Silent violence to the core: Environmental suffering and suffocating uncertainties in the Colombian Caribbean coal industry

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Abstract

For many, the coal industry in Colombia has been synonymous with progress, economic growth and access to education and housing opportunities on the Caribbean mining frontier. However, little has been said about the slow, dosed and silent violence that has permeated the ecological systems and human groups alike. This article argues that health and environmental damage in the Cesar mining corridor express quotidian, but no less painful and profound, forms of environmental suffering. Using notions such as toxic uncertainty, the article expands our understanding of environmental violence in a region prey to coal pollution.

Keywords: Coal extraction, Colombian Caribbean, toxic uncertainty, environmental suffering, slow violence

Resumen

Para muchos, la industria del carbón en Colombia ha sido sinónimo de progreso, crecimiento económico y acceso a educación y oportunidades de vivienda en la frontera minera del Caribe. Sin embargo, poco se ha dicho sobre la violencia lenta, dosificada y silenciosa que ha permeado la condición de los sistemas ecológicos y de los grupos humanos por igual. Este artículo sostiene que tanto los daños a la salud como al medio ambiente en el corredor minero del Cesar expresan formas cotidianas, pero no menos dolorosas y profundas, de sufrimiento ambiental. A través de nociones como la incertidumbre tóxica, se amplía la dimensión de la violencia ambiental en una región presa de la contaminación del carbón.

Palabras clave: Extracción de carbón, Caribe colombiano, incertidumbre tóxica, sufrimiento ambiental, violencia lenta

Resumo

Para muitos, a indústria do carvão na Colômbia tem sido sinónimo de progresso, crescimento económico e acesso à educação e oportunidades de habitação na fronteira mineira das Caraíbas. No entanto, pouco se tem dito sobre a violência lenta, doseada e silenciosa que tem permeado a condição dos sistemas ecológicos e dos grupos humanos. Este artigo argumenta que tanto os danos à saúde quanto aos ambientais no corredor de mineração de Cesar expressam formas diárias, mas não menos dolorosas e profundas, de sofrimento ambiental. Através de noções como a incerteza tóxica, a dimensão da violência ambiental numa região vítima da poluição do carvão é ampliada.

Palavras-chave: Extração de carvão, Caribe colombiano, incerteza tóxica, sofrimento ambiental, violência lenta

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1. Introduction

In February 2021, Prodeco Group, a Colombian subsidiary of the Swiss multinational Glencore, notified the Colombian government of its intention to withdraw completely from Colombia, which entailed the relinquishment of all its mining titles. Although this news came as a surprise to many, it was not the result of a fortuitous decision. Since 2020, Prodeco had considered the suspension of its operations in La Jagua and Calenturitas mines (department of Cesar, north of Colombia) for economic, productive and environmental reasons, assessing the possibility of relinquishing its land titles as a last option in case the suspension request was not accepted by Colombia's National Authority of Environmental Licenses (ANLA). Over months of negotiations with the Colombian government, Prodeco argued that its situation in international markets – aggravated by the pandemic and the economic slowdown – was delicate. They also alleged a reorientation towards low-carbon energy sources, as well as problems associated with both the cost structure of the business and the issuance of environmental licenses in Colombia. Then, in 2021, Prodeco made the decision to withdraw from the country, as the business was simply not profitable.

The decision was big, especially because Calenturitas and La Jagua are not just any two coal mines. They belong to the El Descanso-La Jagua-La Loma-Calenturitas-Pribbenow complex, the largest open pit coal mine in Cesar and the largest coal mining complex in Colombia, second only to Cerrejón, located in the neighboring department of La Guajira (UPME, 2011). Cesar and La Guajira are Colombia's largest coal producers with 22.1 and 17.0 million tons of coal extracted respectively out of 40.5 million produced in Colombia between January and November 2021. These departments have nearly 95 percent of the total coal produced nationally, with 60 percent of it exported annually (ANM, 2013; Corral, *et al*., 2021). El Cerrejón and Cesar's carbon corridor give life (a certain type of life associated with environmental and health degradation, as well as the death of countless ecosystems) to a corporate, economic and spatial dynamic that has defined the past and present of Colombia's northernmost savannah and coastal region.

In this context, the abrupt exit of this company has raised concerns of two orders. First, what will be the political and economic future of a region highly dependent on coal extraction? Second, how will Prodeco's withdrawal develop over the next few years, considering unaddressed and unresolved problems of environmental degradation and the progression/treatment of diseases linked with the extraction, transformation and transport of coal? While both questions are relevant, I will focus in this article on addressing the second one. Uncertainties around Prodeco's withdrawal and the incalculable ecosystem losses as well as the deterioration in health and social fabric left by the coal industry in this region are clear. So too are the environmental concerns that give life to this article. But while this work revolves around the central notion of environmental suffering, it is framed in a discussion of extreme violence that is not only of an armed nature. Illustrating all the complex relationships between extraction, paramilitary action, state formation, slow violence, and gender disparities in the diagnosis and treatment of possible coal-associated diseases, as well as displacement, abandonment and land access and control, is beyond the scope of this article. Slow violence is by its very dosed and silent nature, highly invisible. However, there is enough evidence to establish many of these links in Cesar, one of the cradles of contemporary paramilitarism (PAX Colombia, 2014; Lugo-Vivas, Narváez-Jaimes, & Castiblanco-Durán, 2021; FCSPP, 2020; Gutiérez, 2012).

The article seeks to portray expressions of environmental suffering, mediated by the determining presence of a coal sector that, however toxic and violent it may be, has managed to assert itself as one of the most important – if not the only – viable solution for job creation in the region. While environmental suffering has persisted and, in some cases, has carried on despite a productive and labor 'revolution', collective action and social mobilization against the risks of coal extraction have been determined by the power of the coal sector. The coal industry entered Cesar in a hegemonic manner from the 1980s. It has been linked to land dispossession and paramilitarism (Verdad Abierta, 2013a, 2013b, 2017, PAX Colombia, 2018, Tierra en Disputa, 2018). Thus, communities living near or working within the coal industry, have been subordinated to the demobilizing power of the latter, with full acquiescence of the State. Its significance as an employment and royalty-generating force is simply too great a temptation for any relevant political actor to dismiss it, or at least set it aside. The psycho-emotional, ecological and physical deterioration of neighboring groups has deepened regardless of complaints and evidence of ecosystem deterioration, coal-related health risks, and multi-dimensional violence. The coal

industry has overcome such denouncements, leaving communities in Cesar dependent on the actions of the mining industry and its willingness to cooperate (Ternera, 2010; Vallejo, 2010).

I will analyze expressions of environmental suffering usually overlooked in the literature. In addition to showing some of the wounds caused by a highly polluting sector that is little talked about in Latin America, these expressions reflect a highly racialized competition for land (Lugo-Vivas, Narváez-Jaimes, & Castiblanco-Durán, 2021) in which population of rural areas living and working in farms adjacent to coal concessions are subjected to renewed forms of violence and long-term coal dust exposure. Thus, this article will focus on narratives of concern and risk from residents of Becerril that not only succumb to technical readings of the environmental impact of coal mining, but also make visible forms of slow violence little considered by academia. Such narratives revolve around the deterioration of health conditions – with causes not proven. They trace the occurrence of thyroid cancer, lumps and nodes in the neck and upper chest, as well as the uncertainty associated with environmental damage to lands that not only have extensive mountains of toxic coal rubble, but are also the product of violent dispossession and land abandonment due to paramilitary action.

2. Political ecology contributions to slow violence in toxic extractive frontiers

Everyday violence is transmitted in multiple ways. Here I am interested in approaching environmental violence that, because of its dosed and silent nature, is denied in the discourse but encouraged and perpetuated even by the groups closest to those who experience it. The research takes up the notion of slow violence, as one "that occurs gradually and out of sight, a violence of delayed destruction that is dispersed across time and space, an attritional violence that is typically not viewed as violence at all" (Nixon, 2013, 2). Eco-technological hazards usually appear in the literature as microplastic pollution, ocean acidification, and climate change. In this case we see the presence of coal dust that permeates human and other animal bodies and ecosystems (Álvarez & Castro, 2016; CINEP, 2014) and accelerates the drying out of grasslands and domestic infrastructure (Cardozo-Sánchez, 2015; Ternera, 2010; Vallejo, 2010), while creating mountains of waste and fetid pollution of land, water and air that imprisons and asphyxiates ethnic groups (Defensoría del Pueblo, 2008; González-Abella & Burgos-Camacho, 2018; Idárraga, Muñoz, & Vélez-Galeano, 2010; Iriarte-Pulido, 2014; Montoya-Domínguez, 2018).

By exploring environmental suffering due to coal exposure, this research contributes to thinking about necropolitics (Mbembé & Meintjes, 2003; Lyons, 2008; 2018), analyzing how the advance of territorial power by state and corporate forces implies exposing people to deadly circumstances and how the domain of life, even in its most everyday aspects, is subordinated to the power of those who define who and what has the right to kill (Lyons, 2008; 2018), and what is allowed to live in very precarious conditions (Meszaros, 2018; Murphy, 2008, 2013). Also, this article adds to the literature on slow violence in Colombia, but recognizes that such contributions, while discussing the reproduction of toxic landscapes, have focused on a very limited group of toxic agents linked to the armed conflict and the economies that have fed it. This tradition has prioritized the impact of mercury and other metals in the development of gold mining, particularly in the extraction referred to as illegal, and aerial spraying of Glyphosate, employed with regularity in agribusiness activities and the War on Drugs (International Court of Justice, 2008; Lyons, 2016; Moreno, 2015; Vélez-Torres & Lugo-Vivas, 2021; Vélez-Torres & Méndez, 2021).

Important to note is that the use of Glyphosate and other herbicides in a context of armed conflicts and the symbiotic relationships between illicit and corporate agrarian economies has created a community that has actively denounced not only forms of slow death in Colombia, but also the extermination of ecosystems, species, and people in the name of 'legal' life (Lyons, 2018; Meszaros, 2018). Lyons' recourse to thinking-with and living-with landscapes and groups confronted by emergent forms of death, as well as Meszaros' notions of defoliation, dehydration and desiccation (of plants sprayed with Glyphosate), highlight the steady and continuing creation of death in war zones for the sake of stability and security. In this vein, war-related ecocides (Zierler, 2011; Higgins, Short & South, 2013) not only underline the paradoxical rupture of relationships between human (farmers) and non-human, but also use this disruption to accelerate processes of soil capture. As Meszaros notes "the reason why so many peasant farmers have been displaced… is that the government

wants to capture the forest; then the petroleum, mining, and palm oil companies are free to come in and begin exploitation on a greater scale" (2018, 236).

These studies show how slow violence has reproduced toxicity as a form of controlling life in Colombia. Whether they refer to the death of ecosystems by fumigation, the deterioration of health due to fertilizer spraying, the gendered impacts of exposure to toxic agents in the *cuerpas* of *campesinxs*, the dumping of mercury and other toxic materials in water and energy sources where unlicensed and mechanized extraction of gold has been developed, or the deforestation, spillage and fracking linked to oil extraction (Vélez-Torres & Méndez, 2021), the evidence points to renewed slow violence in Colombia. Expressions of everyday suffering in the sense of water dispossession (Ojeda, Petzl, Quiroga, Rodríguez & Rojas, 2015) and the vulnerability of returning displaced communities contesting the action of polluting industries (Lugo-Vivas, Narváez-Jiménez, & Durán-Castiblanco, 2021) add to the literature on suffering that addresses the primitive eradication of life and the politics behind toxic destruction. Therefore, classic manifestations of industrial violence in Latin America (Castillo, 2016; Auyero & Swistun; 2007, 2009; Valdivia, 2018), appear to be fueled, amplified and deepened in Colombia by the armed conflict.

This is perhaps the reason why literature on Colombia has privileged toxic agents linked to the war and the economies that have fed it. However, this article takes a slightly different route by analyzing how, within a region that has experienced a very selective de-escalation of the armed conflict, poor environmental management has allowed uncertainty and a lack of a deeper understanding of the impacts of a highly polluting industry to predominate in the spaces of personal, family and community exchange. Such uncertainty appears in daily expressions of physical suffering and psycho-emotional affectation, particularly concern, about which very little is said. The contributions of Davies (2019), Castillo (2016), and Auyero and Swistun (2008, 2009), among others, are helpful. For them, slow violence has been a product of environmental inequity in the Americas, which has created not only innumerable forms of pollution, but also an inexplicable set of contradictory and confusing misrecognitions. Thus, with agrochemical and industrial pollution, there has been a "toxic uncertainty" (Auyero & Swistun, 2008); a lack of clarity about pollution impacts for which no further details are provided. This lengthens delays in resolution, controlled by others – as well as contradictory reports that bombard the decision-making of hundreds of settlers trying to make a living surrounded by petrochemical, polymetallic, and mining industries.

Methodology

This article is part of a series of works developed by the author, as part of the Universidad Santo Tomás research group on "Social Conflicts, Territories and Gender." It addresses structural, armed and environmental violence in contexts of forced displacement, paramilitary control, and palm and coal extraction in the Colombian Caribbean based on the author's work in two areas of Becerril: 1) the road between Casacará-La Loma and 2) the villages surrounding the mining concession 144-97 (1997) El Descanso. These regions had active coal exploitation within the complex La Loma - Calenturitas - La Jagua - El Descanso – Pribbenow – La Francia / Colombian Natural Resources (CNR), particularly under the La Jagua concession.

From 2020-2021 I worked under FODEIN institutional research programs, on failed land restitution, experiences of re-victimization and palm exploitation in Nueva Esperanza[2] (municipality of Agustín Codazzi, north of Becerril), and on land concentration, extractive portfolios, and dispossession in the Hacienda El Tocuy - Santa Fe[3] (Becerril, Colombian Caribbean). The coal enclave includes settlements in El Boquerón, El Hatillo, and Plan Bonito, among others, have undergone some relocation due to high environmental contamination. The effects of these movements are beyond the scope of this project, which concentrates on experiences of suffering, uncertainty and environmental violence in landscapes characterized by armed violence and failed and unfinished land restitution processes.

[2] Article Más allá de la Esperanza: Violencia, revictimización y restitución de tierras en Nueva Esperanza (Cesar-Colombia). https://sociedadyeconomia.univalle.edu.co/index.php/sociedad_y_economia/article/view/11208

[3] Presentation and paper submitted for the workshop: "Exploring wealth and Elites in Latin America": http://calas.lat/en/convocatorias/call-papers-%E2%80%9Cexploring-wealth-and-elites-latin-america%E2%80%9D

During the first half of 2022, I conducted semi-structured interviews in Codazzi, Becerril, and along the road that connects the districts of Casacará and La Loma, at the center of Cesar's coal economy. This corridor is the second largest enclave of coal extraction in Colombia (Figures 1, 2), after Cerrejón (690 square kilometers), a mine located in the south of the department of La Guajira, in the northeastern part of the Ranchería-Cesar Basin and close to Cesar's coal corridor. The latter includes the municipalities of Chiriguaná, La Jagua, Becerril, Agustín Codazzi, and El Paso. A handful of big companies – Drummond, Glencore-Prodeco, Carbones La Jagua, Colombian Natural Resources, and Consorcio Minero Unido – control the most important coal concessions in Cesar.

Ethnographic work and interviews took place in two stages: February to March 2022 and July to August 2022. There were two armed strikes organized by the National Liberation Army (ELN) during this time, which prevented moving around during most of my stay. Hence the emphasis on Becerril and on families whose lands are in failed or in-progress processes of restitution and are close to the La Jagua mining concession. Severe environmental and health impacts can be extrapolated to other areas. When inquiring about contextual and contrasting experiences, we found cases of damage to housing infrastructure and to bodies – diagnoses of cysts and nodules in the upper thoracic and scapular region, as well as thyroid cancer.

The article first presents a history of coal exploitation in the Colombian Caribbean that emphasizes processes of direct and slow violence in the region. I analyze the main findings focusing on both environmental and territorial damage in areas surrounding open-pit coal mines, as well as narratives associated with the deterioration of human health. Then I detail how "toxic uncertainty" (Auyero & Swistun 2008) is experienced on a daily basis and accentuates concerns over damage to ecologies, territories and health, before offering conclusions.

3. Findings and discussion

The influence of the coal sector along this corridor is indisputable. It is the largest employer in the region and intervenes in almost every aspect of social life from mineral extraction to health and education programs. Coal has become a compass that guides and directs the destiny of this region, and a secretive substance that has penetrated – in the figurative and literal sense – the most intimate spheres of people's lives in central Cesar. Prior to the 1980s, exploratory studies began to reveal the vast wealth of coal, which speeded up the arrival of associations of miners and small companies. With artisanal technology, they established the first open-pit operations in Cesar. And, according to Ternera (2010), in the early 1980s, more than twenty companies and miner's cooperatives did the most extraction. The state found its place through Carbones de Colombia, CARBOCOL, founded in 1976, which until 1992 worked in creating infrastructure and extracting coal in fields where it had its own concessions. In the following years, CARBOCOL, through alliances with mining cooperatives and small groups, opened the way to large-scale extraction as we have gradually come to know it through the operations of Drummond and Prodeco-Glencore. Since then, Drummond and Prodeco have led coal extraction, meaning that state programs and the control of natural resources have allegedly favored them. But most lawsuits also fall on them, concentrating investigations not only numerically, but also in relation to the seriousness of the complaints. Such lawsuits range from the implementation of questionable ecological practices to federal crimes – some of them acquitted – linked to the support of paramilitary organizations.

The region has been a laboratory for the intersection of different forms of direct, structural, and slow violence. Research has detailed the role of AUC's Juan Alvarez block in massacres and forced displacement events (FCSPP, 2020; Rutas del Conflicto, 2019a,b,c), its relationship with companies and economic actors such as Drummond, Carbones Caribe, Alfredo Araujo or Edgardo Percy Díaz-Granados[4] and the role of the FARC in spreading violence around mine enclaves (Defensoría del Pueblo, 2016a, 2016b; Lugo-Vivas, Narváez-Jiménez, & Durán-Castiblanco, 2021). Scholars have intertwined direct violence with the consequences of large-scale coal extraction.

[4] Judgment file # 200001 312100120160007700 of the First Civil Court of the Circuit Specialized in Restitution of Lands of Valledupar – Cesar (August 8, 2017).

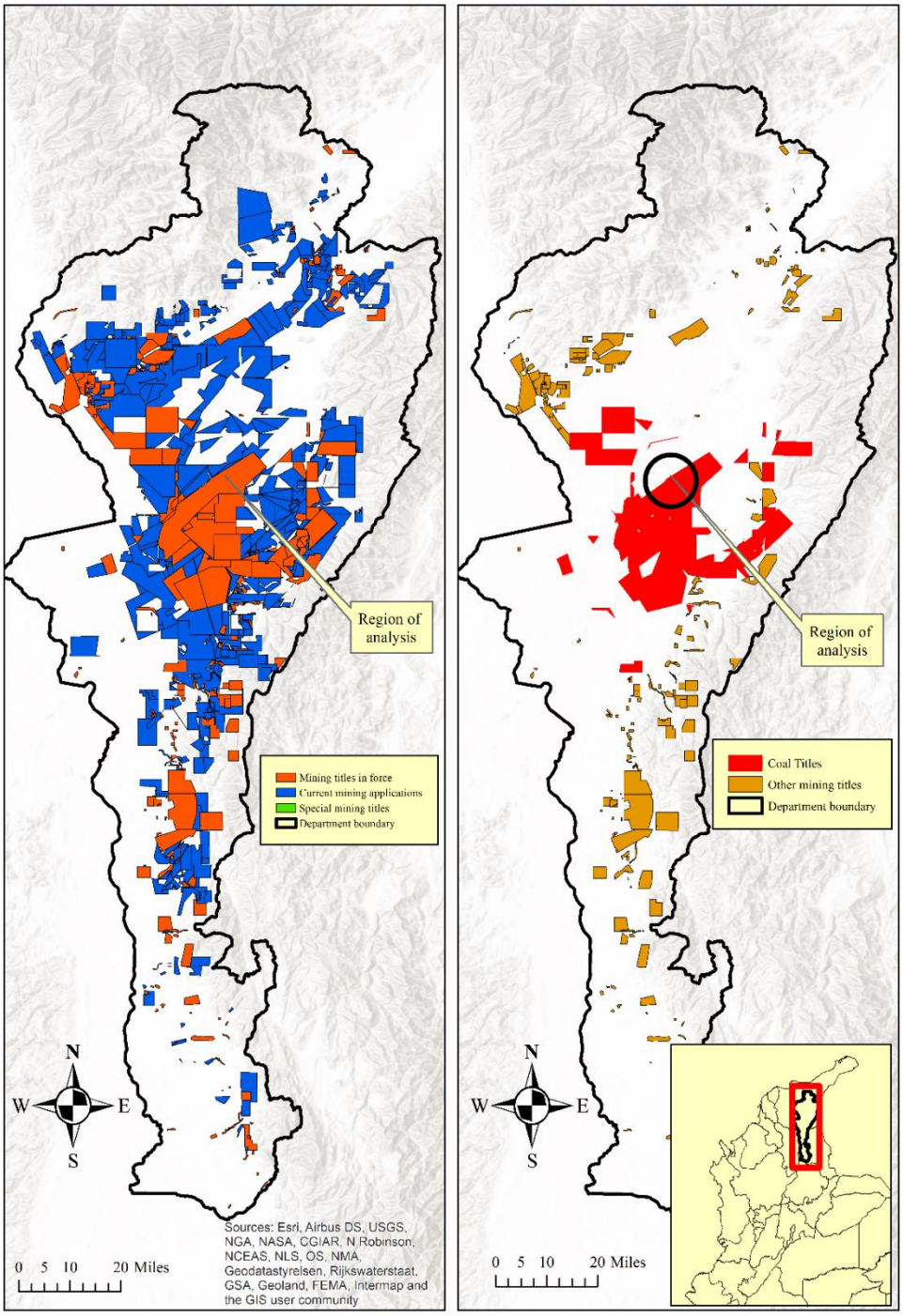

Figure 1: Mining and coal titles applied for, and exploited, in the department of Cesar, 2021. Maps made in ArcMap 10.6. Projected Coordinate System: Projected MAGNA-SIRGAS / Colombia_Bogota_zone (3116); National Mining Agency, Mining Cadastre as of July 2020 (https://sites.google.com/site/tierraminada/); National Hydrocarbons Agency, Map on lands and properties as of February 2021 (http://www.anh.gov.co/hidrocarburos/oportunidades-disponibles/mapa-de-tierras).

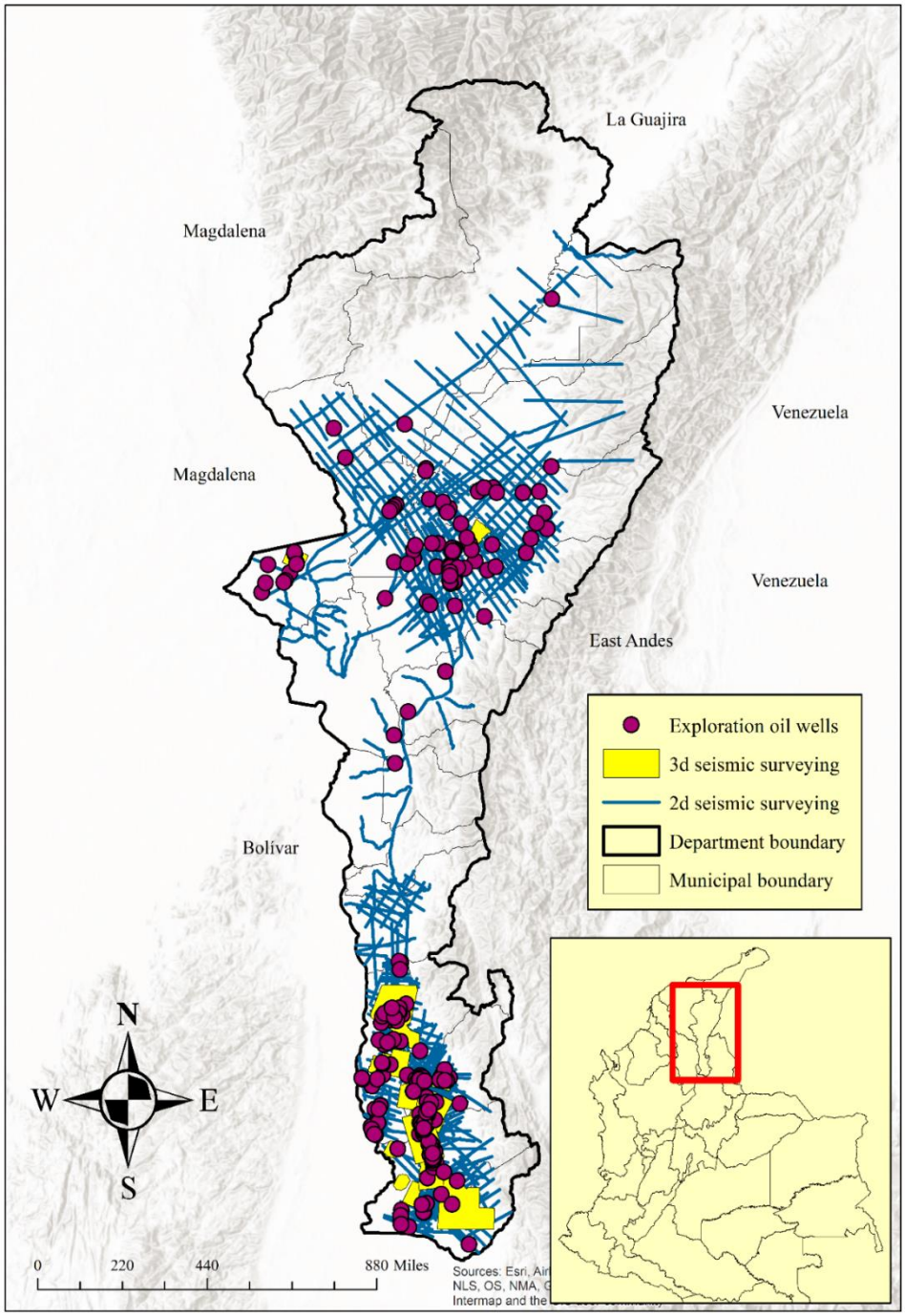

Figure 2: Oil well development and seismic studies, 2021. Maps made in ArcMap 10.6. Projected Coordinate System: Projected MAGNA-SIRGAS / Colombia_Bogota_zone (3116); Sources: National Mining Agency, Mining Cadastre as of July 2020 (https://sites.google.com/site/tierraminada/); National Hydrocarbons Agency, Map on lands and properties as of February 2021 (http://www.anh.gov.co/hidrocarburos/oportunidades-disponibles/mapa-de-tierras).

As different scholars note (Auyero & Swistun, 2009; Castillo, 2016; Davies, 2018, 2019; Davies, Isakjee, & Dhesi, 2017), the impact of environmental violence in regions of mineral, gas and oil extraction should not be read as a black and white story. Although there has been violence inflicted upon communities and workers living around extractive enclaves, daily life there has produced a complex set of interactions and negotiations between corporate groups, the state and communities, all mediated by exposure to pollution (Figure 3), deterioration in health, and conversations about 'necessary evils' that have come to permeate all spaces of social life. While communities and social leaders are vocal in demanding better environmental and health conditions from coal MNCs and state regulatory agencies, they are also engaged in talks and negotiations around basic (sometimes unexpected) aspects of environmental coexistence and human development. In this regard, they play a game of 'necessary evil' – conversing with corporations on a recurring basis – to make their lives a little more bearable.

The positive aspects of the situation are visible especially in the provision of security in the region, which seeks to ensure that areas surrounding mining concessions do not have major disturbances. In addition, some (sterile) value has been added to through employment with Prodeco-Drummond and the strengthening of the coal value chain. Most of those we spoke with agreed there had been positive externalities, and pointed out the degree to which the security provided by the companies could be extended to neighboring farms. A low number of respondents also highlighted Drummond's reforestation and environmental monitoring process, as well as the care of some water sources in their concessions (interview #7, male farmer in Codazzi).

However, beyond this, leaders and communities affected by coal do not find the cumulative experience to be beneficial. On the contrary, the dependence on and employability of coal companies and, moreover, the environmental and health damage they have caused (with inadequate technical information), are seen as a daily burden imposed upon them without their having wanted or asked for it.

Although there are dozens of families in Becerril, Codazzi and La Jagua that are part of the coal companies' payroll, including generations that have developed their careers in fields linked to coal extraction, this seems to be a survival strategy because "there is simply nothing else available to us" (interview # 13, a female social leader in El Copey). On countless occasions, leaders have shown their dissatisfaction at seeing how their lives have been tied to an industry that does not belong to them and that does not strengthen any local value. Although it has contributed to job creation, they would have no problem with stopping it and making their lives take a new course.

But slowing or even stopping an industry that has extracted resources for decades is not an easy task, not only because of the transformations to be carried out, but because neighbors feel the companies cannot leave until they address the incalculable loss of years in human and ecosystem lives. As an interviewee noted:

> We have no problem with the company leaving. Their presence does not generate much for us, but Drummond and Prodeco's withdrawal should be gradual. They can't leave until they fix everything that has been destroyed and tell us how they are going to repair the damages.

> They need to tell us how they will recover lands and soils, although we know many are unusable. Contamination is so high that it cannot be undone; in some places pollution has destroyed everything. They need to tell us how to ensures success for our productive projects. How will they guarantee our work on the farms? How will they support the transition if we have to change our productive activity? What are we going to live on? What will be grown on our plots? How will we recover what has been lost? Prodeco [the group that announced its retirement in 2021] has to clear that up before leaving.

In this sense, another interviewee notes that,

> Coal companies do not sit down with us to negotiate. They impose. And when we go to look for solutions, for example, to the presence of coal rubble on lands under restitution litigation, they treat us as if they were rewarding us with their help, in case they decide to study our complaints. But they are not giving us anything for free. We are demanding the fulfillment of our rights. We are not asking for a favor or their charity. We are demanding what the law has granted us.

In an atmosphere of dissatisfaction with the highly toxic and plundered landscape, coupled with a lack of studies of the damage to infrastructure, and especially to the health of bodies and ecosystems, two concerns of leaders and families stand out. The first are the ecosystem and territorial damages that not only refer to serious ecological deterioration, for example resulting from the presence of mountains of coal waste, as shown in Figures 3, 4 and 5. The second is the collective health of residents, people awaiting relocation and mining company workers.

Figure 3: Mountain of coal rubble that extends for more than one kilometer. Photograph by Julian Parra de Moya and author.

Two strands of political ecology are useful for understanding these findings. There is the difficulty of denouncing and developing collective action repertoires around environmental degradation and its impacts, given the deep, varied and complex ways in which the coal economy, led by a powerful multinational extractive sector, is embedded in society. Frederiksen and Himley's (2019) concepts of 'quieter registers of power' at extractive frontiers and Orihuela *et al.*'s (2022) notion of contentious environmental activism are useful. They are determined by a rentier / developmental / extractivist local political economy that welcomes (if resentfully, and contentiously), or just accommodates oil and mining.

These perspectives help to explain why there are varied and overlapping ways in which extractive companies exercise their power to secure and maintain access to land and resources. This means that communities end up engaging in various forms of (structured) accommodation or involvement in the commodification of natural resources. In the words of Orihuela *et al*. (2022):

> The excluded at the world's resource peripheries might undertake an accommodating / rentist / developmental / extractivist conduct, at least for a while, while they believe that minerals are the way out... (because) natural resource commodification brings with it the promise of local development opportunities.

Figure 4: Coal waste dumps. Photograph by Julian Parra de Moya and author.

In the case of Cesar, the subordination to a whole extractivist economic apparatus is reinforced by the expression of a history of armed paramilitary terror. This violence has allowed the coal industry, as well as the palm, cattle, and banana sectors in the Colombian Caribbean (CNMH, 2014), to effectively impose an extractivist development model. It is not only due to the actions of quieter forms of reproduction of power – typical of corporate social responsibility, as Frederiksen and Himley (2019) remind us. It is that the coal industry imposes itself so easily in Cesar. Its coal region is a clear example of the effectiveness with which terror has operated, which ended up lacerating the mobilization itself. That is why dispossession, land abandonment, dosed and dangerous exposure to coal dust and the emergence of diseases, possibly with a gender disparity, are effectively intertwined in this region.

To expand on the above and to provide guidance on the gender differences that exacerbate vulnerability to certain risks, I follow Sultana's notion of gender-differentiated environmental suffering (2007a, 2007b, 2009a, 2009b, 2011; see also Sharp, 2009; Piles, 2010), in which the perception of the territory – and the environmental suffering associated with it – is mediated by the way in which emotions are created and by the racial, social and gender differences that determine positionalities of women of color. Although this is not intended either to objectify the emotions behind an experience of suffering nor to fix the position of people (granting them immovable conditions on a certain scale), in extractive frontiers, where multiple vulnerabilities are exacerbated, gender differences (particularly for women and LGBTQIA+ people) deepen forms of suffering. These include sexual and reproductive violence used as a weapon of war, and the appearance of and inattention to multiple diseases in domestic spaces. Based on the testimonies collected, 'slow violence' appears mixed with expressions of armed violence, as shown by the stories of those who either left the area due to threats and the deaths of family members, or who faced dispossession when they discovered their lands were abandoned and subsequently re-concentrated within the coal industry. Thus,

> I lived in the district [I omit the name of it for security reasons] for 23 years. In 1996 "El Tigre" – a paramilitary commander – entered the town and assassinated the police inspector and the first lady. Then they assassinated the councilman Jairo in 1997. When it got like that, I left… And like me, 22 families abandoned their lands. Since 2015, when we started the land restitution process, we realized that we could not go back. Me and the rest of landholders are forbidden to enter the properties under restitution litigation because there is security guarding them and since that time [2016], our farms have become a dumping ground for coal rubble (interview # 12 to a male leader in Valledupar).

Figure 5: Coal waste dumps. Photograph by Julian Parra de Moya and author.

Ecosystem damage is not always perceptible to the human eye. It is important not only because of the soil and water deterioration on properties that should support peasant livelihoods, but because of the daily impacts, especially the environmental suffering that deteriorates the lives of hundreds of rural residents. Previous research has focused on the effects of coal extraction on local and micro-local ecosystems, including the diversion of water sources (Álvarez-Sánchez, 2016; Ternera, 2010; Giralda, 2010; Idárraga, Muñoz, & Vélez-Galeano, 2010; González-Abella & Burgos-Camacho, 2018; Montoya-Domínguez, 2021; Pulido-Iriarte, 2014: PAX, 2014), although more interdisciplinary work must be carried out to address the detailed impacts. Based on these studies, I argue that in a context in which the coal industry managed to insert itself in a hegemonic manner, supported by the violence of many and with unrestricted support from the State, countless everyday forms of environmental suffering have arisen. But the panorama is complex, because not all forms of environmental suffering are denounced by the community, since they receive other economic 'benefits' for being part of the industry. And when the suffering and inequity are such that mobilization is feasible, there are other more powerful forces that control the public arena. These include corporate social responsibility and large investments in technical education in the region, as well as a history of violence and uprooting via armed means.

One of the most effective ways in which the extractive sector perpetuates environmental suffering is through the management of information, with the full backing and complicity of the government of the day.

Under conditions of toxic uncertainty (Auyero & Swistun, 2008)[5], rural residents live with a renewed blanket of daily concern, which, in some instances becomes suffering, in the face of multiple – and not always quantified and measured – effects of coal exposure. Along with the existence of objective factors that cause disease or ecosystem damage, people express uncertainty, the tiredness of not being listened to – or not seeing much change – and confusion about how environmental and health afflictions are connected. This interplay of narratives is an expression of the worry that people must deal with, when not totally informed of the severity of the impact of coal on their lives. However, these narratives arise neither from gossip nor from run-of-the-mill commentaries. They arise from plausible facts, particularly severe ecosystem damage.

In this context of pollution, a question regularly asked by the interviewees was: "what is the impact of coal extraction on our lands?" (Interview # 9, a female leader near Codazzi). Something as simple as knowing the consequences of coal dust, river diversions, recurrent explosions and accumulation of coal rubble is unknown. Being uncertain about how such pollution alters the rhythm of plant and animal life, including for rural dwellers themselves, weighs on them for two reasons. First, because it clouds the picture of what defines them as rural residents: their land and their relationship to it. It fills with hesitation the future of lands whose ecological damage is unknown, and casts doubt on the permanence in dignified conditions of families who additionally have had to overcome armed violence and uprooting (PAX, 2014). And second, because it is a reminder of how toxicity interacts with material dispossession. In some cases, the lands that have received mountains of coal rubble are not only part of unfinished relocation processes but tell the story of districts that were emptied by paramilitary pressure during periods of escalation of the armed conflict in Colombia, and then occupied by third parties as happened in El Tocuy and Hato la Guajira (PAX, 2014, Verdad Abierta, 2013a, 2013b). In other cases, accumulation of coal rubble has occurred on lands that are under restitution litigation and where coal companies are not only the most important opponents, but the ones also accused of dumping it there. These are properties occupied by coal firms after forced displacement and land abandonment (CNMH, 2018; Verdad Abierta, 2018).

Perceptions of ecological damage vary according to the location of those consulted and the type of impact reported. Direct impacts referred to by consensus (interviews one to 15) include cracks in homes (Figures 6, 7) due to nearby explosions (three respondents who said they had suffered from them), the continual spread of coal dust in the air (15 out of 15 respondents), the presence of coal dust in their homes – equivalent to the accumulation of soot near peasant ovens that make these areas uninhabitable – (five respondents), contamination of water sources – an aspect for which there is no verifying technical reports (four respondents who feared this has happened) – and considerable loss of plant material and any form of organic life in coal waste dumps (seven respondents) as the following images reflect.

The interviews and the archival work endorse not only previous findings presented in ecological research, but also suggest sentences and disciplinary cases for punishable environmental practices in the area. Effects of coal mining are due to the gigantic pits that expel millions of coal particles, the presence of mountains of sterile material that accelerate the loss of vegetation, soil genetic profiles, and existing habitat and fauna, as well as multiple forms of deterioration of nearby air and water sources due to the presence of high levels of particulate matter. Pollution by dust, methane and other toxic gases (carbon monoxide, CO, even in low percentages), accentuates acid and sulfurous mine drainage (AMD) (Finkelman, Hendryx, & and Wolfe, 2020). Likewise, frequent fires that occur in the extraction process and after explosions to open new areas, as well as those fires produced by the self-combustion of coal, all generate sulfur oxide, nitrogen oxide and carbon dioxide (Orem & Finkelman, 2003; Munawer, 2018).

[5] For Auyero and Swistun (2008), the social production of toxic uncertainty refers to how perceptions of pollution rest on widespread doubts, confusion and mistakes about contaminated habitats. Ambiguity and confusion about the sources and effects of pollution result from the relational anchoring of risk perceptions – assessments of hazards that are anchored in everyday and uninterrupted routines that work as blinders of the increasing surrounding hazards – and from the impact of confusion generated by powerful external actors.

Figure 6 & 7: Possible cracking of housing. Photographs by author.

Different companies in Cesar have been investigated for their poor environmental practices. Since the early 2000s, Drummond and Glencore-Prodeco have faced complaints of inadequate wastewater management, the non-construction of living green barriers, and coal dust emission along transportation routes (Tierra Digna, 2015; Garay-Salamanca, 2013; Observatorio de Conflictos Ambientales, 2017). Carbones La Jagua has been inspected for illegal forestry activities and the mishandling of suspended particulate matter and toxic waste (Defensoría del Pueblo, 2010; Tierra Digna, 2015). Other companies have been investigated for inadequate revegetation of roads, the installment of irregular perimeter canals, the dumping of waste material into bodies of water (some of them without any authorization), the use of water without having been granted a concession, and atmospheric emissions similar to the ones reported for the aforementioned groups (Defensoría del Pueblo, 2010; Fundación Ideas para la Paz, 2016; Garay-Salamanca, 2013; Tierra Digna, 2015).

Although administrative penalties can be imposed on coal companies, the impossibility of knowing the extent of environmental impacts limits the actions of families who cannot access their lands due to restitution

litigation – as will be seen in the following section – or cannot imagine how to return to farming. This is because they are unaware of the degree of damage or the investments required to mitigate ecological damage, for which the families are not financially prepared. Such uncertainty exacerbates precariousness, especially in groups that are spatially and legally fenced in, as will be seen below.

4. The land issue as an aggravating factor in ecosystem and territorial damage

Most of the voices consulted in the corridor that goes from La Loma to Casacará claim that the symbiotic relationship between the state, coal companies and landowning elites that operate land markets, for concessions or rent, have created a fallacious scenario where coal extraction appears to be the only possibility. No alternative to coal has ever been offered, and the extractive vision, coupled with a historically weak state presence, has been endorsed as the only option for job creation and development. Likewise, ecological and territorial damage is aggravated when we consider the realistic possibilities of restoring land to its owners. In the corridor between Casacará and La Loma (Verdad Abierta, 2017), paramilitary violence has provoked forced displacement,[6] through a drop-by-drop strategy, which has accelerated the total emptying of villages.[7] Here, in addition, mountains of coal rubble are long and tall (Figure 8), and multinational companies (MNCs) are the main legal opponents to land restitution.[8] Land access is heavily restricted in these areas.

Land abandonment, dispossession and land restitution in Cesar have been significant and closely related to the richness of the area's resources and to the psycho-emotional and environmental suffering derived from the extraction of coal, palm, and cattle ranching. In Cesar, according to information from Bernal (2004), from 1996 to 2003 – at the peak of armed violence – nearly 18,000 hectares, mostly concentrated in Valledupar (4,121 ha), Codazzi (2,841 ha), Chiriguaná (2,795 ha) and Astrea (2,297 ha), were officially expropriated in a violent manner. Data from Pastoral Social, cited by Reyes (2009) and Reyes *et al*. (2007), indicates that close to 74,743 hectares were abandoned from 1997-2007, with the most affected municipalities beingValledupar (20,562 ha), Agustín Codazzi (8,123 ha), Curumaní (8,169 ha), Chimichagua (7,109 ha), El Copey (6,970 ha) and La Jagua de Ibirico (4,210 ha). This context of abandonment by paramilitary groups (31,476 hectares at the departmental level) and other actors (43,267 ha), is a backdrop for a land restitution process that has been highly fragmented, and has been at the mercy of many of the forces that have historically supported paramilitary action (CNMH, 2018).

There is a vicious history of armed violence, but also a path full of thorns in the gradual return of victims who have been expelled from their territories. The road between Loma and Casacará is an example. It involves dispossession and failed rehabilitation of El Platanal, as well as many others areas in Cesar (Ramos & Oyaga, 2020). Added to this is violence linked to the very land restitution process exercised during the post-agreements against land claimants. Cases in the Department of Cesar include: El Toco, El Caimán, La Esperanza (Lugo *et al*. 2021), Santa Fe (PAX Colombia, 2018), El Topacio, Bella Cruz (FCSPP, 2020; Tierra en Disputa, 2018), Entre Ríos, Platanal (Rodríguez-González, 2018), and La Carolina, Tokio and Los Cedros (Counter, 2020). Not only are Cesar's cases of collective expulsion and material dispossession among the highest in Colombia, but land restitution has been highly fragmented. In this department, based on data from the URT for the period 2011-2018 (El Tiempo, 2018), 52% of applications for land restitution by peasant families were rejected at the

[6] Judgment file # 200001 312100120160007700 of the First Civil Court of the Circuit Specialized in Restitution of Lands of Valledupar – Cesar (August 8, 2017).

[7] Judgment file # 200001 312100120160007700 of the First Civil Court of the Circuit Specialized in Restitution of Lands of Valledupar – Cesar (August 8, 2017); Judgment file # 200001 312100220160013400 of the Second Civil Court of the Circuit Specialized in Restitution of Lands of Valledupar – Cesar (November 26, 2018); Judgment file # 200001 312100220160014600 of the Second Civil Court of the Circuit Specialized in Restitution of Lands of Valledupar – Cesar (January 28, 2019); Judgment file # 200001 312100320160015500 of the Third Civil Court of the Circuit Specialized in Restitution of Lands of Valledupar – Cesar (December 18, 2019); 20001 312100320170013700 of the Third Civil Court of the Circuit Specialized in Restitution of Lands of Valledupar – Cesar (June 23, 2020).

[8] Judgment file # 20001 312100320170007700 of the Superior Court of the Judicial District of Cartagena – Civil Chamber Specializing in Land Restitution (March 27, 2019); Judgment file # 20001 312100320180002100 of the Third Civil Court of the Circuit Specialized in Restitution of Land of Valledupar – Cesar (June 4, 2020).

administrative stage, twice the national rate (26%). In 2020, this reached 65% and 68% of the total number of applications submitted. Likewise, while in Colombia between 5% and 5.8% of the cases have ended with a verdict issued, in Cesar this proportion was only 3% (227 verdicts out of 7,500 requests in 2018, and 412 in 2020), the second lowest region in the nation.

Figure 8: Landscape near the second case, with coal refuse. Photography by author.

The Platanal case is important in this context, for several reasons. It involved the collective expulsion and dispossession of around 20 families due to paramilitary action of the Juan Andrés Álvarez Front of the United Self-Defense Forces of Colombia (AUC) during the mid-1990s. Also, there was a never-ending restitution case that began in 2012 and more than 10 years later is still not resolved. Third, the lands and properties disputed in the restitution lawsuit have since been sold to different dispossessors and are now under the control of multinational coal companies. This means that farms that were once owned by peasant families with little economic capital have passed through different hands in a context of paramilitary extermination and intimidation, and that the multinational corporations have ended up as the final owners of many of these properties. In the Platanal case, although some MNCs received notifications from peasant owners since the 2000s that they should not acquire farms that could be subject to land restitution lawsuits, they did in fact acquire them. The most significant ecological conflict arose when the URT collectively accepted the claims of a number of land claimants in 2012, and the properties in dispute became subject to precautionary measures. This means that these properties are subject to special protection and cannot be traded in the real estate market or undergo structural alterations until the conflict from which their protected status derives is resolved.

In terms of a very segmented yet extensive spread of environmental violence, Platanal exhibits the use of more or less regular forms of contamination, although with a striking form and severity. Based on all the existing departmental land restitution cases, compiled from opening of the Land Restitution Unit in 2012 to 2021 as well as in-depth interviews with land claimants, it appears that tons of inert material and coal waste were dumped as a protection tool along a kilometer-long corridor by the main coal multinational in the area, which directly opposes such restitution cases. According to several testimonies gathered, immediately after the issuance of the precautionary measures ruling, tons of coal waste were dumped on the farms, forming kilometer-long mountains of coal rubble, possibly to prove possession and active land use by the companies. As evidenced by the photographs and testimonies presented here, it is plausible that these coal rubble mountains were intentionally formed, spreading toxic loads of rubble that the community of land claimants does not have the slightest ability to resist.

These coal waste piles are recent, and according to the community they were indeed part of an intentional strategy. The depth and the impact of the dumping has not been estimated, but the piles cause incalculable ecological damage, both figuratively and literally. Rural dwellers are reminded that while their lands legally appear to be theirs (or at least the system of collective reparation seeks to assert this), they are not. The dumping by the coal companies also accentuates the precariousness of their land, since they cannot count on it for their subsistence, either because of relocation due to "toxic uncertainty" (in Tocuy & Hato la Guajira) or because of the battered progress of land restitution.[9] The actions of certain groups have come together to completely block access to these properties. In this regard, one interviewee notes that:

> We feel abandoned. We can't even enter our farms to see what they have done. And now that restitution rulings are in our favor, officials are not interested in restitution but in compensation, and that's not what we're looking for. We want our lands, and this struggle has left us sick and in a lot of distress. That is what our life has become: affliction… And of course, we care about the damage caused by those wastes dumped on our lands. But we don't know how our lands are going to look; we don't even know if they will be left for anything. But we have fought for them with the tools we have, and we want them back. We are not interested in getting anything else in return. (interview # 12 with a male leader in Valledupar).

In this case we see how different forms of violence combine, as communities of land claimants, economically precarious and impacted by displacement, massacres and forced disappearance, are dispossessed of their lands in multiple ways. First, this occurs through the sale of lands that were abandoned and dispossessed due to the armed conflict to second and even third owners, and second, by the use of an innovative strategy of dumping tons of coal waste, causing untold ecological damage and intimidation to families. We see in this way how the repertoires of violence present in this case are of armed, structural, daily, and environmental orders.

5. From public health data to testimonies of physical suffering and psycho-emotional distress

A contrasting and revealing case of unequal and gendered impacts of coal pollution can be found among women from several villages of Becerril and Codazzi who suffer from similar health problems. This pattern of illnesses is seldom discussed in academic literature, especially when compared to the most common pulmonary conditions associated with coal dust exposure. Testimonies were collected concerning tumefactions and lesions – some cancerous, others not – of the tracheo-respiratory and glandular tract, as well as the upper thoracic and scapular region. These medical cases were scattered throughout the mining complex of Becerril, rather than concentrated in one place.

In Colombia, preliminary research has shown links between coal mining and respiratory, cardiovascular and neurological diseases (Olivero, Caballero & Guerrero, 2013). However, the emphasis has been on the first of these conditions (Acosta-Bueno, 2016; Ministerio de Protección Social, 2009; Pulido-Iriarte, 2014; see also more general studies in Karkhanis & Joshi, 2012). Research shows the relationship between coal extraction with the prevalence of pneumoconiosis, lung cancer and chronic obstructive pulmonary disease (COPD) (Ministerio de Protección Social, 2009) and more indirectly from CO_2 emissions generated by continuous fires and the release of sulfur and nitrogen oxides and carbon (ILSA, 2009; Pulido-Iriarte, 2014; Rudas & Zamora, 2013). In line with this, in Cesar's coal corridor, respiratory problems are perhaps the most discussed diseases directly or indirectly associated with coal. Lawsuits and complaints regarding the health of employees have been directed toward the largest coal companies and focused on these maladies. Thus, lung cancer, pneumoconiosis, fibrillation and asthma, appear in the reports of those who have filed lawsuits, in particular the associations supporting sick workers (CNV Internationaal, 2021; El Espectador, 2014; Kien & Ke, 2014). There are also cases among children residing in Becerril, La Jagua, Agustín Codazzi, Chiriguaná and El Paso,

[9] Judgment file # 20001 312100320170007700 and Judgment file # 20001 312100320180002100.

where research has shown 3.85% suffer from either fibrillation, asthma or frequent coughing (Quiroz-Arcentales *et al.*, 2013).

Communicable respiratory diseases and neoplasms are more prevalent compared to others. This is based on data provided by the Ministerio de Salud y Protección Social (2012, 2016, 2020) and the Secretaría Departamental de Salud del Cesar (2012, 2016, 2020). While in Colombia the leading causes of mortality are diseases of the circulatory system and diabetes, nutritional deficiencies and kidney and liver problems (Ministry of Health, 2020), in Cesar and its coal corridor neoplasms and communicable diseases are more common. Thus, in 2011, morbidity in terms of types of cancer in Cesar (apart from prostate, mammary gland and cervical, which are expected to be the highest), shows relatively high cases of lung (20 cases), thyroid (15) and digestive tract problems, particularly colon (38) and stomach (33) cancer. Trachea, bronchial and lung cancer were responsible for 83 deaths, well above much more common types of cancer such as prostate and cervical. In relation to mortality of respiratory diseases in the infant population, the risk of mortality from acute respiratory disease in children under 5 is extremely high in the coal corridor. In 2011, Becerril, Chiriguaná, la Paz, Codazzi, and San Diego had high ratios for children under 5 with these diseases – 171.4, 118.9, 110.9, 64.6, and 64.3 respectively per 100,000 inhabitants. In most Colombian departments these ratios are zero. In terms of victims of acute respiratory disease in all age groups, outside Cesar's capital Valledupar, 14 of the 23 departmental victims (60.87%) are located in Becerril, Chiriguaná, La Paz and Codazzi.

Interviews conducted during the first and second phases of fieldwork in 2022 identified a recurrent event for which no systematic coal-oriented causal studies have been carried out in Colombia. Along with COPD events and lawsuits on respiratory diseases that the unions representing mine workers are prosecuting, I was informed of cases of thyroid cancer, removal of glands, and the appearance of nodules and lumps in the endocrine glands of the neck and upper chest region.

Also, in some of those cases (five people in the first group of respondents) there are extended symptoms, and relatives have died from diseases such as bone marrow cancer. It is worth noting that these individuals have shared the same air, which – more than water – seems to be the transmission conduit of any disease related to coal mining. Although significant statistical relationships between their condition and the presence of coal dust or any other toxic agent have not yet been proven, the majority claim that such a link exists. As one respondent says:

> I was diagnosed with cancer... It was not cysts. No sir. It was cancer and it was advanced, so I had to have my thyroid removed (interviewee # 15, female patient from Codazzi).

Another (interviewee # 4, male) said that:

> I was diagnosed with nodules in my throat.... I started with swallowing problems and after several tests, they determined I had nodules. All these tests were done through my son who is a doctor and he told me not to wait any longer; that if I waited for them to send me orders and forms, my health would get complicated. Now we are waiting for the results of more tests to know if there is anything else.
>
> D: Cancer?
>
> Interviewee # 2: I don't know. We are waiting for the results. God willing it is not that, and if not, we are still here.

Similar statements are found in interviews conducted during the field visits. These again show how there is no certainty in the possible impacts from pollutants associated with coal mining. The case of one female patient stands out. She suffered from the effects of removal of her thyroid, but also from the pain of her brother's death,

who was vocal about his belief that his deteriorating situation was linked to coal exposure. In her account of her brother's condition, she commented that:

> I've been mourning the death of my brother for months. At the end of his days, he was certain that his [bone marrow] cancer was the result of his proximity at work with the concession. It took him away. It is a very strong pain here in my soul that always accompanies me.
>
> [A companion in this interview notes that:] That is why you see her dressed in black all the time. She does not take it off. It's because of the mourning of losing him. A grief that they [her family] say, came from a polluted environment. He [her brother] believed so [interviewee # 3, a female social leader from Codazzi].

> The doctors never diagnosed him with cancer in his spine. They had him rolling over with diagnoses of fatigue, low defenses and posture. Only at the time of his death did we learn that he had terminal spinal cancer. And during his deterioration he always claimed that it was his work in the district that made him sick.

When analyzing these testimonies, there are uncertainties about disease causation. Prior studies have not found evidence that relates thyroid cancer with coal dust or ash. A study led by a research team at Duke University of the impact of coal ash from Duke Energy (North Carolina) showed that ash is not linked to the contaminations of water wells (Vengosh *et al*. 2016; North Carolina Department of Health and Human Services, 2019). However, as other experts agree, there has been no research that definitively proves that the former is not behind thyroid problems or ocular melanoma in any way, through transmission by water or air. The best-known risk factors for endocrine diseases of the neck glands include childhood exposure to ionizing radiation, and obesity. With exceptions, exposure to other toxic materials is hardly mentioned (Lee *et al*., 2017).

Second, the community has not heard from experts on the causes of the appearance of their cysts and nodules. Previous work also signals avoidance of blame through games of misinformation and asymmetries in the study of impacts of toxicity. Auyero and Swistun (2008) studied the town of "Inflammable" (a pseudonym) in Buenos Aires, which is notoriously surrounded by water and polluting fumes emitted by Shell and a petrochemical cluster. Similarly, Codazzi and much of Cesar's coal corridor is ruled by uncertainty and contradictions. A lack of knowledge about what causes what, turns into divisions between those who think environmental and health conditions are produced by coal extraction and those who claim they are unrelated (or at least, they are not as deep as is believed). There are cautious and sporadic silences between those who have negotiated or seen how to profit from the positive externalities of the industry, and those who have decided to close off any possibility of dialogue. As some interviewees in Cesar claim:

> We simply don't know anything. We hear about studies [that are never done] on this, reports on that, impacts about this or that. But there is nothing we can say is specific. And, for instance, when one goes to ask for information to the Health Secretariat, they do not inform us of anything. And we don't want to be singled out either.

Likewise, another interviewee, reflecting on her own health condition, comments that:

> I was diagnosed with nodules, and given the progression of the masses they found, I had to have my thyroid removed. I remember that in my visits to the endocrinologist I saw only women with the same problem and we all came from the same areas (she means that patients came from districts adjacent to coal concessions). They found the masses after I lived close to the mine. My deterioration has been progressive… But it's the physical pain and seeing me like this that saddens me more. Knowing how disabled I am and the despondency and sadness of seeing myself so deteriorated. (interviewee # 15 – a woman living in Codazzi)

These accounts overlap with public health data that show how thyroid cancer is focalized in Codazzi-Becerril and among women. In municipal health reports thyroid cancer ranks high, following prostate, breast, cervical, colon-rectum and stomach cancer (Secretaría de Salud, 2012). These are concentrated in Becerril-Codazzi, and affect women in a ratio of 1 to 14, which means that for every positive male case, there are 14 women diagnosed. And although historically thyroid problems are more frequent in women than in men, the rate of thyroid problems in global research is 1 to 3 (Cancer, 2021). As in the case of communities struggling with coal and inert material waste dumps, the case of residents – mainly but not only women – affected by problems in the respiratory and glandular tract, as well as in the upper thoracic and scapular region, cannot be understood outside of the structural violence associated with precarious medical services and the neglect of communities that receive a lot of coal, but little in the way of other goods, particularly public health services.

Testimonies such as those above reflect two complementary situations. The first is a problem of structural violence understood as inadequate medical attention offered to the inhabitants of marginal regions near coal mines. Long term exposure to coal dust is accompanied by a lack of diagnosis of the after-effects of the industrial activity. The health system seems to lack resources to avoid misdiagnosis, and, in general, there are inequities in marginal regions that are exacerbated by gender disparities. Second, these testimonies open the door to revictimization. The aftermath of environmental suffering is addressed through inactions in the health system that deteriorate the living conditions of rural residents and lead to further mistreatment and neglect. Violence resembles the extensive mountains of coal waste, since unhealthy suffering is perpetuated among local residents already facing environmental damage.

The toxic uncertainty of cancer cases, mainly thyroid cancer, and of cysts and nodules in the upper part of the chest, shows the precariousness of preventive and curative health care. Inattention and poor health care in armed conflict settings, in addition to re-victimization through sexual and reproductive violence, leads to the mistreatment of women and LGBTQIA+ as studies across the country have shown. While there is no intentional mistreatment of women who come for a similar symptomatology in this case, gender disparities exacerbated by social and spatial origin are reproduced in a structural way. This perpetuates structural gendered suffering, but with environmental roots.

Finally, it is worth stressing again the uncertainty over health concerns in Cesar's coal corridor. There has not been a major industrial accident or the discovery of a disease cluster. Interviews revealed diverse perceptions, ranging from a reluctance – almost a refusal – to acknowledge that conditions in the neck and upper thorax were related to extractive activities, to the expectation of receiving the results of other tests that could indicate more serious conditions. There was even profound grief in which coal activities appeared to be central. I heard a normalization of worry for the distress experienced by others (usually those close to the respondents), and lasting grief, consuming the physical and emotional fibers of the sufferer. Interviewees responded to toxic uncertainty and disease in their own ways. The burden of worry and anguish highlights what is unknown and what has not been proven, but also reasons to feel guilty. Guilt emerged from decisions that could have changed the course of a life or hastened states of death, as health deteriorated for the respondents or their loved ones. Guilt and uncertainty are expressions of slow violence, in addition to the armed and structural violence experienced in Cesar for decades. The uncalculated consequences of passing through this explosive experiential cocktail seem deep.

6. Conclusion

Families living near coal mines experience a combination of uncertainty and helplessness, simply because they do not know the extent of the toxicity of the environment around them, although they can see its physical degradation. In this region of Colombia, there is frustration with the damage caused to bodies and lands that will be unlivable and uninhabitable for a long time. Governments have thrown the fate of a region into the arms of a polluting industry, seemingly with relative ease. The combination of uncertainty, helplessness and frustration is experienced in different ways. Some demand action to stop the implementation of harmful decisions while others have psycho-emotional suffering, with concern and grief over deep environmental and physical damage. My attention was on this group of voices and testimonies. Some want clear information about

the state of the natural environment with extensive mining – without requiring major changes – while others are certain that the death of their loved ones is the result of lousy environmental interference and neglect. For the latter, coal mining simply represents the pain and suffering of those they will never see again.

Ecosystem damage, in particular the raising of mountains of spoil, and likely health conditions, were key features of the study. The importance of highlighting these topics lies not only in the way that they reflect highly polluted landscapes, but also in the way that they have created conditions exacerbating slow, silent violence and, with it, suffering, uncertainty, grief, pain and great concern for families living near coal mines. Thus, "toxic uncertainty" becomes an important aspect of the political ecology of mining, because it is a device for understanding, as well as relating to the suffering of those who experience harm but are unclear about the extent of its effects. The approach can open doors to address the impacts of toxic dispossession that are not directly linked to armed conflict or political transitions. It could put pressure for change and reform of the constellation of state, private and armed actors involved in everyday dispossession. Finally, the study exposes the intersectionality that makes ecological impacts more profound for women and residents of marginal areas, whose vulnerability increases in contexts of civil war.

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