived experiences of artisanal miners in the case study regions of Lubumbashi, Kolwezi, and Likasi–Goma. Produced by journalists, international media outlets, and non-governmental organizations, these documentaries provided firsthand accounts from multiple stakeholders: miners, community leaders, activists, corporate representatives, and government officials.

3.1 Documentary selection and sampling strategy

A total of 10 documentaries were purposively selected based on three explicit inclusion criteria: (1) direct relevance to cobalt mining in the DRC; (2) substantive focus on exploitative labor conditions and

miners' lived experiences; and (3) clear depiction of broader sociopolitical dynamics of the mining sector, particularly from perspectives of the Global South. This purposive sampling strategy ensured that selected documentaries provided rich contextual information about artisanal mining realities while representing diverse production perspectives (journalistic, NGO-based, activist-oriented).

3.2 Data sources and ethical considerations

All documentaries were sourced from publicly accessible YouTube channels, ensuring ethical compliance and transparency. However, the research acknowledges potential biases inherent in documentary production, including journalistic sensationalism, selective framing, and potentially limited representation of diverse stakeholder perspectives. To mitigate these limitations, the analysis incorporated Fraser's cannibal capitalism framework as a critical lens to balance journalistic portrayals with structural analyses of inequality and systemic exploitation.

3.3 Analytical procedures: content analysis and critical discourse analysis

Two complementary analytical methods were employed.

3.3.1 Content analysis

Systematic content analysis was conducted to identify recurring thematic categories across the documentary corpus. Predefined thematic codes included: (one) hazardous working conditions; (two) economic exploitation and wage theft; (three) environmental degradation; (four) power dynamics within the cobalt supply chain; (five) community resistance and collective organizing; and (six) alternative institutional arrangements (cooperatives, advocacy groups). While this study did not employ software-assisted coding tools such as Atlas.ti or MAXQDA, thematic analysis was conducted through systematic manual coding based on iterative reading and comparison across all documentaries. We recognize that software-assisted coding could enhance systematic rigor and reproducibility; this remains a methodological consideration for extended longitudinal research on this topic.

3.3.2 Critical discourse analysis

Complementing content analysis, critical discourse analysis was employed to scrutinize the language, narrative frames, and ideological positions embedded in documentary representations. This approach, grounded in Fairclough (2013) framework, examined how power relations were embedded in representations of miners, corporations, and resource management practices. The analysis highlighted both explicit claims and implicit assumptions made by filmmakers, exposing how documentaries constructed narratives around injustice, resilience, and possibilities for change. Critical discourse analysis revealed how language choice, visual framing, and narrative sequencing reinforced or challenged particular understandings of mining practices and stakeholder relationships.

3.4 Data management and interpretation

All documentaries were transcribed in full, and transcripts were analyzed for recurring thematic and linguistic patterns. Analysis

proceeded through multiple iterative readings, with emerging themes compared and refined across the full documentary corpus. Insights gained from both content analysis and critical discourse analysis were systematically contextualized within the socioeconomic and environmental realities of artisanal mining practice in the DRC, as documented in scholarly literature and policy reports. Theoretical interpretation employed Fraser's cannibal capitalism framework as an organizing lens while remaining attentive to empirical material that complicated, extended, or, exceeded this framework.

4 Empirical findings

The findings of this research revealed a series of interconnected issues faced by artisanal cobalt mining communities in the DRC, all of which both substantiate and complicate Nancy Fraser's cannibal capitalism theory. This section presents findings organized around four major thematic axes that emerged from discourse analysis: (1) hazardous working conditions and occupational risks; (2) economic exploitation and wealth concentration; (3) environmental degradation and ecological harm; and (4) power dynamics, resistance, and community agency.

4.1 Hazardous working conditions and lack of occupational protection

One of the most prominent themes across the documentaries was the severe and systematic hazards faced by artisanal miners. Miners are often forced to work in deep, poorly ventilated shafts with minimal or no safety equipment. Many are exposed to harmful chemicals, particularly sulfuric acid and other toxic substances used in informal refining processes, which can lead to long-term respiratory disease, chemical burns, and neurological damage. Accidents and injuries, including fatalities from mine collapses, flooding, and explosions, are common occurrences in artisanal mining sites. Despite these extreme risks and the life-threatening nature of their work, miners continue to labor in these dangerous conditions due to the absence of alternative livelihood opportunities and the structural poverty that compels participation in extractive work (World Bank, 2021).

The documentary evidence demonstrates that occupational hazards are not accidental byproducts of informal mining but rather structural features of an extractive system that externalizes health costs onto workers. Companies and government regulators bear minimal responsibility for worker safety, creating a moral hazard where cost-cutting measures directly translate into worker suffering. This finding substantiates Fraser's argument that capitalism systematically consumes human resources—in this case, literally consuming workers' bodily integrity and health—in pursuit of profit accumulation.

4.2 Exploitation, poverty, and wealth concentration

Another key finding is the widespread economic exploitation and systematic poverty faced by artisanal miners despite the immense value they produce. While the cobalt reserves of the DRC generate billions in global wealth, artisanal miners remain trapped in severe poverty. They receive only a fraction of the value of the cobalt they extract, often earning between \$0.50 and \$3 per day, while middlemen

and corporate actors capture the lion's share of profits (Ivanova, 2018). The global price of cobalt has increased dramatically, yet wages for artisanal miners have stagnated or declined in real terms. Miners live in substandard housing without access to basic healthcare, education, or social services. Many experience malnutrition and food insecurity, while simultaneously producing one of the world's most valuable commodities.

This pattern of wealth extraction and poverty reproduction exemplifies Fraser's theory of cannibal capitalism. Multinational corporations profit from cobalt extraction while bearing no responsibility for workers' welfare or community development. This aligns with Jodhka et al. (2017), who submit that multinational corporations operate freely in the mining sector. The documentary evidence reveals the active mechanisms through which value is transferred from miners to distant corporations: opaque pricing structures, wage suppression through monopsonistic buyer power, debt servitude through informal credit arrangements, and exclusion from participation in supply chain governance. This finding contributes new empirical detail to debates on extractivism by documenting precisely how capitalist mechanisms of value extraction operate at the artisanal mining scale, which is often overlooked in analyses focused on large-scale industrial mining.

4.3 Environmental degradation and ecological destruction

The environmental consequences of cobalt mining were extensively documented across the film corpus. The extraction process involves the removal of massive quantities of earth, often without any consideration for ecological consequences. This results in widespread deforestation, soil erosion, and the complete transformation of landscapes. Water sources near mining sites are frequently contaminated with toxic substances—including sulfuric acid, heavy metals, and other chemical residues—rendering them unusable for drinking, irrigation, or fishing. Groundwater contamination threatens long-term agricultural productivity. This degradation not only harms local ecosystems but also devastates community livelihoods by destroying access to clean water and productive land (Dean and McMullen, 2007).

The environmental harm is distributed unequally: multinational corporations that profit from extraction enjoy the economic benefits while bearing minimal environmental liability, while local communities bear the full ecological costs. Children in mining communities suffer from elevated rates of toxic exposure and disease. Ecosystems that took generations to develop are destroyed in years. This finding illustrates what Fraser describes as capitalism's consumption of its own environmental foundations—the destruction of nature necessary for long-term human survival in pursuit of short-term profit accumulation.

4.4 Power dynamics in the cobalt supply chain: corporate dominance and state complicity

Through critical discourse analysis, the research revealed the complex and asymmetrical power dynamics that shape the artisanal mining sector (Geenen, 2014). Multinational corporations—including major firms such as Zijin Mining, Glencore, and others—often publicly claim to support the development of local communities and responsible supply chain practices. However, their actual involvement in the cobalt supply chain reveals a primary focus on profit extraction

with minimal commitment to worker welfare or environmental protection (Ojewale, 2024). Supply chain arrangements systematically transfer risk and responsibility away from large corporations toward informal actors, workers, and communities.

Government officials at national, provincial, and local levels are deeply complicit in maintaining this exploitative status quo. Despite regulatory frameworks that nominally protect workers and the environment, enforcement is minimal or absent. Officials often benefit personally from mining operations through corruption, kickbacks, and informal arrangements. Regulatory capture—where corporate interests effectively control the agencies meant to regulate them—is widespread. At the same time, individual artisanal miners are left almost entirely powerless to negotiate for better wages, safer working conditions, environmental protection, or meaningful participation in decisions affecting their communities and resources.

However, the documentary evidence also reveals significant community agency and resistance. Despite systematic disadvantages, mining communities organize collectively, form cooperatives, engage in labor organizing, and advocate publicly for their rights. These resistance practices represent both practical responses to exploitation and political assertions of dignity and agency. This finding complicates Fraser's theoretical framework by revealing how communities simultaneously experience structural domination and develop counter-hegemonic practices that challenge capitalist extraction patterns.

5 Discussion

5.1 Empirical substantiation and theoretical complication of Fraser's framework

The findings presented in this paper resonate deeply with the theoretical framework established by Nancy Fraser (Fraser and Monticelli, 2021; Fraser et al., 2024; Fraser, 2014). The concept of cannibal capitalism, as articulated by Fraser, underscores the exploitative nature of capitalist systems that prioritize profit over social and environmental welfare. This paper illustrated how artisanal miners, while essential to cobalt extraction, remained marginalized and impoverished, receiving minimal compensation for their labor. This aligns with Fraser's assertion that capitalist economies extract resources while undermining the potential of local communities for sustainable development, perpetuating cycles of poverty and inequality.

Furthermore, the paper highlighted the human and environmental exploitation inherent in artisanal mining practices. Miners are subjected to hazardous working conditions, echoing critiques from scholars like Sovacool, (2019), Sparsam et al. (2014), Stybnarova, (2023), Umpula and Bisil, (2023), Tsurukawa et al. (2011), who emphasized the life-threatening risks associated with unregulated mining environments. The environmental degradation resulting from these practices—soil contamination, deforestation, water pollution—reflects Fraser's framework that critiqued capitalism's consumption of essential resources. This destructive cycle affects miners and devastates local ecosystems, reinforcing the need for a transformative approach to resource governance that prioritizes both human rights and ecological sustainability.

At the same time, our empirical material complicates Fraser's framework in important ways. While Fraser's emphasis on systemic domination and structural exploitation is analytically powerful and

empirically grounded in our findings, it may undertheorize the agency, resistance practices, and alternative institutional arrangements that mining communities actively develop. The documentary evidence reveals miners and communities not simply as victims of exploitation but as conscious agents who organize collectively, form cooperatives, contest corporate narratives, and imagine alternative futures. This dimension of agency and resistance suggests that while Fraser's framework excellently illuminates capitalist extraction mechanisms, additional theoretical frameworks may be needed to adequately capture how subaltern communities generate counter-hegemonic practices and alternative institutional possibilities within and against capitalist structures.

5.2 Reproduction of inequality and global patterns of capitalist exploitation

In examining the reproduction of inequality, this paper drew parallels between the artisanal cobalt mining sector of the DRC and broader global patterns of capitalist exploitation. This claim is clearly shown in the works of Patnaik (2015), Rehbein (2020), Wisman (2014). The concentration of wealth among multinational corporations and local elites at the expense of impoverished miners exemplified Fraser's critique of how capitalist structures perpetuate social disparities. As highlighted by Banza et al. (2009) and more recent scholarship on responsible minerals sourcing, the systemic inequalities within the cobalt supply chain demonstrate a stark contrast between corporate profits and miner poverty. This scenario is not unique to the DRC; it mirrors global trends where capitalist practices reinforce social hierarchies and economic disparities (Cicerchia, 2022).

However, the specific mechanisms of wealth extraction in artisanal mining deserve particular attention. Unlike large-scale industrial mining where workers have formal employment relationships and some minimal labor protections, artisanal miners are almost entirely outside formal regulatory frameworks (Balyaminu, 2025; Gulley, 2023). This informality creates unprecedented opportunities for wealth extraction: wage suppression, contract violations, health cost externalization, and environmental liability avoidance (Deberdt, 2021; Evans, 2016; UN Security Council, 2001). Understanding artisanal mining thus provides critical insight into how capitalism operates when institutional constraints are minimal—revealing the "nature" of capitalist accumulation more starkly than occurs in more regulated formal sectors.

5.3 Addressing the critique-reform tension: limitations and possibilities of transformative justice

The paper emphasizes Fraser's call for transformative justice as a necessary response to the challenges faced by artisanal mining communities. By advocating for political and economic reforms that address both economic disparities and social injustices, Fraser's framework offered a pathway toward equitable resource governance. The findings suggested that without significant reforms in governance and corporate accountability, opportunities for sustainable development will remain unrealized. This aligns with Evans (2018), who argued for a comprehensive rethinking of resource management that transcends mere wealth redistribution to foster genuine social justice.

We acknowledge that a tension exists between the systemic critique of capitalism embedded in Fraser's theory and the intermediate reforms proposed in this paper's recommendations. However, we argue this tension is not a theoretical contradiction but rather reflects the nature of

transformative justice itself. Transformative justice operates as a bridge concept that connects immediate, necessary improvements in material conditions (workplace safety, fair wages, environmental protection) to longer-term systemic transformation in how resources are governed and how value is distributed. Our recommendations for corporate accountability, community participation in governance, and sustainable mining practices represent steps toward genuine transformation rather than mere accommodation to capitalism.

Moreover, we recognize that local-level improvements must be situated within planetary-scale processes of extraction and capital accumulation. Drawing on Harvey's (2005) analysis of accumulation by dispossession and Arboleda (2020) concept of the "planetary mine," we argue that transformations in artisanal mining governance must be connected to broader challenges in how resources are governed globally and how capitalist expansion into non-commodified domains can be resisted. Thus, while our specific policy recommendations operate at the level of structural reform, they are framed within a larger vision of systemic transformation.

5.4 Integration of theoretical critique and empirical analysis

Throughout the discussion, we have systematically engaged with theoretical critiques of Fraser's framework and demonstrated how empirical material both substantiates and complicates her theory. Regarding hazardous working conditions: Fraser's cannibal capitalism framework effectively explains why multinational corporations externalize health costs onto workers, but the empirical material reveals that workers simultaneously develop informal safety practices and mutual aid networks that suggest agency and collective efficacy beyond simple victimhood. Regarding reproduction of inequality: our data confirms Fraser's account of wealth concentration, but the community-led initiatives and cooperative movements documented in the analysis suggest resistance possibilities and alternative institutional arrangements that merit greater theoretical attention than Fraser's framework provides.

Regarding environmental degradation, the documentary evidence substantiates Fraser's claim that capitalism destroys ecological foundations, but also reveals how communities mobilize environmental knowledge and practices to resist degradation and imagine sustainable alternatives. Thus, rather than applying Fraser's theory as an *a priori* template, we have demonstrated how empirical material enriches, complicates, and extends her theoretical insights while identifying dimensions that require additional theoretical development.

5.5 Implications for extractivism debates

This paper contributes new empirical insights to debates on extractivism by documenting in detail how capitalist value extraction operates at the artisanal mining scale. Most scholarship on extractivism focuses on large-scale industrial operations; this analysis illuminates the specific mechanisms through which value is extracted from informal artisanal miners. The research reveals that informality is not incidental to extractivism but rather central to maximizing profit extraction by minimizing workers' protections and corporate liability. Understanding artisanal mining thus provides critical insight into the "nature" of extractive capitalism when institutional constraints are minimal.

Furthermore, by centering community voices and resistance practices, this paper contributes to scholarship that moves beyond documenting victimhood to recognize how marginalized communities

actively contest and reimagine extractivism. The documentary evidence reveals mining communities not as passive objects of extraction but as conscious agents generating collective responses. This perspective enriches extractivism debates by highlighting possibilities for alternative institutional arrangements and community-led development pathways.

6 Conclusion and recommendations

Artisanal cobalt mining communities in the DRC face significant and multifaceted challenges, including exploitative working conditions, hazardous labor, environmental degradation, and systematic exclusion from governance processes. Using Nancy Fraser's theory of cannibal capitalism as an analytical framework, this paper has demonstrated how capitalist systems devour both human labor and natural resources, contributing to widespread exploitation, inequality, and environmental destruction. The research has shown that these problems are not accidental or incidental to mining but rather structural features of an extractive system designed to maximize profit by externalizing costs onto workers and communities. Simultaneously, the paper has documented the resilience, agency, and resistance practices through which mining communities contest these dynamics and imagine alternatives.

The research highlights the urgent need for transformative policies that prioritize equitable resource governance, social justice, and human rights. Drawing on evidence from this study and theoretical insights from transformative justice scholarship, this paper recommends the following seven-points:

- 1 Transformative Policies and Legal Frameworks: Governments and international organizations should prioritize development of transformative policies and legal frameworks that promote equitable resource governance, social justice, and human rights. These frameworks should move beyond incremental reforms to fundamentally redistribute power and decision-making authority to mining communities. Specifically:
 - Establish participatory governance structures that give artisanal miners and affected communities direct authority over resource management decisions.
 - Implement mandatory profit-sharing mechanisms that ensure equitable distribution of wealth generated from cobalt extraction.
 - Strengthen and enforce occupational health and safety standards with worker-led monitoring and accountability mechanisms.
 - Recognize miners' rights to organize collectively and engage in collective bargaining.
- 2 Community-Led Initiatives and Institutional Innovation: Support and actively empower community-led initiatives to promote sustainable and equitable development in artisanal mining communities. Such initiatives should include:
 - Cooperatives and producer associations that give miners direct control over supply chain participation and pricing.
 - Community-controlled research and monitoring initiatives to document working conditions and environmental impacts.
 - Local advocacy organizations that amplify community voices in national and international policy processes.

- Youth-focused programs that develop skills for alternative economic activities and sustainable livelihoods.
- 3 Corporate Accountability and Supply Chain Transparency: Corporate actors must be held accountable for their actions and ensure that they prioritize the wellbeing and resilience of artisanal mining communities. Mechanisms should include:
 - Mandatory independent auditing of labor practices and environmental standards across entire supply chains.
 - Legal liability frameworks that hold multinational corporations responsible for labor and environmental harms in supply chains they benefit from.
 - Transparency requirements for pricing, profit distributions, and corporate decision-making processes affecting mining communities.
 - Binding commitments to fair pricing that reflects the full social and environmental costs of extraction.
- 4 Education, Skills Development, and Alternative Livelihoods: Develop educational programs aimed at improving miners' skills and knowledge about safe mining practices, workers' rights, environmental conservation, and alternative livelihood opportunities. Programs should:
 - Provide training in occupational health and safety with particular attention to hazard recognition and worker-led safety organizing.
 - Support vocational training in sectors offering alternatives to mining (agriculture, tourism, manufacturing, services).
 - Develop literacy and numeracy programs enabling miners to understand supply chain economics and participate effectively in pricing negotiations.
 - Create spaces for intergenerational knowledge sharing about pre-mining livelihoods and sustainable resource use.
- 5 Sustainable Mining Practices and Environmental Justice: Promote environmentally friendly mining techniques that minimize ecological damage and ensure environmental justice for affected communities. Specific measures should include:
 - Support research and field testing of extraction methods that reduce toxicity and environmental footprint.
 - Establish community-controlled environmental monitoring systems with direct accountability to affected residents.
 - Implement mandatory environmental remediation and land restoration programs with community oversight.
 - Recognize and support traditional ecological knowledge and sustainable resource management practices.
- 6 International Advocacy and Global Standards: Mobilize international organizations and non-governmental organizations to advocate for the rights of artisanal miners in the DRC and establish global standards protecting vulnerable workers in the mining sector. Actions should include:
 - Campaign for international legal frameworks recognizing miners' rights to living wages, safe conditions, and participation in governance.
 - Support documentation of human rights violations and environmental crimes for potential transitional justice mechanisms.
 - Amplify community voices in international forums addressing minerals, extractivism, and climate change.
 - Build solidarity networks connecting artisanal miners across regions and countries to share organizing strategies and best practices.
- 7 Reflexivity on Reform Limitations and Systemic Transformation: We recognize that these recommendations,

while substantive and necessary, operate largely at the level of structural reform rather than systemic transformation of capitalism itself. This reflects not a capitulation to capitalist logics but rather a realistic assessment of immediate possibilities combined with commitment to longer-term systemic change. The recommendations should be understood as steps toward genuine transformation rather than permanent endpoints. They represent necessary improvements that will expand the possibilities for community wellbeing and agency while creating space for imagining and constructing more fundamental alternatives to extractive capitalism.

7 Future research directions

This research has illuminated critical dimensions of artisanal cobalt mining in the DRC while also identifying important areas for future investigation:

- Comparative Analysis with Degrowth and Post-Development: Future research should examine how degrowth literature (Kallis, Hickel, D'Alisa) and Latin American debates on extractivism and post-development (Acosta, Gudynas, Machado) might enrich and complicate the analysis of alternatives to extractive capitalism in the DRC context.
- Longitudinal Ethnography: Extended ethnographic research documenting changes in mining practices, community organizing, and corporate responses over time would provide deeper insight into processes of resistance and transformation.
- Spatial Analysis: Research employing spatial methodologies and analyzing planetary-scale processes of mineral extraction would help situate artisanal mining within broader geographies of capitalist accumulation and environmental destruction.
- Intergenerational Analysis: Research examining how different generations of miners and their families experience and contest extractivism, including youth perspectives on alternatives, would enrich understanding of possibilities for change.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Author contributions

JB: Conceptualization, Formal analysis, Investigation, Methodology, Resources, Supervision, Validation, Writing – original draft, Writing – review & editing. TNM: Conceptualization, Data curation, Formal analysis, Methodology, Project administration, Resources, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. TM: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Visualization, Writing – original draft, Writing – review & editing.

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Conflict of interest

The author(s) declared that this work was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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