



Men of contamination. Masculinities, care and extraction in the artisanal and small-scale mining geographies of the Bajo Cauca and Nordeste of Antioquia regions (Colombia)

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ARTICLE INFO

Keywords:

Artisanal gold mining
Masculinities
Care
Toxic contamination
Mercury
Colombia

ABSTRACT

Scholarship in Feminist Political Ecology (FPE) in Latin America has extensively investigated the ways in which gender frames the everyday life experiences of racialised and marginalised social actors in the geographies of natural resource extraction. Yet, research on extractive masculinities remains limited and, in environmental policy arenas in Latin America, fixed representations of men as contaminating and environmentally damaging continue to inform artisanal and small-scale mining (ASM) policies. In this paper, we conduct an ethnographic investigation of the forms of masculinity that emerge in the geographies of artisanal, small-scale gold mining in Colombia and locate them in the ambiguous intersections between extraction and care. We investigate the processes of gendered subjectivity-making that unfold through everyday relations with a precarious and toxic environment to conceptualise masculinity as a complex technology of the self that regulates social relations in extractivist regions. Drawing on long-term ethnographic fieldwork conducted in the Bajo Cauca and Nordeste regions in Antioquia (Northern Colombia), this paper contributes to debates on extractive subjectivities in Latin American FPE in two ways. In the first place, it conceptualises extractive masculinities as dynamic, heterogeneous and ambiguously located at the intersection between extraction and processes of place-making. Secondly, it contributes to expanding debates on care in complex socio-environmental settings by analysing the role played by men in sustaining processes of social reproduction and reconceptualising the geographies of care in territories of extraction beyond the private space of the home and feminised practices of domestic labour.

1. Introduction

Scholarship in Latin American Feminist Political Ecology (FPE) has extensively discussed the relationship between gendered categories of identity and extractivist economies, investigating the processes of subject formation that unfold in the geographies of extraction (Ureta et al., 2018; Frederiksen & Himley, 2020; Verweijen, Himley, & Frederiksen, 2024). According to this literature, the expansion of extractivist industries rests on the formation of “extractive subjectivities” (Jakobsen, 2020; Billo, 2020) and forms of citizenship (Valdivia, 2018) that allow extractive governmentality to unfold by sustaining and legitimising relations of subjugation between local communities, the State and corporate actors. In this process of subject formation, gender emerges as

a crucial social structure that sustains “the conditions that allow for the implementation, maintenance and expansion of extractivist projects” (Ojeda, 2021: 85) by decoupling “public” concerns related to resource extraction from “private” efforts of sustaining life and guaranteeing social reproduction. Furthermore, the overexploitation of natural resources emerges, in this scholarship, as interlinked with a mirroring process of commodification, intoxication and exploitation of the racialised and gendered bodies of Black, Indigenous and *mestizo* women across Latin American extractivist geographies (Cabnal, 2010; Caretta and Zaragocin, 2020; Cohen, 2014; Cruz, 2020; Ulloa, 2016).

Centering gender as a crucial determinant of differential vulnerability in the geographies of resource extraction and toxic contamination in Latin America, this scholarship has largely investigated women’s

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<https://doi.org/10.1016/j.geoforum.2025.104418>

Received 20 November 2024; Received in revised form 15 September 2025; Accepted 18 September 2025

Available online 6 October 2025

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experiences of everyday violence in extractivist geographies, gendered processes of dispossession (Velez-Torres and Chiavaroli, 2025; Zaragocin, 2019) and resistance (Caretta et al., 2024; Caretta et al., 2020; Caretta and Zaragocin, 2020; Murrey and Mollett, 2023). In particular, it has recognised the disproportionate burden of care carried by women in extractivist geographies (Berman-Arevalo and Ojeda, 2020; Ojeda, 2021), the mirroring processes of exploitation of women and nature (Ulloa, 2016), and the challenges posed by extractivism to the process of “re-producing” life at the household and community level (Bauhardt, 2018). In contexts of large-scale mining, women have been found to experience important “socio-ecological contradictions” (Lutz-Ley and Buechler, 2020:74) and tradeoffs associated with the possibility of enjoying economic and professional opportunities and, at the same time, with constrictions deriving from discriminating gender norms in social and labour relations. Women’s experiences of extractivism are widely acknowledged as diverse and heterogenous, encompassing those of women in managerial positions in mining operations as well as those of women dependent on agricultural livelihoods and engaged in conflict with extractive industries (ibid.:81). Similarly, Fabiana Li recognizes that women’s participation in mining is “marked by ambivalence and contradiction” (2009: 98) and Jenkins proposes a need for a “nuanced approach to theorizing women’s perspectives and involvement”, particularly recognising diversity and heterogeneity of experiences (2014:337). Heterogeneity and contradictions also emerge beyond the Latin American context. Lahiri-Dutt (2022) claims that, “a global commodity boom” has placed gender at the centre of social conflicts surrounding resource extraction, urging critical feminist scholars urging critical feminist scholars “to deconstruct the deterministic and essentialist notions of what it means to be a man or a woman” (2022:2) in order to better understand the gendered dynamics that emerge in the geographies of resource extraction.

Building on this analysis, recent FPE scholarship has begun to pay greater attention to the role played by extractive masculinities in shaping these social relations. Lahiri-Dutt (2022) highlights this emerging trend, paying attention to the ways in which forms of masculinity are being reshaped as emerging powers in the so-called Global South such as India, China, and Vietnam, expand their financial investments in extractive industries (2022). In this debate, analytical focus has been posed on ‘hegemonic’ forms of masculinity (Connell and Messerschmidt, 2005) associated with both large-scale corporate resource extraction processes (Barrientos et al., 2011) and artisanal and small-scale mining (Behzadi, 2019; Lahiri-Dutt, 2017). While the concept of hegemonic masculinity points, in itself, to a relational and context-specific category of identity (Connell, 1995; Nayak, 2023), the nuances and tensions emerging between different and hierarchical forms of masculinities in extractivist geographies need further analytical attention. A body of emerging critical scholarship on “toxic coloniality” in the African context, for example, analyzes participation in extractivist practices as a colonial legacy, recognising these regimes of labour and the hierarchies stemming from it as central for the construction of some racialised male bodies as disposable (Doro, 2024; Doro and Armiero, 2023; Pesa, 2023; Postar, 2024). In Eastern India’s coal mines, Lahiri-Dutt (2017) describes masculinities themselves as a form of colonial legacy insofar as colonial administrations produced a “public patriarchy” (224) that regulated gender and labour relations and, particularly, the protection of women’s reproductive functions by excluding them from coal mines. Beyond the social relations emerging in corporate extractivism the *sacrifice zones* of corporate extractivism (Lerner, 2012). On the other hand, understanding masculinities in relational terms, Behzadi (2019) looks at the relations between male and female informal miners in Tajikistan, exploring the ways in which in the context of a “lost sense of self” (145) emerging from the encounter with Chinese industries, masculinities are reconfigured mobilising notions of hope and shame. In their analysis of English mining songs, Bos and Payne, highlight an antagonistic tension between “working-class” mining men who do not control the means of production and “white-collars” or

“ruling class men” (2025), and thereby reveal a strong heterogeneity of male experiences in extractive settings shaped by class relations.

Overall, this recent body of scholarship calls to move away from a conceptualisation of extractive subjectivities from a top-down approach to subject-formation focused solely on corporate extractivism and conceptualize masculinities independently (Libassi 2024, 4) and with attention to their multiscale nature (Verweijen, Himley, and Frederiksen 2024, 3) and their embodiment in and beyond extractive frontiers (Postar and Behzadi 2024). Importantly, these nuanced analyses challenge fixed ideas about masculinity as disruptive of local forms of governance and place-making, and investigate how selfhood, agency and everyday resistance shape their emergence (Frederiksen 2024, 3).

Yet, with some notable exceptions noted above, research on masculinities remains limited, particularly in relation to debates on care and toxic embodiment in extractive geographies. This corresponds to a broader tendency, in critical feminist scholarship, to approach gender by “ignor(ing) the centre and fetishis(ing) the margins” (Hopkins and Pain, 2007: 815) thereby focusing on women’s experiences and not giving equal attention to “masculinities, male identities and men” (ibid.) as central components of the social relations that unfold in extractivist geographies. Indeed, recent FPE literature on extractivism has pointed towards the body as a key analytic and a site of inquiry (Elmhirst 2024, 90), a perspective that helps interrogate the common portrayal of extractive landscapes as largely “hyper-masculine” (Murrey and Mollett 2024, 102). However, empirical studies have focused more on women’s embodied experiences, and their role in challenging heteropatriarchal roles in mining labor and much less on questions such as the role of masculinities (Mercier 2011, 34). Moreover, the few notable exceptions that do explore extractive masculinities –such as the works of Behzadi (2019), Cuvelier (2014), and Postar (2024)- focus on Asian and African geographies mainly.

Importantly, in Colombia and other Latin American extractivist regions, fixed representations of masculinities as contaminating, environmentally damaging and, *by nature*, aligned with extractivist relations of power (Hofmann and Duarte, 2021) persist in environmental policy-making and public representations of mining regions. In contemporary environmental policy debates in Latin America, the complex and fragile universe of forms of masculine *being* and inhabiting extractivist geographies is often reduced to a monolithic understanding of hegemonic, violent, contaminating and disruptive forms of masculinity (see, for example: Senado de la Republica, 2025; Defensoría Del Pueblo, 2024; InsightCrime, 2015), often assimilating ASM miners with illegal armed actors (e.g., Esper, 2019). This is problematic insofar as these representations intersect with the criminalisation of artisanal mining livelihoods (Kaufmann and Côte, 2021; Kaufmann, 2024). Understanding the heterogeneity, fragility and contradictions that characterise ASM masculinities in extractive regions is therefore an urgent concern for Feminist Political Ecology in Latin America.

In this article, we contribute to the debate on extractive masculinities by putting emerging scholarship on masculinities in conversation with feminist debates on care and embodiment in the geographies of artisanal and small-scale mining (ASM). While the definition of ASM is in itself a matter of debate and varies across countries (Fritz et al. 2018), in Colombia and elsewhere in Latin America, the term ASM typically encompasses a variety of informal or formalized, non-corporate forms of mineral extraction and processing that are labor-intensive, show different degrees of mechanisation, produce monthly outputs of kilograms instead of tons, and involve individuals, families, or cooperatives that work in marginalized geographies and with varied degrees of independence from corporate actors, armed groups, and the state (Castillo-Ardila 2023, 13-17; Castillo-Ardila and Rubiano-Galvis 2019, 31-48). A target of international development programs since the 1970 s, today “at least 45 million people across 80 countries” work in ASM and “at least a further 134 million people and, perhaps as many as 270 million people” benefit indirectly from these activities (World Bank, 2024: 16-17). ASM is simultaneously recognised as a livelihood strategy,

an environmental threat (Esdaile and Chalker, 2018), and a revenue opportunity for illegal armed groups and transnational crime syndicates (Cremers-Leontien and Thejje, 2013,9; OECD 2016; Verbrugge and Geenen, 2020; UNODC 2023; World Bank 2024).

In ASM geographies, extraction coexists in complex and ambiguous ways with practices of care and processes of place-making (Massey, 2004; 2005). As noted by Behzad, Postar and Doering, at the margins of corporate extractivism, the exclusion from “access to land, decision-making and planning, as well as monetary and nonmonetary benefits” of corporate extractivism intersects, in complex ways, with forms of partial “inclusion” in an extractivist economy and collective imaginary of development (2024: 2–3). This partial and incomplete inclusion in the extractivist economy generates significant tensions between care, place-making, and extraction. Despite their damaging component, ASM extractive practices emerge as functional to the social reproduction of rural communities in the Colombian geographies of securitization (Ojeda, 2013) where the state promotes military interventions against ASM communities and fragile livelihoods and unstable forms of local territorial governance unfold to navigate the tensions between exclusion/inclusion in extractivist capitalism (Behzadi, Postar and Doering, 2024). Rather than solely destructive and aggressive, the masculine subjectivities that emerge in these geographies are also inherently fragile. They are engaged in the effort of coexisting with armed and corporate actors and thereby contribute to *making place* (Pierce et al., 2011) and sustaining life in a context of social and environmental fragility. We thus argue that attending to this fragility and to the complex interplay between masculinities, extraction, toxic contamination and care, is crucial to advance critical social science debates on gender and resource extraction.

In this paper, we conceptualise masculinity as a “cluster of norms, values, and behavioural patterns expressing explicit and implicit expectations of how men should act and represent themselves to others” (Lindsay and Miescher, 2003:4). We build on scholarship in critical and feminist geography to investigate the narratives that regulate the socio-spatial reconfigurations that unfold in the geographies of ASM as co-productive of gendered categories of identity. Rather than focusing on corporate ‘technologies of power’ (Li and Semedi, 2021), we examine extractivism in the marginalised geographies of ASM where extractive masculinities are intertwined with a collective cultural identity that has emerged in response to the growing encroachment and criminalization of non-industrial mining. As such, small-scale extraction is part of the process through which social actors “iteratively create and recreate the experienced geographies in which they live” (Pierce et al., 2010:54) and position these various “bundles” (Massey, 2005: 141) “toward social and political ends” (Pierce et al., 2010: 59) by constructing collective territorial imaginaries.

This paper contributes to debates on gender and natural resource extraction in Latin American Feminist Political Ecology scholarship in two ways. In the first place, it expands current debates on gender and extractive subjectivities that explore ASM masculinities in their relationality, heterogeneity and contradictory dimensions, through a focus on everyday embodied practices. We do this by looking at the everyday processes of subjectivity-making that emerge through everyday practices of extraction, place-making and social reproduction in ASM geographies (Postar and Behzadi 2024). In the second place, this article adds to the debate on care in extractivist geographies by bringing to analytical attention the “caring masculinities” that emerge in extractivist geographies (Elliott, 2016). While scholarship in Feminist Political Ecology has largely conceptualised caring practices as a form of feminised resistance performed against extraction (Caretta and Zaragocín, 2020; Cruz, 2020; Ulloa, 2016) or as a dimension of the “socioecological contradictions” (Luz and Bahuer, 2020) that characterise women’s relations with extractive activities, in this paper, we investigate those forms of care that constitute a dimension of local experiences of extractive masculinity. Through this analysis, we expand current debates on masculinities in Latin American regions of extraction, calling

for a nuanced understanding of the relationship between masculinities and extractive geographies through a closer attention to their “embodied, gendered, sexed and intimate aspects” (Postar and Behzadi 2024, 2). By drawing on ethnographic fieldwork conducted in the Bajo Cauca and Nordeste regions in the Antioquia department between 2018 and 2024, we locate masculinity at the intersection of extraction and social reproduction.

The article is structured into four sections. In section Two, we give a brief overview of the debate on extractive subjectivities and gender and review the contributions of Feminist Political Ecology and critical geography on the discussion on care and toxic embodiments in extractivist geographies. In sections Three and Four we provide background information on the Bajo Cauca and Nordeste regions and discuss our methodological choices. In section Five, we discuss our results by presenting the different extractive masculinities that emerge from our ethnographic fieldwork. Finally, we conclude by arguing that essentialist understanding of male miners as contaminating actors have problematic political implications and we propose a theoretical shift in the understanding of masculinities and care in extractive landscapes.

2. Extractive masculinities: extraction, care and place-making

2.1. Subjectivity-making in the geographies of extraction

Recent Political Ecology scholarship centres subjectivity-making as a key component of the expansion of extractivist capitalism (Jakobsen, 2024; Ureta et al., 2018; Frederiksen & Himley, 2020; Verweijen et al., 2024). Resource extraction is, in fact, sustained by a reconfiguration of “elements of citizenship, territoriality and belonging” (Jacobsen, 2024: 2) that alters structural relations between people and places, thereby suffocating local processes of resistance. Forms of extractive governmentality interplay with processes of subjectivity-making, leading to the socio-spatial reconfiguration of extractivist geographies. This mechanism is visible in extractivist regulatory regimes that frame “both the environment and the subjectivity of those whose environment is being governed by regulation” (Mackinnon, 2020: 462). As Agrawal’s foundational work on ‘environmentality’ (2005) highlights, political technologies “can change people’s subjectivity” (MacKinnon, 2020: 463) by prescribing behavioural changes and attitudes of environmental care. On the other hand, at the opposite end of the spectrum of possible forms of ‘environmentality’ (Agrawal, 2005), the regulation of access to natural resources by corporate actors in extractivist regions can exert a form of ‘capitalist subjectification’ (Butler and Athanasiou, 2013) that legitimises and sustains the possibility of extraction. Among the regulatory devices that inform these extractivist forms of governmentality and subjectivity-making, the “cruel optimism” of extractivist narratives of development (Lesutis, 2023; Berlant, 2011) plays a central role in legitimising extraction.

Extractive masculinity emerges as a central technology of the self (Foucault, 1982) that shapes social relations of extractive governmentality. According to Foucault, technologies of the self are functional to the establishment of asymmetric and pervasive relations of power because they shape “conduct” and “ways of being” (1982: 16). In the geographies of large-scale extraction, masculinity has often been analysed as a corporate “technology of power” (Li, 2021) that frames local social relations and imaginaries of the future to legitimising corporate control over natural resources (Golub, 2015; Jacobsen, 2024). In these contexts, hegemonic forms of masculinity regulate appropriate behaviours by framing social relations at the individual and community level that permit and prescribe destructive environmental “engagements” (Eden, 2016). Ethnographic works on corporate extractivism in Latin America have analysed the moral and socially accepted forms of masculinity that are framed by the corporate narrative of the miner’s “sacrifice”, which ascribes to masculine social subjects an attribute of deservingness related to the obtainment of a social and economic status gained through hard work in the mine (Barrientos et al., 2001; Palermo,

2015). The labour of extraction, in itself, is associated, in these narratives, with a form of “hypermasculinity” (Nilan, 2009:329) that domesticates nature through the relationship with heavy machinery and a dangerous geography of labour and the commodification of nature. At the same time, the fragility of these forms of masculinity emerges with particular clarity in the geographies of post-extraction, for example, in Northern Britain, where former miners experience the challenge of adapting to new livelihood strategies and forms of masculinity in a changing socio-economic landscape following the closure of coal mines (Beynon and Hudson, 2024). At the margins of geographies of large-scale extraction, more fragile forms of masculinity navigate artisanal gold-mining practices, “wagering a life” (Valdivia, 2018) and engaging in less profitable and often riskier mining practices (Zhu and Peluso 2021). Paradoxically, the expansion of corporate extractivism and the masculinisation of the space, has also been found to lead to a mirroring process of feminisation of poverty, resulting in an increased participation of women in the least profitable and artisanal extractive activities (Lahiri-Dutt, 2015).

Drawing on a constellation of diverse grassroots, Black, Indigenous and activist experiences of resistance to and coexistence with extractivism (Elmhirst, 2023), feminist political ecologists have analysed the gendered social relations that emerge in these geographies across, at least, two key dimensions: extractive embodiments and care. In the first place, extraction has been conceptualised as a process of masculinisation of the space leading to a specific socio-spatial configuration restricting practices of care within the narrow geographies of “private” spaces of social reproduction (Ojeda, 2021). Practices of social reproduction are, in fact, “inherently spatial” (Katz, 2001:711) and the process of gendering and devaluing reproductive work (Mitchell et al., 2004:14) is rooted in the “spatial differentiation between production and reproduction” (Rodriguez-Rocha, 2020:7). These forms of spatialised social organisation are not specific to extractivist capitalism. Yet, in the extractivist model, the balance between extraction and the possibility of social reproduction is altered by the direct destruction of resources fundamental to social reproduction (Ojeda, 2021). Whereas other forms of production allow for the fragile coexistence of production and social reproduction, extractivism does not only fail to support, but also directly hinders and threatens the reproduction of life (ibid). This scholarship therefore highlights the insufficiency of (neo)liberal forms of gendered and racialised inclusion and compensation promoted by corporate actors by arguing that extractivism is, in itself, a “socially-ecologically disruptive way of organising life” (Chagnon et al., 2022:4). The extractivist failure to sustain life also produces “ecologies of exhaustion” (Behzadi, 2024) based on the depletion of bodies, land and natural resources and their reproductive capacities. This exhaustion is functional to support the functioning of extractivist capitalism. However, if social reproduction “sustains extractivism” (Elmhirst, 2024: 90) by supporting the reproduction of the extractive labour force, it also holds the potential of being a “realm of transformation” and resistance (ibid.) through care practices.

At the intersection with Feminist Economy, Feminist Political Ecologists have highlighted the ways in which, despite a constant process of devaluation, care continues to enable capitalist production and resource extraction both within and beyond the household (Barca, 2020; Berman-Arévalo and Ojeda, 2020; Fernandez, 2017; while not a FPE, see also, Fraser, 2023). At the same time, care also consists of a complex assemblage of heterogeneous everyday practices that make human life possible amidst resource extraction (Ureta, 2016). In her foundational work, Tronto defines care as the practice of repairing a broken, post-capitalist world that includes “our bodies, ourselves and our environment, all of which we seek to interweave in a complex, life-sustaining web” (Tronto, 1998). The relationship between care, gender, and nature thus becomes a crucial “feminist question” (Bauhardt, 2018) in contexts of socio-environmental precarity, a question that must be addressed without reinforcing the naturalization of the feminized and reproductive body as an obvious source of care. Breaking the

“uncomfortable nexus between nature, care for others, and about the environment, and the sex/gender relation” (Bauhardt, 2018: 16), in fact, requires framing environmentalism explicitly “against the background of the oppression of women” (Bauhardt, 2018: 24) and challenging prescriptive gendered norms. However, while important advances have been made by this scholarship in expanding our understanding of care and conceptualising “living environmentalism” (Di Chiro, 2008) as a collective effort for sustaining racialised and gendered lives (Federici, 2004), feminised practices and subjectivities remain central in this debate (cf. Caretta et al. 2020; Silva, Castillo, and Castillo 2023). In this paper, we contribute to theoretical efforts to conceptualise care in precarious socio-environmental geographies by exploring masculinised forms of care and their ambiguous coexistence with contradictory, socially and environmentally disruptive gendered norms and practices.

The tension between care and extraction in extractive geographies can only be analysed through a focus on the plurality of “every day and embodied aspects of the geopolitics of resource extraction” (Behzadi, Postar and Doering; 2024: 4). Bodies are necessarily implicated in the experience of coexisting with and/or participating in resource extraction through multiple dimensions that include labour, depletion, exhaustion, intoxication and violence. Engaging with the activist epistemology of the *cuerpo-territorio* (Cabnal, 2010; Caretta and Zaragocin, 2020; Hernández and Jiménez, 2020 and Ulloa, 2016), critical Latin American scholars have analysed the mirroring process of extraction and commodification of bodies and nature in extractivist geographies, ranging from physical and cultural forms of elimination (Zaragocin, 2019) to sexual and gendered violence (Ulloa, 2016). Drawing on Indigenous knowledge and activist practice, Anglophone scholarship investigates the correlation between extractive and gendered violence (Deer and Nagle, 2017, Konsmo and Pacheco, 2016, Hoover, 2018) and recognizes the body as entangled in a complex web of material relations that see heavy metals, toxic pollutants and waste permeating the body (Murphy, 2017; Tuana, 2008; Elmhirst 2024). In this intimate materiality with processes of resource extraction, “contrasting sentiments” (Tuana, 2008:165) relating to the fear of the hazards of mining and of being excluded from the benefits of this labour, often coexist (Postar, 2024) in everyday experiences that challenge simplistic notions of extractivist victimhood. This scholarship also highlights that a key dimension of resource extraction is the direct or indirect construction of different forms of material and social disposability and the exercise of intoxication (Alaimo, 2010; Cortes, Ramos and Velloza, 2023; Navas, 2023) and other forms of slow violence (Nixon, 2011) on racialised and gendered bodies. At the same time, masculinised ideas of bravery and resilience frame toxic exposure and gendered strategies to navigate mining hazards and other toxic risks (Camacho, 2017, Lahiri-Dutt, 2017). In this paper, we therefore argue that masculine embodiments present a crucial entry point to conceptualise the relationship between care and extraction in the process of subject formation of extractive masculinities.

2.2. Conceptualising extractive masculinities at the intersection between care and extraction

We contribute to the debate on extractive political-ecological identities by analysing extractive masculinities through an ethnographic engagement with the multiple, changing and contradictory subjectivities that emerge beyond the top-down, corporate construction of hegemonic extractive “hypermasculinity” (Nilan, 2009:329). Rather than focusing on how the rhetoric alignment with hegemonic forms of desired masculinities can emerge as part of a corporate discursive strategy to legitimise and validate extraction, we focus on the ways in which people inhabiting extractivist geographies also “sustain personal ideas of the good life, even as the day-to-day becomes riskier” (Valdivia, 2018: 551). Hence, in this paper, we investigate extractive masculinities not only by examining the social categories of identity co-produced by corporate narratives and corporate forms of governmentality (Li, 2021),

but also by understanding masculinities as emerging from everyday material and symbolic relations with the extractivist environment and broader social dynamics (Nightingale, 2011) and from the experience of toxic embodiment. From this ethnographic engagement, masculinities can be understood in their complex entanglement with small-scale extraction, processes of place-making and practices of care. Through this ethnographic engagement, we aim to locate extractive masculinities beyond “binaries and epistemic exclusions” (Behzadi, Postar and Doering, 2024: 15) in Feminist Political Ecology scholarship on resource extraction and, in particular, beyond the binary of “exclusion/inclusion” (ibid) or participation/resistance to capitalist extractivism for a more holistic understanding of socio-ecological subjectivities at the margins of corporate extraction.

A crucial component of extractive masculinities is their disruption of local processes of place-making (Pierce et al., 2020) insofar as they can legitimize corporate practices of extraction that challenge local models of territorial governance (Harcourt and Escobar, 2002; Riofrancos, 2017). Yet, artisanal practices of small-scale mining often unfold in the context of an “affective entanglement” (Ureta, 2016:1535) between gold miners and the geographies of extraction (Cf. Postar and Behzadi, 2024). A core dimension of this is that small-scale miners typically insist that their extractive practices are key for sustaining life in their territories – even if this implies the use of toxic chemicals, hazardous labour conditions, and exposure to multiple forms of violence from the state, corporate actors, and illegal armed groups. In ASM geographies, extraction can therefore also, paradoxically, offer the means through which specific territorial projects can be sustained and imagined. Small-scale extraction thus contributes to processes of bottom-up “political appropriation of space” (Halvorsen et al., 2019: 1455) and place-making insofar as it allows local communities to avoid migration to urban areas and to finance structural improvements. And even when miners migrate and temporarily shift to other extractive economies in a dynamic of ‘flexible resource work’ (Zhu and Klein, 2024) or ‘flexible frontier-making’ (Zhu and Peluso, 2021), sustaining life amid global and local financial volatility remains central. A crucial tension can therefore be recognised between the disruption of local forms of territorial governance and, at the same time, the contribution that artisanal gold miners give to the networks of social reproduction that keep the geographies of extraction liveable.

Furthermore, this paper contributes to unpack the tension between care and extraction and “degender” care (Nayak, 2023) by challenging “feminised” representation of caring practices and investigating the “caring masculinities” that emerge in extractivist geographies (Ehrenreich and Hochschild, 2003; Held, 2005). Rather than understanding care as a an “ultimate solution” (Ureta, 2016: 1534) to complex socio-environmental dilemmas, we draw on Ureta’s (2016) and Mol’s (2008) foundational works to understand care as “the persistent but forgiving effort to improve the [problematic] situation ...or to keep this from deteriorating” (Mol, 2008: 20). This effort remains characterised by “persistent tinkering in a world full of complex ambivalence and shifting tensions” (Mol et al., 2010). In this sense, care emerges as “always experimental and tentative, reflexive of its own presence and limits” (Ureta, 2016:1535). In the geographies of small-scale extraction, care is not only an “ethical” choice but also corresponds to the “ontological” dimension of inhabiting a specific territory (ibid.). This contrasts the industrial logic of extraction – often presented as a ‘care-less’ depletion of natural resources- and challenges common views of small-scale extraction that see the use of machinery or profit-making practices as inevitably antithetical to the logics of artisanal and small-scale extraction. Caring masculinities are, therefore, a crucial component of place-making practices insofar as they significantly contribute to creating and reclaiming legitimacy for non-industrial mineral extraction, depicting them with more nuance.

For instance, Postar and Behzadi (2024) develop the concept of *extractive bodies* to trace how extraction reshapes gendered and embodied experiences. Drawing on Katz’s (2001) notion of counter-

topography, they map various gendered and embodied subjectivities across mining frontiers in two uranium and coal mining regions of Tanzania and Tajikistan. Their *feminist counter-topography* explores how concerns about the sexuality and reproductive capacities of male and female bodies that work and live in these extractive landscapes manifest through rumours, symbols, and narratives, producing material gendered effects—such as the stigmatisation and sexualization of female miners’ bodies and the perceived demasculinization of men’s bodies at risk of pollution exposure. These embodied feelings are windows into how people “live through, make sense of, or resist the impacts of extraction at the embodied level” (Postar and Behzadi (2024): 4).

Building on this literature, we conceptualise extractive masculinities as complex, ambiguous and fragile strategies that marginalised and racialised social actors employ to inhabit conflictive and contaminated geographies. After providing some background information on the Bajo Cauca and Nordeste regions and our methods, we describe the different masculinities that emerge in ASM landscapes to then dissect their interaction with processes of place-making, care and toxic contamination.

3. Artisanal and small-scale mining in the Bajo Cauca and Nordeste

In Colombia, and across other regions of the so-called Global South, laws and policies recurrently reproduce the simplistic binary that opposes ‘clean’ large-scale corporate mining and ‘problematic’ artisanal and small-scale mining and misrecognizes the particularities of artisanal and small-scale mining (Maher, 2015). This ambiguity is visible in the unification of permit requirements in the 2001 Mining Code that translates in long, expensive and technically demanding procedures that significantly complicates access to formality to artisanal and small-scale miners (Kaufmann and Côte, 2021; Veiga and Marshall, 2019). According to current estimates, there are between 300,000 and 400,000 artisanal and small-scale miners in Colombia (Veiga and Marshall 2019). Yet, this number might have grown with the recent increase in international gold prices. The widely rehearsed legal, financial, and technical barriers to access formality (see for example Verbrugge and Geenen, 2020; Veiga and Marshall, 2019) has forced artisanal and small-scale miners into an increasingly vulnerable and criminalized position in a complex landscape where political, economic, and social tensions between corporate actors, armed groups, the state and local communities unfold. The Colombian geographies of extraction are also characterized by a significant spatial overlap of different types of extraction within titled areas which significantly contributes to conflicts over access to the gold deposits (Güiza-Suárez and Kaufmann, 2024; Veiga et al., 2022)..

The department of Antioquia is Colombia’s biggest gold producer. In 2023, it produced 39 tons of gold, which corresponds to 69 % of the overall national production of 56 tons (ANM, 2024). Gold is predominantly extracted from alluvial deposits in Bajo Cauca and from hard rock deposits in Nordeste regions (UPME, 2024). Approximately 49 % of the gold produced in Antioquia is extracted by operations without permits. This ‘informal’ gold stems from a diverse set of practices ranging from panning and manually collecting gold scrap and tailings from larger operations to technified medium-scale extraction where dredges and backhouse are used in riverbeds, or explosives and drills are used in underground mining, respectively. While both regions show important historical continuity of non-industrial mining (Campuzano Duque 2021), in the last three decades they have also been severely affected by protracted armed conflict related to the disputed control over local gold deposits. This increasing criminal interest in gold has resulted in often-violent disputes over access to gold production and the increasing criminalization of non-industrial mining due to its alleged complicity with organized criminality (OAS, 2022; Defensoría del Pueblo, 2018, IPC, 2021).

The fragmentation of illegal armed groups in the aftermath of the demobilization agreement with the paramilitary umbrella organization

AUC (*Autodefensas Unidas de Colombia* or United Self-Defence Forces of Colombia) in the 2006 and the FARC-EP guerrilla (*Fuerzas Armadas Revolucionarias de Colombia – Ejército del Pueblo*) in 2016 characterises contemporary models of armed governance in the region. Today, control over criminal rents in the study regions are contested between the paramilitary group AGC (*Autodefensas Gaitanistas de Colombia*) that emerged after AUC (*Autodefensas Unidas de Colombia*) demobilization; dissident groups of the demobilised FARC-EP; and smaller criminal armed structures such as *Los Caparros* or *Los de Abajo*. In addition, the region has also been a historical stronghold of the ELN (*Ejército de Liberación Nacional*) guerrilla. These illegal armed structures are involved at the different nodes of ASM production networks because gold provides a lucrative and overall less risky addition to the production and trafficking of cocaine and other illicit activities (Rettberg & Ortíz-Rio-malo, 2016; Bonilla-Calle, 2023). The modalities of involvement in these value chains spans across the practice of racketeering and extortion of both formalised and non-formalised mining actors, the collection of *vacunas* or illegal ‘taxes’ for machinery used in alluvial gold mining, the direct participation in gold extraction, and the laundering of illicit assets (Defensoría del Pueblo, 2018; OAS, 2022).

The presence of illegal actors in general and paramilitary groups in particular shape the socio-cultural contexts in which extractive masculinities emerge. Paramilitary forms of social control are exercised through the construction of a “desirable masculinity” based on “prestige, status and productivity” (Neira-Cruz and Castillo-Olarte, 2020:125) that results in militarised and violent forms of subjectivity (Theidon, 2009). In fact, the paramilitary project has been historically associated with the maintenance of a heteronormative patriarchal order and the “moral correction” (ibid.) of a range of feminised and divergent subjects who are deemed ‘not masculine enough’ to fit within a heteronormative and conservative social imaginary (e.g. GBTQ population, indigenous men, young drug users) (Svallfors 2024). The institutional narrative of an ‘internal enemy’ (see for example Castañeda-Hernandez, 2016; Machuca Pérez, 2022) interplays with everyday paramilitary practices of violent social control of heteronormative masculinities. The process of “making men” (Theidon, 2009: 18), in fact, involves the violent creation of a hierarchy among different subjectivities “thus producing different and unequal masculinities” (ibid.). In the geographies of the Colombian conflict, hegemonic forms of masculinity embodied by paramilitary actors are established through a range of practices that often include sexual violence exercised against men and women and the public punishment and sanctioning of *vicios* (‘bad habits’), such as drug consumption, alcohol consumption, and ‘antisocial behaviour’ (CNMH; 2017:237). In this sense, the social organisation imposed by paramilitary actors reinforces hegemonic forms of masculinity that celebrate hard work and hetero-patriarchal social relations, while violently targeting other forms of masculinity.

At the same time, the insurgent masculinities proposed by the FARC-EP and the ELN guerrilla have operated through similar practices of social ordering, with cases of punitive sexual violence against men systematically being performed by the FARC-EP and documented by the Truth Commission (CEV, 2022). In the aftermath of the Peace Agreement, political leaders from the former FARC-EP fostered a process of intentional deconstruction of these insurgent identities, aimed at delinking “masculinity from violence” and in changing attitudes and practices against LGBTQ individuals. Yet, this process has hardly reached the everyday geographies of the Colombian armed conflict, and the deconstruction of insurgent masculinities remains in the making in an unfinished process of reconciliation and peace-building (Theidon, 2009) for both old and new insurgent actors. As it will be discussed further in section five, hegemonic forms of masculinities represent, in this context, a key strategy to navigate a risky geography under the control of paramilitary and insurgent actors such as the Bajo Cauca and Nordeste regions.

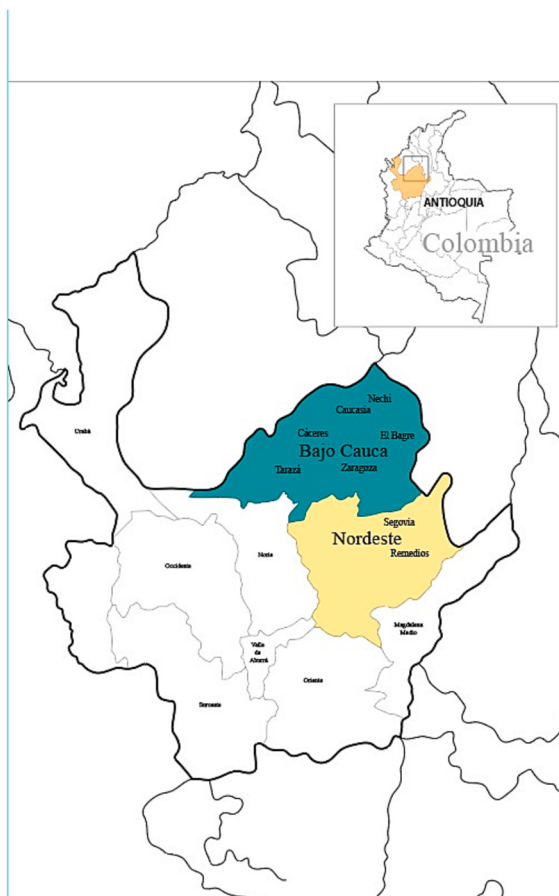
Big corporate actors also play a crucial role in the extractivist conflicts that unfold in Bajo Cauca and Nordeste. The history of the Bajo

Cauca region is strongly shaped by the presence of the large-scale gold mining company Mineros S.A who holds a private property title (*Registro de Propiedad Privada*) over approximately 37.000 ha of land along the Nechí river basin. Together with other mining titles acquired in different moments, the company has legal titles to extract gold from almost 50.000 ha (IPC, 2021). In the early 1980 s, the monopoly of legally sanctioned control over access to gold deposits under the company’s title led to a conflict between the company and small-scale gold miners. Left-wing guerrilla groups, particularly the ELN, conducted several armed attacks against the company throughout the 1970 s and 1980 s (IPC, 2021:61). In the 1990 s, in the context of the securitisation strategies implemented in the “Plan Colombia” (Ojeda, 2013) and the “Plan Fortalecimiento” the Colombian government with financial and technical support from the United States provided armed security to big corporate actors, such as Mineros SA, by creating special military bases named BAEVs (*Batallones Especiales Energéticos y Viales*). The aim of these bases has been to protect the national mining and energy infrastructure (Rettberg and Prieto, 2018). In the Bajo Cauca region, this led to the installment of the BAEV no 5 in the Municipality of El Bagre. Private security schemes, in a coordinated strategy of collaboration with the Colombian Army, are also employed by the company to exclude other mining entrepreneurs and ASMs from accessing local gold deposits (IPC, 2021:62-63).

The presence of industrial mining has also significantly shaped the extractive landscape in the Nordeste subregion. Already in the 1880 s, the company Frontino Gold Mines was given a Private Property Title over large portions of the adjacent municipalities Segovia and Remedios. ASM developed in close interaction and contact with corporate extractive activities, in an ecosystem of cohabitation among different actors (Campuzano Duque, 2021). In the second half of the 20th century, Frontino Gold Mines faced an economic crisis which eventually led to their bankruptcy and the decision to divide its capital among the workers. The legality of this arrangement was however questioned when a new corporate actor, the company Gran Colombia Gold, started its mining operation in the area in 2010. The attempts from Gran Colombia Gold to territorialize exclusive corporate control over the subsoil led to a violent conflict with small and medium-scale artisanal miners who engaged with processes of territorial defence and called on the state to support their attempt to formalise their extractive activities. Disattending this request, the role of the state, in this conflict, has been that of criminalising ASM miners and targeting them through military operations, while protecting the operations of these corporate actors (Kaufmann and Côte, 2021). In 2022, after the bulk of the second and third author’s fieldwork had taken place already, the RPP was sold to a new corporate actor, Aris Mining. While the new company has attempted to negotiate a coexistence model with ASM and ramped up its corporate social responsibility scheme, conflicts with unlicensed miners persist. Today, formalized small-scale miners contribute more than 40 % to the gold production that Aris Mining reports in Colombia (Murcia, 2024).

4. Methods

This paper builds on ethnographic fieldwork conducted between 2018 and 2020 in Segovia and Remedios (Nordeste) by the second and third author and between 2021 and 2024 in Tarazá, Nechí and El Bagre (Bajo Cauca) by the first author (Map 1). The ethnographic comparison between these regions emerged, *a posteriori* from the discussion of different ethnographic experiences that involved a strong engagement with ASM communities. While the investigation of extractive masculinities was not a central component of the initial research design that underpinned these ethnographic projects, it emerged, through fieldwork activities, as a crucial category of analysis in the discussion of gender and state-citizens relations of power in these geographies. As it has been noted by other critical geographers in relation to a lack of explicit attention for masculinities (Hopkins and Giazitzoglou, 2025; Hopkins and



Map 1. Bajo Cauca and Nordeste regions (Own elaboration).

Pain, 2007), throughout fieldwork we assumed masculinity to be a self-explanatory category that did not need to be brought to analytical investigation. It was only after fieldwork, through the comparative analysis of the conflicting, contradictory and heterogenous narratives of local gold-miners that emerge in our data, that we recognised masculinities as a central object of research. In other words, our work aligns with what Postar and Behzadi (2024), drawing on Katz' (2001), describe as a *feminist counter-topography*: an a posteriori method for studying disparate extractive geographies through their connection to broader processes of subject formation.

In the Bajo Cauca region, 44 interviews were conducted with male miners, fishermen, farmers and representatives of local mining organisations. Fieldwork activities also included 8 focus group discussions. These activities were also complemented with 8 interviews with regional and national mining authorities, environmental institutions and local public institutions at the Municipal level (*Secretaría de Minas y Medio Ambiente*). In the Nordeste, fieldwork activities conducted by the second and third author included visits to gold-mining units, focus group discussions with gold-miners and interviews with state institutions on different administrative levels (Municipalities, Mining Secretary, Regional governments and national environmental authorities, among others).

In the in-depth semi-structured interviews, the first author engaged with an analysis of the representation given by different social actors of their relationship with the geographies of the gold mines. Interviews focused on: everyday extractive practices, ideas over toxic risks in the gold mine and aimed, more broadly, to reconstruct the life stories of different social actors. This data was complemented by the ethnographic participant observation of gendered relations in the household and in gold mines. Moreover, the first author conducted participant observation in several public meetings and negotiations between the state and

local ASM organisation in Cauca (such as the *Audiencia Minera*-mining hearing held in Cauca in October 2022 and other institutional meetings held during the 2023 Mining strike). Meanwhile, the second and third author conducted in-depth interviews on the ways in which artisanal and small-scale mining regulation in general, and mercury governance in particular, are negotiated on different administrative scales. Hence, the authors analysed the interactions of different types of knowledge around toxicity, the effects of mercury governance on localized conflicts over access to the mineral subsoil, and the strategies that informal artisanal and small-scale miners in Nordeste have developed to resist and co-exist with criminalization.

5. Discussion

In this section, we discuss the findings from interviews conducted in the Bajo Cauca and Nordeste, structuring this discussion along three main themes: extractive masculinities (5.1), care and place-making (5.2) and, lastly, toxic contamination (5.3).

5.1. Extractive masculinities

In the extractive landscapes where artisanal gold mining represents one of the few livelihood strategies available to local social actors besides small-scale agricultural production, coca farming, motorcycle taxi driving, or goods trade, hegemonic masculinity represents a crucial strategy to navigate the complexity and risk of inhabiting these spaces. Because of the physical strength, bravery and initiative demanded by the labour of extraction, ASMs are associated with a hardworking and socially respected form of masculinity (Lahiri-Dutt and Robinson 2008). On the one hand, this masculinity fits within the paramilitary project of building a conservative, heteronormative society (Neira-Cruz and Castillo-Olarte, 2020:125) and allows to avoid punitive disciplining practices performed by insurgent actors. On the other hand, it is also strategic to counterface criminalising strategies implemented by the state against local small-scale miners (Kaufmann and Côte, 2021). Narratives of hard-work and social respectability embraced by ASMs, in fact, are instrumental in marking a social divide in the negotiation of legitimacy and recognition before state institutions. In particular, such narratives are aimed at marking a distinction between criminal actors who extract their rents from gold production, and low-income *padres de familia* –heads of a household- who perform extraction to support their household members and should therefore not be militarily persecuted according to local mining organisations. In this sense, both the state and illegal armed actors play a crucial role in the process of “making men” (Theidon, 2009) in extractivist regions.

Yet, extractive masculinities are also inherently *fragile* and “wagering life”: the act of “intentionally plac[ing] something or oneself at the risk to bear on the unfolding of an uncertain event” (Valdivia, 2018:551) is central to the experience of miners’ precarity in ASM geographies. Both the mine and extractive territories themselves are, in fact, a “place of danger” (Cuvelier, 2014: 11) where ASMs face different uncertainties and risks. The implementation of militarisation strategies against informal mining activities exposes ASM miners to direct violent confrontations with the army and intoxication during the burning of mining machinery (El Tiempo, 2023; El Colombiano, 2025). Furthermore, state institutions have often reacted with violent repressive responses to social mobilizations of artisanal and small-scale mining communities in Bajo Cauca and Nordeste that demand access to formalization schemes that consider and protect the particularities of local mining livelihoods (García Castro, 2023; Álvarez, 2017). Among the most recent casualties related to military operations in the Bajo Cauca region, local miners grieved the death of a twenty-year-old miner in a military operation in Las Conchas, Nechí in 2021 and the death of an older miner in April 2024 in El Bagre.

Other risks are related to the labour of extraction itself, and span across all types of mining, from large-scale corporate extraction to ASM.

In focus group discussions in Nechí and El Bagre, ASM miners mention that the *barranco*-mining cliff- can fall on top of the miners, and a series of accidents related to working with heavy machinery under the heavy sun. In the case of underground mining in Segovia and Remedios, miners face risks related to the collapse of the mining shafts. This is especially common in early stages of informal extraction where the shafts are only secured with improvised wooden boards. Other risks stem from accidents with machinery that affects miners on all scales, as well as health risks related to physically strenuous labour and sometimes limited technification of extraction, exposure to toxic chemicals in the gold recuperation process, and the use of artisanal explosives. In June 2024, in Nechí, two young miners, aged 15 and 12 years old, died in the context of a tragic fall off a mining cliff. In several interviews, young miners used the phrasing “*caídos en el trabajo*” or “*caídos en la mina*” to refer to these deaths, using the same word “*caído*” which is also used for the victims of military confrontation, marking their social respectability.¹

Inhabiting the geographies of small-scale extraction also implies coexistence and constant negotiation with local armed actors. Payment of extortion is a practice that all interviewed miners in the Bajo Cauca region (except for the gold –panners, who are exempted from this tax) accept as impossible to subvert and contest. Similarly, there is a common narrative in Nordeste that extortion is part of local everyday life, as it affects mining actors and the community at large. Young people inhabiting extractivist geographies face specific and disproportionate risks related to the presence of armed actors and, in particular, the risk of forced recruitment. In 2022, the Ombudsman’s Office of Colombia (*Defensoría del Pueblo*), issued a public alarm for the rate of forced recruitments, among minors, in the municipality of El Bagre, in the Bajo Cauca subregion, where in October of the same year, twelve children were forcibly taken away while at school by an (unspecified) armed group (*Defensoría del Pueblo*, 2022).

Several critical Latin American scholars use the term *juvenicidio*² (Bonvillani, 2022; Muñoz and Valenzuela, 2020, Seca and Mancera-Panza, 2022, Valenzuela, 2015) to highlight the systematicity, magnitude and intentionality of the violence exercised by illegal armed groups in Colombia against young people in the context of the internal armed conflict. In the Bajo Cauca and Nordeste regions, precarity characterises the lives of young men whom, like in ASM contexts analysed in other regional contexts, often start working in the mine when they are only 9–10 years old or are hired in big farms as daily labourers or coca collectors leaving school for lack of economic resources, seeking economic independence, and social recognition (Hilson, 2012; Jonah and Abebe, 2019; Metta et al., 2023; Okyere, 2022). These lives are also intentionally *made precarious* by institutional discourses that criminalise young people living in these territories, associating them with drug-consumption, anti-social behaviours and unskilled labour for armed groups, making their lives extremely “dispensable, sacrificable and disposable” (Seca and Mancera-Panza, 2022: 5) and failing to investigate cases of forced disappearances or deaths. Being a miner and embodying heteronormative and hegemonic forms of masculinity, represents a key strategy to occupy a (still precarious) social role in these geographies that are otherwise very difficult to navigate as a young racialised man.

5.2. Place-making, care and extraction

While for corporate actors the geographies of extraction represent a *zone of sacrifice* where the externalities of processes of capital accumulation get deposited in the form of environmental burdens (Perrault,

2013), the biographies of ASM miners are inscribed in these geographies and located at the centre of the socio-spatial relations that ASMs construct throughout their life (Pierce et al., 2010). Here, traditional mining livelihoods are an intergenerational modality of “being” in space and, at the same time, *making place* (Pierce et al., 2010) by promoting collective “place-based territorial projects” (Escobar, 2020) constructed around the cultural reproduction of traditional livelihood strategies.

Bottom up processes of place-making therefore overlap and interplay with processes of social and cultural reproduction centered around ASM and aimed at sustaining life in extractive geographies. While classic Marxist feminist sociology defines social reproduction as the unpaid labour of care performed in the narrow space of the household (Katz, 2001; Braedley and Luxton, 2021), Di Chiro (2008, 281) expands this definition to include “the intersecting complex of political-economic, sociocultural and material-environmental processes required to maintain everyday life and to sustain human cultures and communities on a daily basis and intergenerationally”. This process of sustaining “everyday life” includes “the maintenance of particular social norms and customs, and the continuance of social networks” (Mascarenhas, 2012:7) and spans beyond the dimension of unpaid labour in the household. Small-scale extraction allows racialised and marginalised masculine actors to perform a breadwinner role while contributing to the reproduction of an intergenerational mining culture, as it emerges in the interview below from the words of an ASM miner.

“Our grandparents lived off mining, my dad lives with this, and now myself. All my family owes everything to the mine” (El Bagre, June 2022).

As argued by a Mining Engineer interviewed in Segovia, informal and intergenerational processes of knowledge exchange are crucial to retain a collective mining culture.

“The work of mining can only be learnt through tradition, there is no school [for it]” (May 2019, Segovia).

This process of intergenerational cultural and social reproduction expands beyond the geography of the gold-mine and entails a dimension of mutual care among family members. A middle-aged man who formerly worked for the National Training Service (SENA) and is the son of a retired miner in Segovia, for example, argues: “My father always wanted me to learn how to use the explosives, the hammers, and drills. But what I wanted was to study mining engineering at the [Universidad Nacional de Colombia’s] School of Mines or [become a mining technician and metallurgist] at the SENA. I didn’t want to do physical labor in the mine but at the processing plant as a metallurgist or engineer (...) I thought it would be a better way to support my family and the community. My dad had his doubts, but he supported me. I took metallurgy courses at SENA and eventually had a contract with them.” (Interview, March 2019, Segovia).

In a context of lack of public social investments and institutional presence to deliver social services and security, ASM also represents a strategy through which place-based territorial projects are sustained at the financial and social level. In the context of a large mining hearing conducted in Caucasia on the 2nd of October 2022, for example, a miner from a local organisation based in Caucasia said before the Minister of mining:

“If you manage to do the Mining District and formalise us that is great, but you have to know that if you do not, mining is still not going to stop. In this region mining cannot be stopped” (Field notes, October 2022, Caucasia).

The representatives of several local mining organisations from the Bajo Cauca region argue that it is through small-scale extraction and collaboration at the community level, rather than state investment or the inversion of the large-scale mining company Mineros SA, that the rural areas of the region “developed”. Financially contributing to the community’s needs by donating a small percentage of the gold extracted to the local Community Action Councils (JACs- *Juntas de Acción Comunal*), for example, is one of the forms that this modality of solidarity materializes. There is thus a common narrative among artisanal and small-scale miners that external mining actors – e.g., mining entrepreneurs from other regions or migrant miners – often fail to respect and contribute to this solidarity because they lack the necessary socio-

¹ This expression also emerges in the ethnographic work conducted by Palermo, in Argentina, see Palermo 2015.

² This is a portmanteau of ‘joven’ (young) and ‘cidio’ (action to kill) and refers to the consistent killing and exercise of violence against young people.

territorial rootedness (*arraigo territorial*) and are instead only interested in extracting gold for their own economic benefit (field notes, Segovia, 2018 and 2019).

In July 2022, in a focus group discussion held in the municipality of El Bagre, the President of a local *Junta de Acción Comunal* (JAC) recalled a conflict that was unfolding between foreign mining entrepreneurs operating in the municipality, who refused to compensate local communities for the damages they caused to local road infrastructure by the backhoes, and the JAC, that administers local collective investments. He foresees that this situation will require the intervention of the paramilitary group AGCs, who can enforce these norms of conviviality on foreign miners. At the same time, in the interviews conducted with small-scale mining entrepreneurs from El Bagre and Nechí, local armed actors also emerge as disruptive of this local social order, as they can implement destructive environmental practices without being held accountable by local institutions. Local miners attribute the lack of care toward the environment to both foreign medium-scale mining entrepreneurs and armed actors, who break this network of solidarity:

“Well, the territory... [...] it is important to note [...] that there has been quite a bit of state absence in the territory. Because, it is important to note that the big machines, those that exploit and damage the territory, are not owned by local farmers. That, in that moment, in the context of the armed conflict, all these machines were taken here by the ELN, the extinct FARC, so they are things that... in that moment, us, as farmers, could not oppose. So, let's say that a great part of the exploitation and environmental degradation that happened in local ecosystems is because of the absence of the state in the territory (El Bagre, June 2022).”

In this context of selective state presence in which military presence is paramount but democratic environmental management is secondary, processes of place-making pass, in the first place, through the establishment of social agreements and collective financial investments among local miners to repair social and environmental damages created by care-less practices of extraction performed by other actors. Pablo, for example, is a well-known miner from El Bagre. When he first started working in the mining sector, he was taught how to operate a backhoe and became an *operador de maquina*- machine operator. Pablo says that he managed to create a relationship of “friendship” with local traditional gold miners, who often have a relationship of conflict with medium-scale miners, because of the competition over local gold deposits that he describes as one of “care” for the community.

“We used to leave them (gold panners) a little space that you leave for the –barequeo– (gold panning), and they used to work in this part. It was a mine that I left open for them and they worked on it very well, they were all very happy with me, from every point of view. Look, I had to have a good belly because every day they would come and give me an ice-cream, a pudding, they would bring me anything. This was like (saying) –no jodas– I am hungry” and food would come from all sides. Do you understand? It was the exchange of friendship. (July 2022, El Bagre.).

Similarly, in Segovia, miners with no processing facilities or machinery rely on leasing their use from more resourced miners. A processing facility owner and former mine worker says he allows artisanal miners to bring their ore sacks and mill them in his processing centre.

“I don't charge anyone for using the mills besides the operation costs – some artisanal miners bring low quantities of ore in buckets, so scant that they often pool their ores for a single mill run. How could I not let them mill their ores here? We are all trying to feed our families” (Interview, May 2019, Segovia). These forms of stepping up for the have-nots with no apparent gain can be interpreted as a form of care in the midst of iterated state and aid agencies interventions that have not addressed the profound inequities in mineral processing capacity and metallurgical lab testing in the area and the mining sector writ large (Rubiano-Galvis, 2022).

Other caring practices pass through the implementation of artisanal technologies and mining techniques aimed at reducing the environmental impacts of mining. Amado, a gold miner born in El Bagre whose family has a long tradition of artisanal mining and currently owns a

small mining unit where he gives work to three other miners, mentions a series of caring practices implemented by local miners, such as the practice of filling the holes left by the backhoes and planting trees where they had previously worked. He has also been studying old chemistry books to understand how mercury works and has created a system of retorts to filter the emissions of mercury burning. In the Nordeste, the implementation of these retorts has been qualified as a “successful case of mercury-reduction” (García et al., 2015). However, its implementation would also require economic viability:

“Us, the old miners, we have the alchemic invention called retort which is a metallic pot where you burn and separate with a water condenser to collect mercury, collect it all. But it makes things too expensive. I will show you a small, rudimentary one, done by some people who have this idea, but it does not convince much, its pressure is too weak, but I will show it to you” (El Bagre, June 2022).

In interviews conducted in the Nordeste, these caring practices emerge as extended to the relationships miners establish with the technicians and professionals working with them on technical assistance projects and other miners who cannot participate. Segovia and Remedios have, in fact, a history of almost four decades of public, private, and aid-funded technical assistance and technology transfer projects to incentivize miners to phase out mercury use and adopt mercury-free processing techniques (Rubiano-Galvis, 2022). Under the assumption that the government can't devote public resources to fostering illegal economies, a 1994 decree banned unlicensed (“illegal”) miners from attending government-funded workshops and capacity-building sessions, thus limiting their reach. Despite this, between 2012 and 2019, some miners who had formalised their operations or were in the process of doing so frequently facilitated access to miners without titles or shared with them the technical and legal knowledge learned in the workshops.

“I have been in some of those spaces [the training sessions] but can't engage much because my operation is not formalised, and I fear being flagged. But sometimes, instructors let me attend without signing the attendance sheets. I have learned a thing or two on mining law, formalisation procedures, and finance opportunities, even if I cannot benefit much from any of that for now,” said a miner in Segovia (Interview, May 2019, Segovia).

In these stories, the caring practices that local miners employ towards the environment, other miners and community members represents an “ontological” rather than “ethical” choice (Ureta, 2016: 1535) and emerges from the relation of “affective entanglement” (ibid.) with a territorial network of social relations. In this context, caring emerges as a partial and imperfect modality that these actors use to conciliate extraction with processes of relational place-making. Crucially, these forms of care do not unfold within the private realm of the home. Other geographies, along the chain of gold production, are also fundamental to these practices of care.

5.3. Contaminating actors

In ASM geographies, toxic contamination emerges as a ground where gendered identities, toxic exposure and care interplay in complex and ambiguous ways. The amalgamation of gold and mercury and the separation of these metals through burning (Cordy et al. 2011; Esdaile and Chalker, 2018) is a technique that is extensively used across artisanal and small-scale gold mining and that leads to widespread and long-term processes of environmental contamination while also exposing local communities and miners to intoxication. In the Bajo Cauca and Nordeste regions, the use of mercury encompasses varied forms of artisanal and small-scale mining ranging from gold panning and handpicking gold scraps from wealthier mining operations to medium-scale technified mining practised with backhoes and dredges (Campuzano-Duque, 2021; Rubiano-Galvis, Diaz-Leiva and Goldstein, 2023). Routes of contamination include direct contact with mercury, inhalation during the burning of the amalgam or more indirect exposure through food and water consumption once the metal is deposited in the environment

(Gibb O'Leary et al., 2014).

Mercury amalgamation in Bajo Cauca and Nordeste dates back to the early nineteenth century when mining engineers working for US and British companies that invested in the region promoted its use (Deusta, 2017; Rubiano-Galvis, 2022, 2022a). Therefore, corporate mining actors have important historical responsibilities in relation to mercury contamination in the Bajo Cauca and Nordeste regions and other mining company towns in South and Central America (Dinius and Vergara, 2011; Deustua, 2017; Rubiano-Galvis, Diaz-Leiva and Goldstein, 2023; Rubiano-Galvis, Diaz-Leiva and Goldstein, 2023). The colonial uses of mercury still shape the patterns of exposure today (Cooke et al., 2013), as mercury circulates several times through the atmosphere before it is permanently deposited in lower sediments (UNEP 2019). Furthermore, large-scale corporate actors inherited this technique and only recently abandoned it after the promulgation of Law 1658 from 2013 which prohibits mercury usage in Colombia. Notwithstanding this, corporate actors across Colombia often use their mercury-free processing to reassert their environmental responsibility, thereby glossing over the negative effects of their extractive practices. In the Nordeste, for example, it is common to hear the local community complain about the negative impacts of corporate extraction on water sources (Rubiano-Galvis, 2022a).

Law No 1658 from 2013 that banned mercury in Colombian mining in 2018 also significantly contributed to deepening tensions between ASM and the Colombian state (Kaufmann, 2024). Together with financial barriers to implement mercury-free techniques and the lack of state support, these conflicts are also related to the high barriers to mining formalisation, as well as the equation of mining informality with illegality and criminality through state and corporate actors. This means that technical adaptations to decrease risks related to mercury that happen beyond legality are illegible to state and corporate actors, and the gold processors are still at risk from criminal prosecution (Rubiano-Galvis, Diaz-Leiva, and Goldstein, 2023; Kaufmann, 2024; see also Tschakert & Singha, 2007). The mercury-ban thus sheds a light to the construction of masculinities at the intersection of increasingly strict state environmental regulations, customary forms of extraction and processing, the implementation of technical adaptations to decrease risks for the miners and their communities, and the increasing encroachment of artisanal and small-scale mining livelihoods through state and corporate actors and their regulations.

At the same time, at the household level, bearing the risks of toxic exposure falls within the responsibilities associated with a masculine breadwinner role. Caring for one's family, in this context, implies that while some precautionary behaviours start being implemented towards children and other members of the household, male miners still expose themselves to the handling and inhalation of mercury. For example, in some households, women are used to leaving the house with their children, while men burn the amalgam on the kitchen stove. In other households, male miners start to practice the separation of the gold and mercury amalgam directly in the gold mine, to avoid the exposure of other household members. In a focus group discussion, Samuel, a gold miner from Nechí, argues that: *"It is good that women do not expose themselves to this. Now, I only burn it (the amalgam) in the mine. You have to have that care with your own- hogar- household"*. (Nechí, November 2022).

The tension between exposure and care also emerges in the parenting strategies implemented by some of the miners interviewed in the Bajo Cauca region who hope that, by keeping their children away from the mine and assuming the toxic risks and physical burden of gold mining, they will be able to support them through their studies, so they will be able to "work –sentados –sitting down", obtaining the social status held by people who do not perform manually heavy work. Similarly, Maria, a 31 years old woman who participated in focus group discussions in Nechí, argues that her partner does not like to see her working in the mine, and she only joins him occasionally when he cannot find any other family member to help with gold panning. Otherwise, he prefers her to stay at home and only sell products from a magazine. He "cares" about

her health and, by limiting her exposure to the risky environment of the mine, is complying with a set of gendered expectations determined by patriarchal social norms, where heavy work and exposure need to be performed by men in their role of providers of the household (Focus group discussion, Nechí, December 2022).³ The continued use of mercury is therefore not to be reduced to the widely rehearsed, simplistic assumption that artisanal and small-scale miners "refus[e] to accept the link between cause and symptom" (Davies, 2014: 114) of mercury toxicity. Instead, it is better understood through the locally specific combination of a lack of viable alternatives and the defence of artisanal and small-scale mining as a legitimate livelihood and a gendered pressure to "face" toxic exposure to perform a breadwinning role and care for other household members.

Yet, as it has been discussed above, while gold mining allows men to perform a breadwinner role embodying a hegemonic form of masculinity, it also, paradoxically, poses a toxic threat to masculinity, which can be symbolically lost through contact with mercury. In fact, in the last decade, mercury's harm to reproductive health has been widely documented and, while it has not been the most studied effect, multiple studies have shown an association between mercury exposure and erectile dysfunction among male miners (Liu et al., 2022, Henriques et al., 2019). This also raises the fear of infertility among gold miners. Stories of miners who "had difficulties in their sexual relationships" as a result of the contact with mercury, for example, were shared in several workshops in the Bajo Cauca. In these discussions, impotence is strongly associated with a diminished form of masculinity. Local miners argue that:

"In Segovia, you can buy many products that help with sexual impotence problems. Miners always buy them – people say it's because of the mercury intoxication (...)" (Interview, March 2019, Segovia).

The hegemonic forms of masculinity underlying these fears are not only recognized but also harnessed and co-produced by government officials and technical experts involved in mercury reduction initiatives in various artisanal and ASM regions. For example, Hinton, Veiga, and Veiga (2003) describe an initiative in 1985 in Brazil by the Secretary of Mining for Goiás State aiming to encourage the adoption of retorts and raise awareness about health risks. As part of the initiative, the Secretary distributed a brochure to gold miners that emphasized male impotence as one of the initial symptoms of mercury exposure. The authors consider this approach "somewhat inaccurate and therefore questionable from an ethical standpoint, but (...) extremely effective in capturing the attention of miners" (Hinton, Veiga, and Veiga, 2003, 108). Similarly, Veiga recounts a 1995 talk in Venezuela where he addressed artisanal miners and asked women in the audience to identify miners who appeared impotent. Although the women did not act on this request, Veiga claims the miners became very interested in using retorts (Hinton, Veiga, & Beinhoff 2003, 12). The ethnographic data collected for this paper do not allow us to engage more in-depth with this topic. Yet, further research is needed to understand the ways in which mercury's harm to reproductive health intersects with identity-making discourses and contributes to framing local experiences of masculinity, a dynamic often mediated by rumours or inaccurate evidence (cf. Postar 2024).

³ In other ASM geographies, this form of care does not necessarily extend to women outside of the household or is kept for oneself. For instance, in the Brazilian Amazon, Veiga (1996, 10) documents the case of a male miner who, after losing a brother due to the harmful effects of mercury exposure and learning more about them in mercury-reduction training, started only hiring "unaware women for the dirty work" of burning amalgams and isolating himself in his office while they carried out this task (cited in Hinton, Veiga, and Beinhoff, 2003, 11).

6. Conclusions

Drawing on long-term ethnographic engagement with artisanal male miners in the Bajo Cauca and Nordeste regions, in this work, we argued that developing a feminist analysis of masculinities in extractive geographies is crucial to deconstruct problematic environmental narratives in different policy arenas and the assumptions that underpin gendered structures of power in these geographies. We challenged fixed, top-down and homogenous representations of hegemonic masculinities as disruptive of feminised processes of care and social reproduction in public debates on mining by looking at the fragile forms of masculinity that emerge at the margins of corporate extraction and amidst forms of partial inclusion in the extractivist economy.

In ASM geographies, extractive masculinities emerge as an everyday strategy to inhabit a complex socio-environmental context while sustaining a difficult relationship with a masculinised military state that only shows its presence through militarised securitisation policies, and corporate and armed actors. For young men, in particular, engagement with ASM represents one of the few opportunities to occupy a socially respected role and earn an income, navigating a strong vulnerability to practices of forced recruitment and armed violence. In this paper, we proposed an ethnographic engagement with the everyday struggles of ASM miners to reveal the fragility of these extractive masculinities in a context of precarious working conditions, legal and illegal armed violence and toxic risks. By uncovering this fragility, we contribute to the debate on gender and extractivism by calling for a more nuanced analysis of the gendered subjectivities that emerge in ASM geographies and cannot simply be represented through a binary understanding of participation/resistance to extractivist capitalism.

Secondly, we contribute to the debate on care in contexts of environmental degradation by looking at the “ontological” (Ureta, 2016:1535) forms of care that emerge from a biographical and emotionally implicated relation with regions of extraction. In particular, we have unpacked the tensions that emerge in the everyday experiences of ASM communities between care and extraction. While these caring practices do not have the ambition or capacity to address the complex local environmental conflicts nor do they resist or contest extractivism, they do contribute to sustaining life in territories of extraction, both in the short-term temporality of everyday efforts of social reproduction as well as in longer-term processes of ensuring that future generations will have the possibility to inhabit the region. Paradoxically, exposure to toxic chemicals in ASM, does not result from a *care-less* practice of extraction, but represents a strategy employed by male miners to perform a breadwinning role, taking care and providing for other household members. This highlights the complex intersection between toxic exposure and care that emerge in ASM geographies. Addressing the gendered social expectations that frame men’s willingness to handle mercury and face toxic risks is important to challenge the criminalization of ASM miners.

While we have demonstrated the importance of challenging fixed and simplistic representation of gendered identities in extractivist geographies, further research is needed to dissect the multiple and potentially divergent forms of masculinity that emerge in and across varied extractivist landscapes and the tensions existing among them. In particular, understanding age as an important factor of vulnerability that intersects with gender to create particularly fragile masculinities requires to be further investigated through a deeper ethnographic engagement with the experience of young male miners, as well as more seasoned, elder miners.

This research was funded by the LSE Phd Scholarship, the University of Zurich, University of California Berkeley and the Fulbright scheme, and it received ethical approval from the London School of Economics. We would also like to thank the local organizations ASOCBAC, ASOC-NUR, ASOVIAMCLA and Gente y Bosques, among other organisations, for their invaluable support and active participation in this project.

CRedit authorship contribution statement

Chiara Chiavaroli: Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Sebastián Rubiano Galvis:** Writing – review & editing, Investigation, Formal analysis, Data curation, Conceptualization. **Christoph Kaufmann:** Writing – review & editing, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

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.

Acknowledgement and Ethical Statement

This research was funded by the LSE Phd Scholarship, the University of Zurich, University of California Berkeley and the Fulbright scheme, and it received ethical approval from the London School of Economics. We would also like to thank the local organizations ASOCBAC, ASOC-NUR, ASOVIAMCLA and Gente y Bosques, among other organisations, for their invaluable support and active participation in this project.

Data availability

The data that has been used is confidential.

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