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Unveiling the political economy of fossil fuel extractivism in Colombia: Tracing the processes of phase-in, entrenchment, and lock-in

Felipe Corral-Montoya^{a,b,c,d,*}, Max Telias^{a,e}, Nicolas Malz^a^a TU Berlin: Workgroup for Infrastructure Policy, Berlin, Germany^b Hertie School of Governance, Berlin, Germany^c Universidad del Magdalena: Economic Sciences Analysis Group (GACE), Santa Marta, Colombia^d Europa-University Flensburg: Abteilung Energie- und Umweltmanagement, Flensburg, Germany^e Free University Berlin, Otto Suhr Institut for Political Science, Germany

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ABSTRACT

To increase the ambition and effectiveness of a global coal phase-out, it is central to understand how one extraction regime – fossil fuel extractivism (FE) — was phased in. Doing so may make it possible to confront the actors dependent on and strengthened by the associated natural resource rents. Characterized by the large-scale, high-impact, export-oriented extraction of fossil fuels such as steam coal, the present paper traces the processes that led first to the phase-in and then to the entrenchment of FE in Colombia. Taking the case of large-scale coal extraction (LSCE) as an example, the paper analyzes the causal mechanisms allowing this activity to take deep roots in politics, society and the economy, with grave implications for the environment and culture of affected communities and the country as a whole. Drawing on different data sources (20 stakeholder interviews, policy and press documents, scholarly research, etc.), the paper adapted Palley's (2017) notion of policy lock-in and lock-out via hysteresis to propose an entrenchment spiral as a potential mechanism leading to the current degree of coal and fossil fuel extraction entrenchment in Colombia. The paper concludes that the phase-in of LSCE and FE was facilitated by the combination of masking and securitization strategies used by an incumbency regime closely associated with state capture. As power dynamics shifted, asymmetric dependency relationships between mining companies and affected individuals, communities and governments at local, regional and national levels were gradually generated, leading to this sector's seemingly inexpugnable position. That said, knowledge is power. Knowing how phase-in and entrenchment occurred and still happens can be an initial step towards confronting and even reversing it.

1. Introduction

In 1976, over two decades after the evidence on the link between the combustion of fossil fuels and global warming began accumulating [1], the Colombian government, together with Exxon, began phasing-in open-pit, export-oriented Large-Scale Coal Extraction (LSCE) [2–4]. In less than 50 years, LSCE would go from zero in 1975 to over 90 Mt/a at its peak in 2017 [5].

As evidence presented in this article suggests, LSCE was far from being an outright profitable business for Colombia. Yet, despite the

most varied impacts of coal extraction,¹ and increasing resistance by both front-line communities² and organized civil society,³ transnational enterprises (TNEs) such as Exxon, Glencore, Drummond, BHP Billiton, Murray Energy, the Yildirim Group or Anglo American, which control LSCE, have continued this activity with the sponsorship of the Colombian government.

The chain of events leading to this seemingly inexpugnable position held by LSCE has unfolded over a long period. Throughout this time, regardless of the necessity to act against the climate crisis [6] or the increasing attractiveness of other sources of energy [7,8], coal extraction

* Correspondence to: TU Berlin, Secretariat H33, Straße des 17. Juni 135, 10623 Berlin, Germany.

E-mail address: fc@wip.tu-berlin.de (F. Corral-Montoya).

¹ See for example [9–23] on these many *negative* social, ecological, cultural and political impacts of Large-Scale Coal Extraction (LSCE) in Colombia.

² Resistance by Afro-Colombian, peasant and indigenous communities has been constant since the beginning of mining activities [9,24,25]. It stretches to current efforts to impede mining expansions, such as the movement of the Wayuu community of Provincial [26] or Tabaco [27] to reclaim their rights and resist the mines' expansion.

³ NGOs such as PAS, CINEP-PPP, DeJusticia, CAJAR, CENSAT, Tierra Digna, Indepaz, PAX, AIDA, amongst others, have been supporting front-line communities for decades now.

and combustion has continuously grown and further entrenched itself in economies and societies alike, not only in Colombia, but on a global scale [28].

As recent research suggests that “rapidly reducing coal-based power generation down to 80% below 2010 levels by 2030, and a global phase-out by 2040 (...) is the single most important step to keep the door open for achieving the Paris Agreement” [29, p. 22], it is becoming increasingly urgent to reflect on how to initiate or accelerate such a process.

In this, the deliberate phase-out of fossil fuel extraction has to deal with the rent-dependent actors attached to that activity, thus making a political economy perspective necessary. Looking at the process of phase-in and continued entrenchment of LSCE from a critical perspective, this study seeks to understand how those rent-dependent actors (e.g., coal companies, their associates, clients, etc.) have acted to attain and retain their privileged position. This critical perspective results from combining a deep skepticism to context-independent positivist approaches to social science, with a particular interest for visibilizing oppression and domination structures present in society, as well as a concern towards unlocking people’s potential to transform their societies for better (cp. [30, pp.99]).

To conduct the present analysis, the article thus draws from the tradition of critical realism. This paper constitutes an “explanatory critique” [31, p.666]. With it, the aim is contributing to avoid reproducing or prolonging social structures and processes (i.e., LSCE and fossil fuel extractivism (FE)) that “may depend on false or inaccurate social beliefs” (ibid.), such as assuming that fossil-fuel extraction or mining mega-projects will automatically generate social welfare for a society and that they occur without any inconvenient or danger. In this sense, the study is critical as it aims to question the potentially false or incoherent self understandings of people [30], in this case on the origins and unfolding of LSCE in Colombia.

If it can be demonstrated that an established belief underpinning an activity may be wrong or inaccurate, and that this is systematically linked to oppressive social structures, then this will not only increase our understand of these beliefs, but also provide motivation for overcoming those oppressive structures [31, p. 667]. This paper aims to shed light on the processes behind the insertion and entrenchment of a potentially deleterious activity to facilitate confronting the oppressive structures this activity may depend on.

Understanding the process through which the current situation has been reached might therefore lead to reflection and debate on how the current carbon lock-in can be reversed or, for countries where it has not yet occurred, provide a precautionary example for how to avoid it.

Given the shifting geographies of coal extraction [21] from the Global North and the West to the Global South and the East [32], understanding cases such as Colombia’s can help sharpen the discussion on supply-side climate policies [33]. Like Colombia, countries such as Indonesia, South Africa, Russia, Australia and Mozambique are all highly reliant on fossil fuel extraction and exports, giving actors relying on these activities both rents they depend on and resources to expand their power basis. Therefore, the insights from this research may resonate well beyond Colombia.

The research goal is to unveil the main *causal mechanisms* for the phase-in, entrenchment and perpetuation of LSCE in Colombia. Hence, the paper seeks to answer the question: *what are the dynamics and factors hindering or enabling the phase-in, entrenchment and lock-in of LSCE in Colombia?* Solving this could shed light on effective resistance mechanisms and alternatives, and may thus open avenues for a just and timely energy-and-mining transition that begins with the challenge of phasing out coal where it is highly entrenched.

To reach the research goal and answer the research question, the case study is analyzed using process tracing methodologies [34–36]. Data is drawn from two primary sources: (1) written policies, plans, etc.; (2) a set of 20 semi-structured interviews with experts, elites

and vulnerable populations.⁴ Additional data is drawn from secondary sources like grey literature (especially from NGOs), peer-reviewed articles, press articles and scholarly books.

Section 2 presents a literature review to situate this research within existing and ongoing scholarly work. Section 3 outlines the research design and methodology. Section 4 presents the empirical data: a process tracing exercise of Colombia’s phase-in and entrenchment of LSCE. Section 5 discusses the key mechanisms that enabled the phase-in of large-scale coal extraction, and the continuous entrenchment of a system of FE in Colombia. Section 6 concludes.

2. Literature review

This paper caters to Sustainability Transitions Research (STR) [37–39]. Within STR, the research question requires a firm grasp of one form of transition towards sustainability: the deliberate termination or “exnovation” [40,41] of unsustainable practices, policies, energy carriers, etc.

Agency & Power

Due to the particularities of (deliberate) structural change, a strand of literature aims to understand agency and power in STR [42–45]. Understanding who is using what kind of power in which way to retain or challenge a privileged position within an established socio-economic structure is crucial to understanding how (structural) social change is to occur. Sovacool & Brisbois [46] provide a review of a particular form of power: “elite power”. The authors revise a variety of definitions and understandings of power. From their perspective, power is “simultaneously agent centered, corrective, and conduct shaping, as well as structure centered, pervasive, and context shaping. This dual view makes clear that power is always a dynamic relationship between entities.” [p.2]

For the purposes of the present study, Avelino & Rotman’s [42, p.550] definition of power as “an actor’s ability to mobilize resources to achieve a certain goal” is used.

Incumbency in STR

In an effort to understand the way in which one kind of actor, “incumbents”, may try to “subvert” transformation efforts and use their resources and power to retain their privileged position, another strand of literature focuses on the issue of incumbency [47–50]. Within the field of energy system transformation, incumbent actors, for example in fossil fuel extraction, transformation or use, are expected to be the big losers of structural change.

There is arguably a strong link between fossil fuels and capitalist development, which has created strongly entrenched interests [51]. Incumbents in fossil capitalism, with high stakes in the use of fossil fuels – due to prevalent profit-making motives and structures – will be motivated to impede the reduction of that fuel’s use (see for example [52]). In fact, Johnstone et al. tried to trace fossil incumbents’ strategies [48]. They identified four: securitization, capture, masking, reinvention. Such strategies may be used to impede competing technologies or systems of production from emerging (for an illustrative example, see [53]). If they do emerge, coexistence will be sought, keeping the incumbent system, while adding the new system on top [54]: innovation without exnovation [40,41].

Extractivism & STR

Within the category of incumbents, this paper focuses on a particular kind of incumbent actors: those associated with what is referred to as “fossil fuel extractivism (FE)” [55]. First proposed by Gudynas (see for example [56]), the paradigm of extractivism alludes to a system of capital accumulation based on the large-scale, high-impact, export-oriented extraction of natural resources. In STR, extractivism has

⁴ See A.2 for further information on the interview sample and exploratory interviews.

increasingly become a focus of research, as it is not restricted to fossil or mineral resources, but can take on many different forms [57–59]. Linking power & agency with extractivism, Svampa [60] and Gudynas [61] argue that extractivism, regardless of whether it is government- or corporate-led, is closely linked with the systematic capture or cooptation of state institutions. In this regard, Hellman, Jones and Kaufmann provide a valuable definition of state capture as “the efforts of firms to shape the formation of the basic rules of the game (i.e., laws, rules, decrees and regulations) through illicit and non-transparent private payments to public officials,” [62, p.756]. Cooptation implies aiming to change the nature of a regime or system from within, by exercising unaccounted influence or pressure on actors in the system, or by inserting new, friendly actors in the system/regime [63,64]. The widespread use of both practices tends to suggest that large-scale accumulation of capital via natural resource appropriation can only work if it has some state sponsoring.

The Minerals-Energy-Complex (MEC) and other Complexes

Labeled as MEC [65], authors on another strand of research have identified a system of capital accumulation, in which core sectors in the minerals-energy industries are tightly linked to financial and state actors via different direct and indirect mechanisms of ownership, control or influence.

More recently, an increasing number of scholars have tightened the focus on the political economy of coal [66] and even on a “contemporary coal complex [understood as] a global assemblage of finance, infrastructure and expertise that together constitutes the political economy of coal and determines the speed and scale of its extraction, transportation, and eventual combustion” [67, pp.153]. Such approaches show how deep the overarching entanglement of coal extraction is in the economic, political, cultural or technical spheres, among others.

Coal and Extractivism in Colombia

Due to the huge and accumulating socio-ecological liabilities [20], profound injustices [55] and negative market perspectives [68], reflecting on a deliberate phase-out of LSCE in Colombia is indispensable. It is a pivotal component for avoiding the socio-ecological risks of continuation of LSCE, as well as the risk of an unplanned market-led collapse of this sector.

Offering reflections on why LSCE seems to be so privileged and unquestioned in Colombia, Pardo Becerra [69] makes a historical analysis of the different legal changes that have been introduced to favor the minerals-energy sector. Elsewhere, the same author has discussed the intertwining between Colombia’s political establishment and the minerals-energy sector, identifying several examples of state cooptation and mechanisms of rent-extraction, especially when it comes to taxes and subsidies [63]. Further, Strambo et al. [70] discuss the politics of subsidies in the Colombian coal sector and focus on the several forms of power that are used to gain exclusive benefits from the state. Further, Rudas Lleras & Espitia Zamora [71] dissect the interactions between the coal sector and the Colombian government around mining royalties.

Analyzing discursive and political strategies of actors in the minerals-energy sector, McNeish [72] discusses the role given to the sector in governmental policies in a post-conflict context. He focuses on the paradoxical role of the Minerals-Energy Locomotive (MEL) as a factor of development. This is consistent with Gonz lez Espinosa [73], who concludes that the minerals-energy sector has become a central driver of socio-environmental conflict and violence, despite the sector’s alleged role as a pillar of peace. Other authors study some of the narratives used to justify extractivist activities used by corporate [74] and government actors [75].

Finally, some research has looked at the relationship between the state, companies and local communities. Banks [76], for example, identifies “state absenteeism” as a key variable defining asymmetric relationships between coal companies and surrounding communities in La Guajira. Velez-Torres [77] discusses the role of the state in policies of “governmental extractivism”, a government-sponsored effort to enable

natural resource appropriation by private actors. She identifies the involvement of security forces in facilitating the development of the extractive sector as a leading enabling variable.

The Gap: A unifying red thread

The reviewed literature shows that research in and outside of STR has increasingly put its attention on power & agency for structural change processes, especially if these are to be deliberate. This has increased the importance of understanding incumbency and realizing that there are many ways in which incumbents may try to subvert or impede structural transformations that imperil their privileges. As a particular kind of incumbents, actors engaged in extractivism have shown to be closely linked to state and government actors and, in the Colombian case, to be able to exert major influence on existing discourses and narratives on the continuity of their activities. This has allowed them to attain or keep a wide array of economic and political prerogatives. Research has thus provided a variety of conceptual tools to understand how incumbents act, who they often are, and which role they have been playing in energy transitions so far.

What is missing, however, is a unifying, explanatory study that brings together these different pieces of research and evidence, as well as conceptual tools for understanding incumbency. More importantly, while there is a knowledge gap concerning incumbency in the Global South, empirical cases in southern countries can enrich theory-building, as understudied cases can give rise to new concepts and frameworks of thought.

In this regard, incumbency in FE is not merely a result or an ongoing dynamic, as existing research such as Strambo et al. [74] has shown. It is also a *historical process* that began before the phase-in of large-scale coal extraction in the 1970s and has evolved ever since to today’s levels of entrenchment and carbon lock-in.

This is precisely the gap that the present study seeks to fill by conducting a thorough and interdisciplinary analysis of the dynamics and factors hindering or enabling the phase-in, entrenchment and lock-in of LSCE in Colombia. This paper draws inspiration from a more abstract approach, Palley’s theory on economic policy lock-in and lock-out via hysteresis [78].

Palley’s Theory of Economic Policy Lock-in

In his theory, Palley applies hysteresis⁵ to economic policy. He is concerned with policies or policy regimes that may become irreversible (lock-in) or imply the exclusion of other policy options once they are enacted (lock-out). According to him, this may occur if the variables determining the irreversibility of a policy or policy regime go beyond specific switch-on or switch-off thresholds.

The process of economic policy lock-in or lock-out was originally conceived by Palley to occur as follows. Ideas inform the policy process, which then produces certain (economic) policies. These then interact with the economy and produce a series of (economic) outcomes. By affecting the stock-flow dynamics of the economy,⁶ the outcomes affect the political and social system shifting the rules of the game and the balance of power in the society. This then affects how ideas are produced. Here, the loop is closed, as ideas feed back into the policy process.

Palley’s theory of policy lock-in and lock-out via hysteresis tries to capture the importance of economic variables, the mechanics of the policy process, as well as the interplay of both within a socio-political system with a given – but changing — *endogenous* balance of

⁵ This concept is employed to understand how systems may change their characteristics “by passing through trigger thresholds that act as ‘switch-on’ ‘switch-off’ mechanisms” [78, p.3].

⁶ Palley refers to stock-flow dynamics with a focus on economic stocks and flows (e.g. investment, borrowing, or revenue flows vs. stocks of invested capital, debt or wealth). While key to economic policy lock-in, plenty of other stocks/flows may be relevant to the kind of entrenchment discussed in this article.

power. Additionally, it allows one to consider the impacts of policy changes on economic structures, as well as how these changes may affect political structures and eventually lock-in or lock-out certain policy options. In this theory, the idea of hysteresis aims to reflect on the variety of on/off thresholds that can be passed in different realms and may render a policy irreversible. While Palley [78] refers to hysteresis mainly in terms of a given society's political sentiment, other realms may play a role, too. Political sentiment refers here to the ability (in democratic systems, at least) to find political majorities in order to change a policy regime (e.g., state-led domestic industry promotion and protectionism, for free-trade and market-led development). But as Verbruggen [79] points out, plenty other realms can lead to policy decisions that are too hard to reverse or revoke due to their inherent complexity (e.g., damaging an underground aquifer), prohibitively high costs (e.g., building an oil refinery) or singularity (e.g., bringing an indigenous people and culture to the brink of extinction).

As discussed before, this article is interested in figuring out what has enabled/hindered LSCE. Explicitly accounting for the (ir)reversible or (ir)revocable nature of related actions and processes is thus fundamental. If one is interested in understanding the process of coal phase-in, the mechanics of its entrenchment and the potential lock-in this implies, Palley's framework can offer valuable insights to help find the missing thread to bring together existing empirical and conceptual work on FE and LSCE in Colombia.

Nevertheless, the one-to-one application of this theory to Colombia's case is not straightforward. First, it would be the first empirical application of this framework. Second, the framework's high complexity and insufficient operationalization in its original form may hinder a meaningful and intelligible empirical application. Third, the closed form of the "black-box loop" that Palley uses to depict the process of policy lock-in and lock-out may limit the framework's explanatory value. In contrast to this theory, each "turn" in the process has, in reality, inherently different components and is therefore unique. While imperfect, Palley's framework still has plenty of explanatory potential. For one, it explicitly accounts for discourses, narratives and ideas that play a key role in influencing agents' mindsets, as research on Colombia and Latin America has shown [75,80]. Second, it makes it possible to approach the issue as a reoccurring cycle or loop. Actors are not only affected and constraint by structures but can also change the structures in return, an analytic perspective that can easily be tied to this paper's critical realist approach [31,81]. Third, the framework goes beyond solely considering economic or political factors. In fact, it integrates political, economic and cultural-discursive perspectives, amongst others, which facilitate the kind of interdisciplinary study required to go in depth into STR and to inquire on the nature of deep incumbency [37,47,50]. Fourth, it makes it possible to explicitly account for the role of power, a priority in studies catering to STR [45,74,82].

3. Research design and method

This section presents and discusses the research design and methodology. Moreover, it shows how the previously introduced theoretical framework is adapted for its empirical application in the case of LSCE in Colombia.

3.1. Research design: Case study

According to Gerring [83, p. 27], a case "connotes a spatially and temporally delimited phenomenon of theoretical significance". As for case studies, their goal is "partly to explain the case(s) under investigation and also, at the same time, to shed light on a larger class of cases" [83, p.30]. Case studies thus serve as a tool for "knowledge-capture, record-keeping and general reading" [84], linking existing information under a consistent narrative, providing the basis for further theoretical and empirical debate.

This paper uses a case-study design to provide an in-depth, within-case analysis of an "extreme case": that of LSCE in Colombia. As Fig. 1 shows, Colombia has devoted huge areas of its land for minerals and hydrocarbon exploration. Combining (requested and granted) mining titles with hydrocarbon exploration/extraction blocks, most of the country's continental area would be intervened. As ongoing research shows, this is associated with Colombia's extreme form of extractivism [85–87]. In it, Trans-National-Enterprises (TNEs) extract and export by far the largest amount of materials [88,89], not employing many people [90] and using these resources as a source of rents, rather than of energy [91].

Temporally, this study includes a series of events, beginning with the initiation of the Cerrejón project in 1973 and continuing all the way to 2020.

Spatially, this study focuses on the activities⁷ carried out by different entities⁸ in the LSCE regions of Cesar and La Guajira, in Colombia's northeast (see dark brown areas in the lower left-hand of Fig. 1 and the dotted areas in the lower right-hand). It considers the decisions occurring in the capital (Bogotá) because, due to Colombia's centralism, most decisions leading to activities occurring in LSCE regions were taken either in the capital or even abroad.

As the present analysis is interested in power and how it has been exercised to enable a natural resource extraction regime (i.e., FE), best exemplified by LSCE, returning to the definition of Avelino & Rotmans [42] can be useful to explain why and how process tracing (PT) is used. In their view, power requires some actor, agent or *entity*, in PT terms, to use or mobilize resources to achieve a goal. In PT terms, this "mobilization" of resources and how it occurs, can be equated with an *activity*. Studied events are thus selected due to their importance as pieces of mechanistic evidence [36] of the exercise of power.

3.2. Research method: Process tracing

"Process tracing is a research method for tracing causal mechanisms using detailed, within-case empirical analysis of how a causal mechanism operated in real-world cases" [36, p. 1]. As a method, PT implies "the systematic examination of diagnostic evidence selected and analyzed in light of research questions and hypotheses posed by the investigator" [34, p.823]. The selection of this method is the result of efforts to understand the process or causal mechanisms linking a cause to an outcome, or as in the present study, trying to explain the outcome (or "final result") altogether.⁹

In this paper, an *explaining-outcome PT* is conducted. In it, the goal is to "craft a case-specific explanation of the major factors in a case" [36, p.281]. This kind of PT uses theories not for them to be subject to a theory-test, but rather "in a more instrumental fashion to enable us to craft comprehensive explanations of particular cases" [36, p.282]. As it implies an iterative process going back and forth between theory to empirics, it is associated to a more abductive research process.

⁷ Activities refer here to actions like building a mine, enacting a law or lobbying an authority that "produce change or (...) transmit causal forces or powers through a mechanism" [36, p.4]. They can only be enacted by entities, which hold agency in social processes.

⁸ Entities can be (individual) actors, organizations or structures like politicians, coal companies, indigenous communities, government, or capitalism [36]. They have the agency to engage in activities.

⁹ An important credit to an anonymous reviewer is warranted, who recommended engaging in process tracing, going beyond the case-study design of the original manuscript.

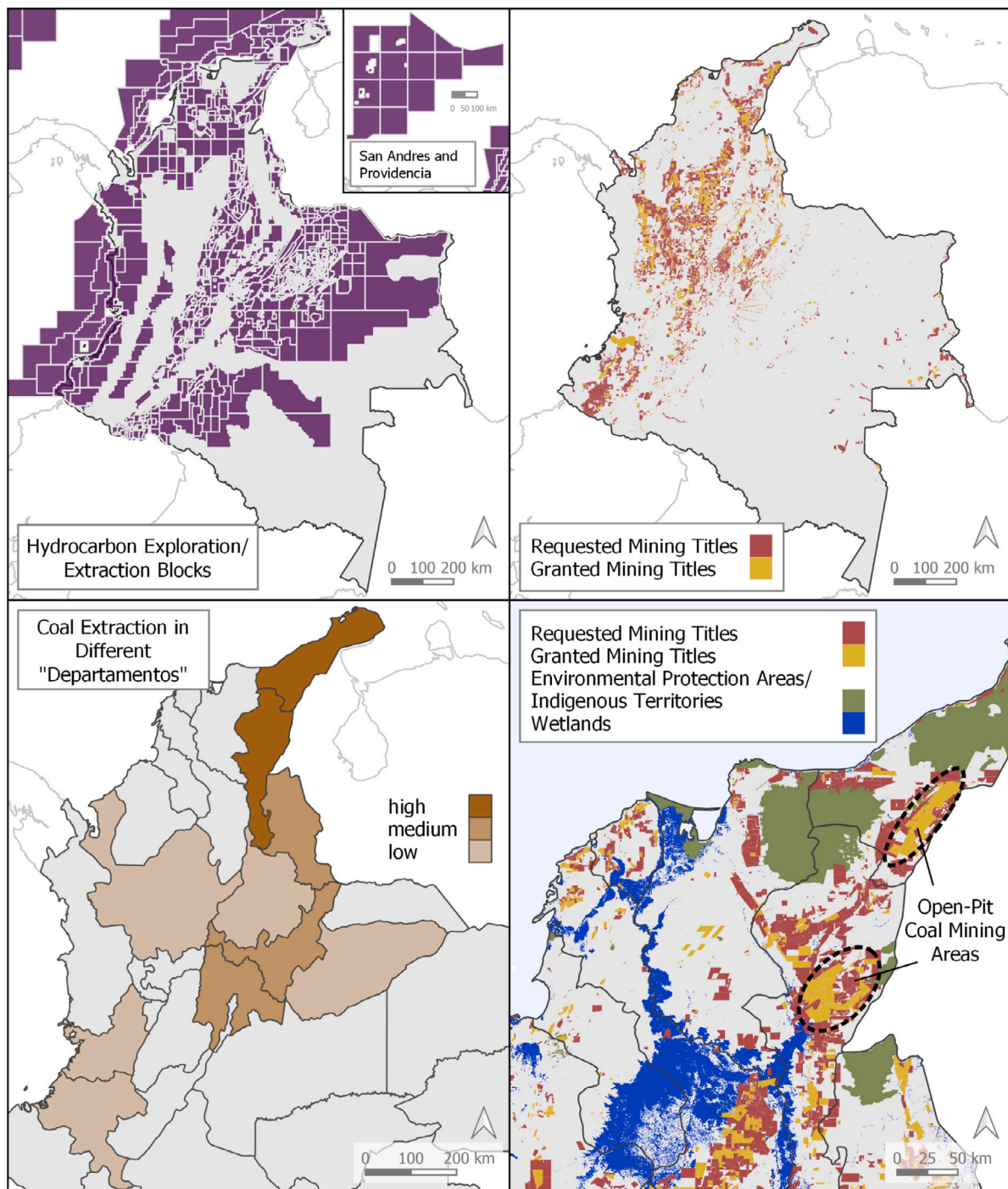


Fig. 1. Cartography of (Fossil Fuel) Extractivism in Colombia.
 Source: Own illustration based on data made available by [92].

3.2.1. Adapting the theoretical framework

Process-tracing methodologies can draw on ex-ante hypotheses to identify the causal mechanism(s) behind a given process, linking causes to outcomes. Here, an understanding of mechanisms as systems [36, pp.69] is taken. In it, “the causal logic(s) can be made explicit by formulating the *activities* in which *entities*¹⁰ engage that can plausible link together parts of the process”.

This paper’s hypothesis is that an adaptation of Palley’s [78] theory of economic policy lock-in and lock-out via hysteresis can show

what the causal mechanism(s) linking one (leading) cause, the (expected) appropriation of natural resource rents, with one outcome, the entrenchment of LSCE as a manifestation of FE.

As introduced before, Palley’s [78] theory is concerned with policies or policy regimes that may turn irreversible (lock-in) or imply the exclusion of other policy options once they are enacted (lock-out), after going through a 9-staged loop process with the following stages: ideas; policy process; economic policy; the economy; economic outcomes; stock-flow dynamics, automatic stabilizers & economic hysteresis; political & social system; rules of the game & balance of political power; and production of ideas.

¹⁰ Italics by the author.

The categories used in the adaptation are explained in the following paragraphs. As for some of the elements in the original theory, which are excluded, meaningful justification is warranted. First, the research re-frames the category “economic policy” under the label “policy initiative”. As the literature on carbon lock-in [93,94] and incumbency [50,74] has namely discussed, not only economic policies can enable or hinder carbon-intensive activities such as LSCE. Second, the categories “the economy”, “political and social system” and, to a certain extent, “balance of power” are brought together into an aggregate “context”, which aims to account for ex-ante social, economic, and political structures and circumstances at a given point in the process. Third, the category “economic outcomes” is expanded to account for general “outcomes” resulting directly from policy initiatives, as political, cultural, social or ecological outcomes can also result from them and play a central role in the whole process being analyzed. Fourth, the component “stock-flow dynamics, automatic stabilizers & economic hysteresis” is excluded to simplify the framework. So as not to lose its explanatory potential, the category “outcomes” will also address some of the stocks and flows affected by given policy initiatives.

3.2.2. Defining concepts

As will be explained in the following paragraphs, I consider that this adaptation can be best depicted as an *entrenchment spiral*, rather than a closed loop (see Fig. 2).

Before explaining the spiral as the potential mechanism behind the entrenchment of LSCE, it is important to define its constitutive elements. PT methodologies require clear definitions of concepts before causal mechanisms can be analyzed, tests can be conducted, and diagnostic evidence analyzed [36].

Ideas, Narratives & Discourses:

In the most abstract sense, Palley argues that ideas “shape people’s understanding of the world, which in turn shapes beliefs about what is possible, economic aspirations, and political expectations” [78, p. 7]. In that sense, he goes in a similar direction as other scholars who have associated discourses [95] or narratives [75] to the manifold strategies that coal sector incumbents use to defend their privileges and sustain their regime.

In the present case, the argument is that particular actors (e.g., business lobbies, companies, government entities, etc.) may recur to using, disseminating, promoting, etc. Ideas, Narratives and Discourses (INDs) linking LSCE to grand societal goals such as “progress”, “development”, “growth” or “peace”. Existing research has observed this, for example, in the context of the UK, where (potential or expected) locally generated benefits from fracking are discursively woven to areas of general, public or even global interest (e.g., employment, energy security, etc.) [96].

In the moment an activity is framed by actors as of public or general interest, often assuming almost hegemonic dimensions (e.g. [96,97]), such INDs may set the stage for any further debates or decision-making processes. Hegemonic discourses may play a central role in defining the boundaries not only of public debate but also action, because they appear “as the ‘common sense’ that guides our everyday, mundane understanding of the world. It is a view of the world that is ‘inherited from the past and uncritically absorbed’ ” [98, p. 201]. Hegemony may, for example, conflate with what Johnstone et al. [48, p. 10] refer to as “masking strategies: hiding, socializing or externalizing the full costs of an incumbent regime”. To this, it can be added that masking can also imply exaggerating the benefits of activities associated to that incumbent.

Therefore, in a mechanistic sense INDs can be understood as activities (e.g., public discourses, divulgation of positions, etc.) enacted by entities (e.g., think tanks, public institutions, academics, politicians, etc.) which relate to FE and LSCE. The role of this part of the mechanism is explaining the way in which every process is deeply, if often surreptitiously, influenced by what people and especially decision-makers may deem desirable, feasible, normal, etc.

Policy Process:

As Palley argues, the policy process is “the filter through which ideas must pass if they are to become policy” [78, p.5]. Depending on the nature of this process, some policy options will be “filtered”, while others will quickly be washed through and become policy.

Evaluating the full policy process (e.g., agenda-setting, formulation & decision-making, implementation, and evaluation/termination/modification) is beyond the scope of this article. Within the mechanism of the spiral, a parsimonious understanding of policy process is taken in order to focus on particularly salient elements of the respective policy process.

Therefore, if *entities* (e.g., ministries, lobbyists, policymakers, activists etc.) were identified as saliently engaging in *activities* (e.g., lobbying, misinforming, etc.) that evidently affect the phase-in or entrenchment of LSCE, their role in the policy process will be included in the process tracing.

Consider, for example, extreme cases such as a president directly pushing to put LSCE at the top of national priorities or the array of hints suggesting the opaqueness and potential corruption behind the formulation of association or privatization contracts that affected the Cerrejón project. The focus is thus placed on those singular features occurring at different stages of the policy process (e.g., agenda-setting or policy formulation and decision-making), for which strong evidence can be presented.

Policy Initiatives:

In this paper, policy initiatives are the direct output of the policy process. They include administrative decisions (e.g., privatizing a company), legislative acts, judicial decisions, amongst others.

A central factor for the present process tracing is evaluating whether policy initiatives are ex-ante aiming to privilege LSCE and FE or ex-post simply end up doing so. This is considered using the concepts of “functional” and “formal” forms of entrenchment discussed by Levinson & Sachs [99].

Functional entrenchment operates by enacting reforms that directly strengthen/weaken a policy’s main constituency, change the composition of that constituency, or shift the decision-making power over the policy in question to an authority that is friendlier to the supporters/opponents of the policy. It does not necessarily require some malevolent force pushing it; it can also occur without being explicitly intended.

Formal entrenchment is, for its part, more related to legal instruments such as legislation, modifications of electoral rules, constitutional reforms, super-majorities, etc. Usually, formal entrenchment implies the explicit mention of what will be entrenched and why.

Reviewed situations will thus include policy initiatives that functionally or formally favor/hinder LSCE.

Context

Just as policy initiatives do not fall from the sky, they do not leave their mark on an empty slate either. Therefore, to understand their impact, it is important to link them to the context and structural features of the natural, social, political and economic system they will unfold in.

In the Spiral, the *context* combines two crucial pieces of any process: (1) the circumstances in which a complex system is at a given point in time and space; and (2) key structural features that characterize that complex system and are more stable over time, space and changing circumstances.

In Palley [78], this category was originally divided into different aspects (“the economy”; “political & social system”; “balance of power”, etc.). This research summarizes relevant structural aspects in the economic system (e.g., income/wealth inequality, productive structure, etc.), the society (e.g. disparity in political voice, centralization, etc.) and nature (e.g., land use). The goal of this category is to explain which contextual factors are affected by policy initiatives and in turn affect the outcomes that will result from given policy initiatives.

For that reason, this category also includes those circumstantial conditions present at the moment in which a policy initiative is executed (e.g., civil war, economic crisis, natural catastrophe, etc.).

To illustrate this, consider that a policy initiative being deployed in a context characterized by a profoundly unequal distribution of wealth, power and political voice, undergoing an internal conflict and dealing with endemic corruption, will surely produce different outcomes than in a similar initiative in a stable, more egalitarian and democratic context.

Outcomes:

Policy initiatives do not only cause economic outcomes, but also an array of ecologic, socio-political and cultural impacts.

Since these varied intended or unintended outcomes of policy initiatives related to LSCE have altered the livelihoods and resources of a large part of the entities engaged in or affected by LSCE, taking them into account is paramount to understanding what (changed) power dynamics may arise as a result.

Here, Palley’s original stock-flow dynamics play a crucial role in understanding the mediate and immediate outcomes of the interaction between a policy initiative and the context. If an exponential increase of raw material extraction conflates with an economic opening bringing down trade barriers, while Foreign Direct Investments (FDI) flows to coal and oil extraction increase, capital stocks in these sectors will increase as well, potentially displacing other sectors and affecting other flows such as foreign currency receipts or agricultural and industrial exports/imports.

In the economic, but also socio-ecological and political system that each country is in, this directly impacts the distribution of resources (e.g., financial capital, arable land, public support, etc.) available to entities. Said resources and “the [in]ability to mobilize [them] to achieve a certain goal” [42, p.550] is what ultimately defines the distribution of power in this case.

Power Dynamics:

Few things can be truly understood in the political economy of sustainability transitions if power dynamics are not actively included. In the words of Avelino & Rotmans, “power is a social force just as gravity is a physical force” [42, p.550].

To analyze changing power dynamics, Avelino & Rotman’s [42] typologies of power are used. They differentiate between different forms of *power exercise* (innovative, destructive, constitutive, transformative and systemic power), as well as types of *power relations* (power of one entity ‘over’ another; one entity having or exercising ‘more’ power in comparison to another; or one entity exercising a ‘different’ power than the other).

Here, outcomes are connected to (shifting) power dynamics by analyzing how the resource endowments by different actors change as policy initiatives interact with the context to produce or influence a given outcome. If, for example, peasants lose their land (a potential source of food or income, or the anchor for cultural or social rooting, for example) as the mine is built, they are weakened vis-à-vis the coal company.

As different resources and thus different forms of power are altered, actors’ abilities to maintain or promote their respective visions of an ideal or expected world becoming reality or dominating public thought will be changed. This also applies to their capability to relegate, stigmatize or ignore opposing views.

3.2.3. Theorizing mechanisms — building the spiral

In this paper, an understanding of mechanisms as systems [36, pp.69] is taken. In it, “the causal logic(s) can be made explicit by formulating the *activities* in which *entities*¹¹ engage that can plausible link together parts of the process”.

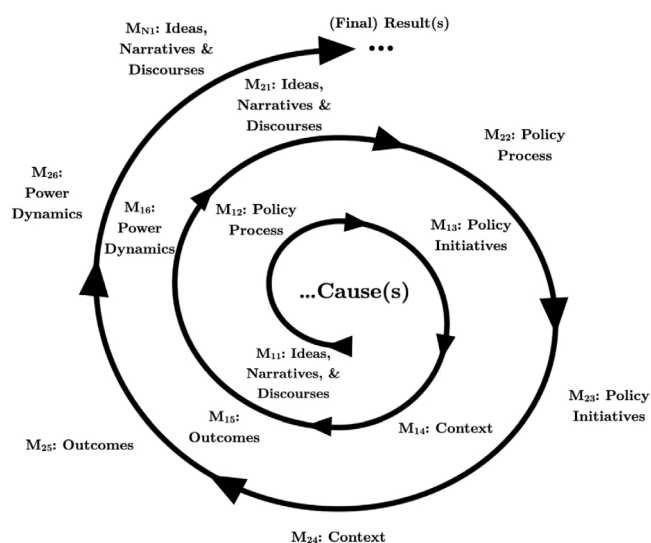


Fig. 2. A Spiral of Fossil Fuel Phase-in, Entrenchment & Lock-in. Source: Source: Own illustration partially based on [78].

Palley’s [78] “black box of policy lock-in” is adapted here to present a 6-stage spiral that brings together the concepts presented in Section 3.2.2. As any spiral, the one used in this paper does not have a beginning or an end. It constitutes a dynamic process which returns to common places (i.e., the stages). Opposed to a loop, each time the spiral turns, the stages are different, with each spin being unique.

The Spiral begins with observed or inferred causes (C₁ to C_X). Depending on the scope, the X-amount of causes can be taken. In the present case, the assumption is made that the (expected) appropriation of natural resource rents is one (leading) cause which triggers the process or mechanism (M) being analyzed. Formally, the entrenchment spiral is divided into two spins (M₁ and M₂), each with six stages.

In the first “spin” (M₁), INDS (M₁₁) set the stage in which the policy process (M₁₂) unfolds. They inform and influence policymakers, as they have grown used to seeing certain policy sets as viable and convenient, and others as impossible or inconvenient. Within the different stages of the policy process, specific characteristics of this process may lead particular entities or activities to be favored or neglected. This may result in specific policy initiatives (M₁₃) being pushed and implemented. After interacting with particular historically and spatially bounded natural, social, political and economic contexts and structures (M₁₄), they will produce an array of outcomes (M₁₅). These outcomes manifest themselves in many different realms such as changes in political weight, income distribution, land use, etc. They may thus affect the power dynamics (M₁₆) of the society in question in many ways, one of them being the ability of certain actors to reproduce or cement their ideas and narratives, where the spiral spins returns close to where the analysis begins, before a second spin (M₂) begins. In the end, the spiral as a mechanism is expected to produce or influences one (final) result — the entrenchment and lock-in of LSCE in Colombia.

4. Tracing the process of phase-in & entrenchment of fossil fuel extractivism: The case of LSCE

Taking the Entrenchment Spiral as a potentially coherent explanation, the following paragraphs engage in a dialog comparing how the process “should” be (theory) with what really happened (empirical data) to craft “a minimally sufficient explanation” [36, p.282] for today’s outcome of deeply entrenched LSCE. To follow a chronological process, this section reports two illustrative spins in the entrenchment spiral. Since the analysis is temporally and, in part, geographically constrained – i.e., merely represents an excerpt in the long and complex

¹¹ Italics by the author.

history of LSCE in Colombia – more spins could be reported and analyzed in the future. The two spins introduced and explained here respectively account for what can be termed the “phase-in” stage (1973–1999) and “entrenchment” stage (2000–2020) of LSCE.

The arrival of LSCE to Colombia did not occur in isolation from unfolding historical processes such as the global capitalist expansion or emerging discourses, for example, on development, or evolving economic thinking like the one that gave rise to neoliberalism. Nor did it occur without deep historical roots in Colombia’s social, (geo-)political, cultural and economic reality. Nevertheless, the infinite spins of social change processes, of which this case is just one component, cannot be included in anything other than a summarized and simplified form. The three following paragraphs thus present the assumptions or previous information on which the analysis for this section is based.

The first spiral spin begins at a historical juncture characterized by the demise (or reconfiguration) of colonial empires, which according to the scholar Ramón Grosfoguel had, over the course of four centuries, established a multiplicity of entangled hierarchies “of sexual, political, epistemic, economic, spiritual, linguistic and racial forms of domination and exploitation where the racial/ethnic hierarchy of the European/non-European divide transversely reconfigures all of the other global power structures” [100, p.12]. From a political economy perspective, this reinstates the fact that political economy and power issues are likewise not only restricted to economic variables, but also to cultural ones. In the Colombian case, this has the implication that the heirs of colonial structures that began to be introduced in the 16th century still dominated in the 20th as mostly white, urban, catholic, Spanish-speaking, rational/modernly educated males from the country’s core in Bogotá and other major capitals. This was reflected in Colombia’s very centralized decision-making structure which, amongst others things, ruled that the state was the owner of the subsoil, and that extractive projects were its sole prerogative. At the same time, indigenous/Afro-Caribbean, rural, often animist, non-western thinking or believing communities, predominantly living in the Caribbean periphery of Colombia (see Fig. 1), were subaltern to the country’s dominant elites. The role of these protracted historical dynamics in what will occur later cannot be understated, as their entanglement with most thinking, decision-making or operative execution processes is very deep.

In this regard, there are three categories of thought that emerged in the last two centuries and have come to play a central role in popular and policy discourse and actions: progress, modernization and development. As Escobar [101] argues, these categories are not some natural manifestation of human welfare, but a social construction that had historically emerged and, by the 1940s/1950s, was beginning to dominate public policy and international relations. From international missions to promote development in Colombia (e.g. [102]), to an entire Latin American school of thought trying to find the recipe for “development” (e.g. [103–106]), this was a central topic. Despite the tensions on how to achieve development, development in itself constituted, as Escobar [101] argues, an ideological project to impose a way of life across the globe with major implications for those upon which this development was imposed. In the years preceding 1973, more state-centered and, to an extent, “emancipatory”¹² approaches to developmental policies, such as those that had supported the seminal industrialization that had occurred in Latin America and Colombia, questioned the region’s role in the international division of labor and sought to overcome “underdevelopment” and “dependency” via industrialization. However, as neoclassical economics became increasingly hegemonic, such state-centered approaches were discarded.

The final component of this context concerns the geopolitical situation in the 1970s. This was the time of the first oil crisis, which

in Colombia coincided with diminishing oil extraction and the beginning of imports for refined oil products, bad coffee harvests (critical for the country’s trade balance, as this crop was the key export) and thus a looming balance-of-payments crisis [107,108]. Simultaneously, guerrilla movements and drug-organizations began consolidating around the marijuana and later coca crops, with proto-paramilitary groups emerging around them. This was occurring in, amongst others places, the very regions where LSCE would unfold and in which Afro Caribbean and indigenous populations had historically managed to retain unparalleled autonomy vis-à-vis colonial and later national authorities [24].

4.1. M_1 : The Phase-In Spin – 1973 to 1999

LSCE did not exist in Colombia before Cerrejón. Coal extraction had occurred in what is now Colombia since pre-Hispanic times, and some comparatively minor coal pits had been established in the Colombian interior in the late 19th and early 20th centuries, mainly for industrial processes and railways [107]. Yet they catered almost exclusively to the small domestic market. As for the coal deposits in La Guajira, they had been known since the mid-19th century and with more detail since the Esso (later Exxon) subsidiary, Tropical Oil Company (TROCO), surveyed Colombia for hydrocarbons in the 1910s [24], yet remained unexploited, as the region of La Guajira was firmly in the hands of the indigenous population, who through a mix of adaptation, diplomacy and successful guerrilla warfare had managed to remain relatively autonomous (and numerous) since the beginning of the Spanish invasion to the Americas in 1499.

Therefore, a project to engage in export-oriented, large-scale, open-pit coal extraction, led by TNEs, of millions of tons of coal per year had to be introduced or “phased-in” not only into Colombia’s productive landscape, but into the territory of the Wayuu people in La Guajira and later into the neighboring region of Cesar. As will be seen, the combination of different factors, actors and relations defined the form in which this “phase-in” occurred and why it succeeded.

4.1.1. M_{11} : Ideas, Narratives & Discourses

When LSCE was phased in, specific entities (politicians, consultants, companies, ministries, etc.) not only thought of it as possible, financially attractive and socially desirable, but actively positioned these views in the public arena. The following explores how ideas, narratives & discourses (or patterns of meaning)¹³ were introduced or instrumentalized to enable the beginnings of LSCE and sheds light on those actors that acted to promote them.

At this point, the paper’s hypothesis leads one to expect that entities in government, TNEs and local business would start to engage in activities to link coal extraction to some of Colombia’s pressing issues and to solve some of the particular problems of potential coal regions. After all, a project of this size required justification. The issue would most likely be reduced to how to best execute the project and especially how to distribute the incurred rents between the state and TNEs, but not necessarily how rents ought to be distributed *within* the state, and especially among those most affected by the project as – per law and common usage – neither recent local inhabitants nor indigenous communities had much say in the process. There is no doubt that there was an abundance of incentives to frame LSCE as a project of “public interest”. Surely, no one would expect that those seeking to proceed with the project would sabotage it or highlight potentially nefarious impacts from it. In fact, this is when a hegemonic discourse (recall for example Stoddart [98] on this) could emerge; casting the “optimistic” optics on an activity such as LSCE may become the only “rational” alternative.

¹² i.e., approaches seeking to overcome dependency *in reaching* development, yet not the *external imposition* of the development itself as a universal paradigm to be applied to all peoples in all geographies.

¹³ Credit is owed to an anonymous reviewer, who gave this idea to sharpen the section.

In the early 1970s, as Colombia's deteriorating economic situation, which had been brought about by a combination of external and internal shocks (e.g. oil crisis, bad coffee harvests, dwindling oil exports, internal political turmoil) [107,108] began to be framed by different economists and consultants as the kind of crisis that could only be bridged by engaging in an unparalleled national effort to mobilize available natural resources to generate additional state income, bring in foreign investments and technology, and create a new vast source of foreign exchange (cp. interviews 9 and 19; [108]). Meanwhile, members of Colombia's political, economic and military establishment seized the opportunity to present Cerrejón, Colombia's first LSCE project, as a tool to finally get the region of La Guajira under government control and, related to this, exercise territorial sovereignty against Colombia's uneasy neighbor, Venezuela (cp. interviews 9 and 19; [24]).

As the discussion on Cerrejón began, at least in certain circles,¹⁴ an emerging argument used to promote Cerrejón was that it would bring "development" to a "backward and uncivilized wasteland", as respondents 19 and 9, a lawyer very close to mining policy, and one of Cerrejón's first employees and later a mining lobbyist, respectively, referred to La Guajira and its inhabitants.¹⁵ Thus, the argument ran, consultants, bureaucrats, managers, military personnel, and other people who would bring the Cerrejón mine to life, were being actively placed in a positive light as "helping hands", despite even the deputy manager of Cerrejón at the time, Ricardo Plata, acknowledged that "any process of development logically does violence to social structures and produces in some cases, if not physical ethnocides, certainly cultural ethnocides" (qt. in [25]).¹⁶

There were, however, critical voices, too. As early as 1984, just two years after the project execution began, Rivera-Gutiérrez [25] was already critiquing the INDs of progress, development and modernization as sheer mirages that, in his view, were only instrumental to concealing and justifying what he termed "technocrat ethnocide": the open disclosure of mining companies' attitudes and intentions towards diverging views on how to relate to nature and the territory. As the quote cited earlier shows, executives in Carbocol, the State-owned Enterprise (SOE) in charge of operation, and Intercor, an Exxon subsidiary it partnered with, knew they would most likely bring and end to the way of life that the local Wayuu indigenous people had come to know (also see [24] on this).

This was not the only critical perspective on the phase-in of LSCE. In fact, critical accounts such as the debate on the initiation of coal extraction in Cerrejón, spurred by the later assassinated presidential candidate, Luis Carlos Galán [2], questioned whether LSCE would foment progress and development. His criticism was that, if the state did not play an active role, set high operating standards and steer extraction so as to also power Colombian industry, then most of the wealth would end up flowing abroad.

Yet these calls for precaution were neither heard nor acted upon. In fact, they were superseded by the idea, later enshrined in law and even at the constitutional level, that mining is an activity of public interest. This idea, tied in the preceding decades to the challenge of "structural transformation" to overcome dependency (i.e., Colombia's historical role as provider of raw materials that depended on the exterior for manufactured goods and finance) via industrialization based on energy-

and natural-resource-intensive production processes, had subsequently evolved to the reality of extraction without transformation. In the late 1970s and early 1980s, under the guidance and with the funding of the World Bank, this meant intervening in large swaths of territory to extract coal to generate income, and not for its energetic or material use.

In short, high-level public servants, associates of mining companies, international financial institutions and their consultants, as well as some establishment politicians acquainted with the project (see [108] for a detailed account on this) wielded and disseminated the idea that mining is an activity of public interest. These entities began using the argument that coal extraction would alleviate Colombia's economic problems and that Cerrejón would bring "development" to a "backward people" in La Guajira, and protect Colombia's interests against Venezuela. They did so in numerous newspaper articles, government or think tank reports, as well as public speeches (refer to [108] for a comprehensive bibliography on this). They created the narrative that Cerrejón and LSCE would become Colombia's pathway for modernization and development, and that the actors involved in the project were doing so in the interest of all the country, while those opposing LSCE or FE were to be seen as obstacles to progress & development or, in the heat of the Cold War, outright "communists" (e.g., [108, p.35]). It is in the atmosphere created by these INDs, that the components of policy the policy process reported in the next section ought to be studied.

4.1.2. M_{12} : Policy Process

INDs can have powerful impacts on politics and policy, especially once they run deep enough into people's way of seeing and understanding the world, and thus once they are steadily established in public and government discourse. In this regard, the policy process is one place where they may unleash their strongest influence.

The starting position for this decision-making process concerns the INDs already in circulation inside and outside of decision-makers' minds. As these decision-makers were mostly urban, Western-educated, males working from the capital cities of Bogotá or Medellín, they had a distinctly detached vision of the project, which as different sources (e.g. [24,25] or interviews 9 or 19) show, allowed them to study the insertion of LSCE in isolation of its potential damages, solely focusing on all that would be accomplished from extracting large amounts of coal from an "underdeveloped" region. From the perspective of De la Pedraja-Tomán [107], decision-makers had another distinct feature as members of what he calls Colombia's "merchant-broker" elite: the agglomeration of old landowners, emerging financiers and merchant-brokers involved in appropriation of rents from state-sponsored infrastructure or natural resource projects.

Therefore, from the beginning, this decision-making process encouraged those actors in decision-making bodies to enable LSCE come what may, with more attention paid to its expected revenues than to any foreseeable negative impacts. In the following paragraphs, four instances of the decision-making process underlying the introduction of some of the policy initiatives that gave way to LSCE are outlined.

Collusion Under Pre-Existing and Deepening Asymmetries

According to Kline's seminal work on the Cerrejón project, there had been intermittent interest in the coal from El Cerrejón since the early 20th and as far back as the mid-19th century, both from TNEs and the government [108]. In fact, the first contract to lay the groundwork for coal extraction between the TNE Peabody Coal and the Colombian government was signed before the oil shock in 1973. By then, Colombia had more than six decades of experience in collaborating with TNEs in oil extraction, and it was already normal that employees from national SOEs such as Ecopetrol (oil sector) or Instituto de Fomento Industrial (IFI) (industrial policy), as well as ministries or oversight agencies, shifted positions between private and public, domestic and international entities in the minerals-energy sector. In particular, Exxon subsidiary Intercor (heir to the aforementioned TROCO) had a long-standing relationship within minerals-energy policy.

¹⁴ According to different sources, the public only truly found out about the deal after it had been signed, and it was not until the 1980s that a national debate took place. As for affected Wayuu, Afro-Guajiran and campesina communities in La Guajira, most only found out about the project's scale and intentions when works began [2,24,25].

¹⁵ While noticing a profound dislike by the respondents for indigenous and Afro-Caribbean peoples, the author restrained from confronting this open show of racism. This must nevertheless not be ignored, as (environmental) racism plays a role in marginalizing vulnerable groups (see for example [109] on this).

¹⁶ In fact, the Cerrejón hill was/is a sacred place to the local Wayuu people.

As Kline [108] analyzes, most decisions concerning the Cerrejón mining project (i.e., the beginning of LSCE) nevertheless did occur in the period 1973–1982. Interviews 9 and 19 concur with written documents [24,108] that personnel linked to coal extraction began approaching Colombian policymakers in early 1973. At this time, actors in Ministry of Mines and Energy (MME), the Ministry of Finance and Public Credit (MHCP) or the Directorate for National Planning (DNP), amongst other entities that took part in coal-sector decision-making, were all acting within a power-sharing agreement that was still in place in the 1970s.¹⁷ Both public servants from governing and opposition parties were mostly temporal patronage appointments based more on “personal loyalties rather than technical expertise” [108, p.22]. Many of these actors were under mounting pressure to diversify Colombia’s export basket (dominated by coffee), find new sources of foreign exchange and energy and hence be able to confront the crisis brought about by increasing oil prices and diminishing domestic oil extraction, and especially oil refining, despite increasing domestic demand for liquid fuels (cp. interviews 3, 9, 19 or [24,108,110]).

Inexperienced or temporary decision-makers, for example in the MME or other relevant government entities, were thus reflecting, debating and deciding on an issue such as the introduction of LSCE under pressure. Describing the nature of the negotiation for the beginning of the Cerrejón project in the late 1970s and early 1980s, Kline [108] calls it an example of “dependent bargaining” in which poorly organized and not entirely proficient Colombian public servants were negotiating with well-prepared and richly endowed TNE associates to produce the contract from which Cerrejón would be born. Hence, they did not only act under pressure, but under resource constraints and asymmetries vis-à-vis TNE associates, who were already acquainted with not only the process of natural resource extraction, but, as different sources suggest, the specific coal deposits in Cerrejón, too [2,108].

Revolving Doors and Its Role for Swiftness and Secrecy

This already unequal bargaining process, taking place under increasing pressure, also unfolded with utmost opacity and speed. This did not only apply to the Cerrejón project, but also to those that followed in the neighboring region of Cesar. Negotiations for the coal mines of Cerrejón or Drummond took place mostly behind closed doors and thus without the scrutiny of legislative bodies or the press. They did not include opponents of the projects, and, when they eventually became public, dissent was either ignored or even actively suppressed. As respondent 3, various documents from the time, and more recent analyses suggest [2–4,107,108,111,112], this was not a coincidence, but rather the result of the workings of ministry officials, executives in mining companies and other actors seeking to promote LSCE. They did not actively seek to identify the problems that could potentially arise from coal extraction, did not strive to get more time to study and structure the project in more detail, and did not open the process to public scrutiny and critical perspectives, despite existing administrative and legal procedures not only facilitating, but often mandating it [24].

Efforts to promote swiftness, secrecy and leniency on decisions concerning LSCE were often facilitated by revolving-door practices that disproportionately benefited proponents of LSCE. Some of the public servants involved in the decision-making process had close links to the mining sector and external actors such as the World Bank, the Inter-American Development Bank, amongst others, that created potential conflicts of interest. For instance, Guillermo Perry, in charge of forecasting potential prices for Cerrejón coal in the 1970s, according to interview 3, heavily overestimated them (also see [2,3]). In the 1980s, he became minister at the MME, where he oversaw the signing of

the largest coal concession to Drummond, argued to have been very unfavorable for Colombia [69]. With the arrival of the 1990s, he became a consultant at the World Bank when this institution was strongly urging the Colombian government to privatize the mining sector [113]. Like Mr. Perry, other seemingly “neutral” public servants eventually emerged as heavily partial entities that ended up working directly for mining companies, financial houses or consultancies interested in the take-off of LSCE.

Respondent 19 is a case in point. A lawyer belonging to the highest echelons of power, he lent his name to a TNE for a week to sign the contract that gave this company a concession contract with the government. It is hard to tell what motivated him. Nevertheless, he fits into the description of exactly that “merchant-broker” elite [107] argued to have dominated Colombian minerals-energy policy.

It could be said that revolving-door practices are common in the mining sector or that they can just as easily benefit opponents of mining projects, if associates of NGOs critical to coal were to enter a ministry, for example. Nevertheless, the latter has never been the case in Colombia and the fact that the former is indeed widespread does not mean this practice cannot provide explanatory value. Linking the speed and opacity of the contracting process behind projects such as Cerrejón or Drummond to revolving-door practices, as well as to the very high turnover of public servants in mineral-energy policy (almost 40 ministers at the MME in 40 years) makes it possible to more or less discard the idea that a coherent, cautious and rigorous study on the convenience, the concrete deployment and the expected (probable) outcomes of LSCE could have taken place. The fact that the SOE taking over Colombia’s stake in Cerrejón, Carboacol, was created weeks before the project began, perfectly demonstrates this.

The Role of Supporting Legislation

In the years and months immediately preceding the initiation of LSCE, executive decisions, which involved virtually no legislative process, were taken to establish the legal bases to guarantee the profitability of LSCE. Via presidential decrees (e.g., decrees 1299/1971 or 2153/1971 qt. in [108]), government officials introduced several changes necessary to allow TNEs to bring in foreign investments (strictly regulated at the time), repatriate profits (limited to 14% until then) and have as much autonomy in the project once it took off (something previously constrained by state participation as shareholder and active regulator in such projects). In the absence of such groundwork, TNEs had implied they would not be interested in participating in the project [108]. Despite the fact that Colombia would provide the coal and, in the case of Cerrejón, half of the over 6 billion current USD in investments that the project would require by the year 2000, it was de facto ceding the control on how coal would be extracted, what it would be used for and to whom it would be sold.

If grand goals like “progress”, “development” or “energy security” were being used to justify the insertion of LSCE, then why were most pillars of government control or levers for bargaining being forfeited or even destroyed? Was it rather that decision-makers were, as Kline recalls of Exxon’s employees, “no doubt inspired by (...) El Cerrejón as a good place to make money” [108, p.3]? If the real goal was money, or rents for that purpose, then this kind of groundwork to make coal extraction attractive was no doubt the smart thing for the government and “merchant-broker” elites [107] to do.

Deliberate or Unintentional Leniency

As Pacini-Hernández [24] shows, within the decision-making process of the time, in the same manner as in the decision-making that followed with other LSCE projects, there already existed legal and administrative instruments to protect local communities, enhance social impacts and avoid worse environmental damages. For example, the government could have granted collective property to indigenous communities in La Guajira. Further, the newly created Instituto Nacional de los Recursos Naturales Renovables y del Ambiente (INDERENA) was already tasked with receiving the Environmental and Social Impact

¹⁷ This had been agreed upon to bring an end to a military dictatorship occurring at the end of a long-standing civil war in 1958 and included that alternation in government between the Liberal and Conservative parties, while all legislative and many administrative bodies were equally divided between both parties.

Assessments from coal companies. When Intercor/Carbocol were unable to produce a meaningful and adequate study in 1981, Inderena did not stop or hinder the project. In fact, project works began before the assessments had been submitted, environmental permits granted or even land titles secured [24]. Right up until the late 1970s, different entities in ministries or oversight agencies like Inderena could have secured strong environmental or social standards, as well as strong communal property rights for aboriginal people in coal mining regions, as they already had both legal and administrative bases as well as adequate experience to do so. Yet this did not occur. When Cerrejón came to La Guajira, the Wayuu, who had fended off Spanish and later republican colonialists, were subsequently evicted from large swaths of their ancestral land.

It is impossible to judge whether the acts of overestimating prices, ignoring alarm calls and lacking any skepticism with regard to the outlook of LSCE were on purpose or by accident. It is also extremely difficult to look into the minds of decision-makers of the time. The presented evidence can only show that conflating with the established idea that mining by its very nature would bring wealth, progress and development to Colombia, actions oriented to speeding up and keeping secret the decisions on Cerrejón and other similar projects, together with laying down the legal/regulatory groundwork for LSCE to become a highly profitable business, all played a key role in the insertion of LSCE.

4.1.3. M_{13} : Policy Initiatives

Out of the previously illustrated policy process, different initiatives emerged that gave life to LSCE. Here, the focus is on two of the most important ones: the signing of an association contract between Colombia and Exxon for the Cerrejón project in 1976; and the signing of the concession contract between Colombia and Drummond for the coal mines in the department of Cesar in 1988.

The signing of the association contract between the Colombian government and Exxon's Intercor in 1976, the acceptance of the latter's letter declaring the project commercially viable, and the hastened launch of project works constituted the most important coal-related policy initiative of the decade.

As mentioned before, this initiative had been preceded by administrative measures aiming to loosen capital controls for inward FDI and outward profit remittances, as well as government control over investments and the mining projects themselves. Also, initial steps were taken to declare mining projects as being of national interest, thus enabling easier expropriation processes.

Besides these regulatory changes that occurred in parallel or related to the signing of the Cerrejón contract, it is more important to show what other processes this triggered, as this is how different outcomes emerge out of policy initiatives and a given context.

First, as this was a joint venture, Colombia's government was pushed to find at least half of the 1.9 billion USD that the project cost in its beginnings [108].¹⁸ This meant that the government, via its companies Ecopetrol, IFI and Ingeominas, would need to raise debt, as it did not have the available resources at its immediate disposal [2,4,107,108,115].

Second, not only would debt need to be raised, but it would have to be spent. Hence, from one moment to the other, huge and unprecedented sums of money would be spent on goods and services, both locally bought and imported.

Third, an expanding necessity to secure lands, amongst other resources like water, was triggered, as the mines were by no means located on "empty" or government land. They were to be inserted into indigenous, Afro-Caribbean and campesino territory in La Guajira. As previously mentioned, the process that gave rise to these policy

¹⁸ Figure in 1979, adjusted for inflation. Equates to approximately 7% of that year's GDP [114].

initiatives had not been characterized by a prioritization of the interests or property rights of local (indigenous) residents.

Fourth, the signing of Cerrejón's association contract as policy initiative, by the very nature of LSCE would necessarily trigger a multitude of revenue streams, beyond those affected by the mines' construction and commissioning. Exports, foreign exchange income and local wages, incomes and (tax) revenue flows were certainly to be affected.

Slightly over a decade later, a similar initiative, the signing of a concession contract for the mining project of La Loma, would emerge with the US company Drummond — once again, from the same policy process characterized before. This time, the agreement did not include Colombia as an associate, and thus Drummond was simply conceded the rights to extract coal from the center of the department of Cesar.

With the exception of increasing state debt, this initiative triggered very similar processes in Cesar as those triggered by the Cerrejón project. Investment spending would increase, lands would have to be secured, and all sorts of monetary flows at the local, regional and national level would be affected. Needless to say, biophysical flows of materials (e.g., slag or water) or energy (i.e., the coal itself or required liquid fuels for transportation or electricity for the mines) would also be affected by these two projects.

Coming back to the categories taken from [99] mentioned in Section 3.2.2., it can be said of the policy initiatives in question that they both formally and functionally enabled LSCE. First of all, they were introduced within a discursive and ideological atmosphere in which large-scale natural resource extraction projects were framed as a direct pathway towards "development", something enshrined in law (e.g., decree 1275/1970 or law 685/2001), formally entrenching coal extraction into Colombia's legislation, while functionally entrenching it as this frame became established in public discourse and popular thought.

Considering the policy process that generated the policy initiatives, which included enacting supporting legislation, it can be said that the process foresaw little to no guarantee that coal would actually be used in and for Colombia, that environmental or socio-cultural damages would be avoided, that the government's income via taxes, royalties and company profits would be attractive, or that violence would be averted in its implementation. Hence, a very *particular* form of coal extraction was poised to emerge.

The expectation, looking backward to the moment when LSCE projects were about to begin, is that policy initiatives were likely to enable the generation of revenues over the production of useful energy or materials for Colombia, with grave warnings for socio-environmental damages or human rights abuses. Hence, from this perspective, the policy initiatives could at least be expected to be functionally entrench not only the activity of LSCE itself, but that of accruing and distributing rents from it, too.

4.1.4. M_{14} : Context

Policy initiatives must interact with a society, its economic structures and circumstances, and the nature both operate within to produce outcomes. At the time of the phase-in of LSCE (but also afterwards), Colombia was characterized, in macroeconomic terms, by several imbalances and structural features.

First, it was a country with relatively low levels of savings (consistently laying at or below 20% of GDP since 1960). Second, the country has also had sustained current account deficits for 40 of the existing 50 years of data [116]. Third, the country's basket of exports has been characterized by raw materials such as oil and coal, and especially coffee in the 20th century [110,117,118]. These savings and trade imbalances, together with low diversification, made Colombia's economy extremely vulnerable to economic shocks, such as the oil shocks. They also made it highly peripheral, as it is dependent on foreign investments (due to a lack of domestic savings) and commodity prices, which it cannot influence. Nevertheless, the country has been also characterized by a degree of macro-economic stability [119],

as the reduced occurrence of hyperinflation or prolonged economic recessions/depressions show [110]. In general terms, Colombia had been on a pathway of Import-Substitution-led Industrialization (ISI) that had started in the 1950s and 1960s. This had been based on strong industrial policy, protectionism and a regime of managed to fixed exchange rates, and strong capital controls. While circumscribed to the largest cities, by the early 1980s, many industries had been created in key sectors such as petrochemicals, electromechanics, agroindustry, steel, etc.

As for economic circumstances, the situation facing the country at the time of the mentioned policy initiatives was the following. The 1970s were characterized by high energy prices resulting from the oil crises, the economic volatility resulting from the end of the Bretton-Woods system of pegged currencies, and the start of oil imports brought about by the depletion of existing oil fields [108,120,121]. In this time, the demand and thus the price for alternatives to oil increased. As respondent 9 argues, “Colombia was [at the time] in the perfect position to provide alternatives to oil at affordable prices”, making coal extraction not only a profitable and attractive business, but an apparent imperative to sustain the balance of payments.

In socio-political terms, Colombia was still attached to the very centralist 1886 constitution, which basically foresaw that most *nation-wide and local* policy decisions were to be made from Bogotá, with a hierarchy of centrally assigned governors, who assigned municipal majors. Indigenous peoples, let alone Afro-Caribbean communities had not collective rights or political voice, a problem also affecting many peasant communities. Most of these communities, nevertheless descended from a heritage of resistance, territorial defense and self-sufficient subsistence [122] in the, at the time, peripheral and effectively self-governing frontier regions of Cesar and La Guajira, where they historically coexisted with smugglers and other frontier people.

4.1.5. M_{15} : Outcomes

The phase-in of LSCE in the form of the launching of the Cerrejón and La Loma projects produced a variety of outcomes. To begin with, the government debt that Colombia incurred for the Cerrejón project was of a scale that the country had not previously known. The government funded its stake in Cerrejón with short-term, high-interest-rate loans from commercial banks. Over 1 billion current USD (adjusted for inflation) was loaned [112]. This generated great costs for both Carbocol and the Colombian government, which made the former unprofitable (e.g., [112,123]) and required the latter to compromise increasing resources from other SOEs like Ecopetrol or the IFI.

Regarding the economic changes at a local level, the heavy investments into mining that were made with this debt and Intercor/Exxon's own resources, as well as Drummond's later investments, together with the initiation of coal extraction, with few other economic alternatives beyond subsistence agriculture and minor commercial activities in Cesar and La Guajira, gave way for a transformation from mostly rural agricultural societies to “enclave economies” [124] specializing in coal mining and low-skilled service provision [125]. This displaced subsistence agriculture and other economic activities. Productive capital stocks in mining regions (i.e., machines, prospection, infrastructure, etc.) was accumulated in the extractive sector [125]. Minerals-energy FDI became dominant [114]. Later, revenue inflows (or earning outflows) generated local imbalances (e.g., due to inability to absorb or wisely spend royalties) [126–128]. Furthermore, relatively high wages in the mining sector led to an overall rise in local wages via the increase in the services sector, despite no major change in human or physical capital in the local economy, creating a relatively expensive labor market which had nevertheless not improved its productivity outside of mining.

At a national level, Colombia slowly but steadily became engulfed by a Dutch disease [129], which was a main driver for de-industrialization and inflationary pressures [130,131]. From the start,

scarce government capital was (onerously) directed towards increasing capital stocks in natural resource extraction, while industry and agriculture decreased in relative and absolute terms. [2,130,131].

Local ecological outcomes such as land-use changes affecting water, air and soil cycles, leading to increasing levels of pollution as operations commenced and were scaled up, were an inherent result of large-scale open-pit mines that by the 1990s already made up almost 100,000 ha in Cesar and La Guajira [9,11,132]. At a national level, LSCE eventually became the economic activity responsible for the highest intervention and removal of material in physical terms [85,87]. From 1976 to 2000, coal extraction experienced over a ten-fold growth, reaching over 38 Mt/a [133].

Since its phase-in, LSCE has extracted over 1 Gt of coal [133]. This has come with seven times as much slag, not to speak of water or energy needs. While financial capital is generated, natural capital is thus depleted. Material flows (water, energy, removed minerals) taking millions of years to occur are supercharged. Fragile equilibria are at least disturbed if not completely disrupted [85,86]. Concerning climate change, as coal is extracted to power coal-fired power plants (CFPPs), the climate crisis is aggravated, with effects felt globally [6], but also locally. Respondents 4 and 8, farmers inhabiting coal mining regions, recall how extreme weather patterns have become more and more frequent in the last three decades, negatively affecting their ability to grow subsistence crops.

As for socio-political outcomes, in the phase-in stage, the local level saw how rent-seeking actors were encouraged to concentrate land and other resources in mining areas. Such actors, often associated with paramilitary structures, led to massive displacement of local communities, as well as systematic killings of union and community leaders [14–16,24]. Social cohesion was shattered by (forced) displacement and violence, as well as increased unrest due to rent distribution. Also, as respondents 4 to 8 witnessed, due to an intervention in the territories they associated with many injustices and types of trauma, community-level interactions and trust-building spaces decreased (also see [14,15,55]). State capture of municipal authorities and oversight agencies by illegal actors also became recurrent (for an appalling account, see [134]). Further, in the absence of a strong state, the mining companies began filling the void, providing, albeit at a small scale, some employment and basic services such as water, health or education [76]. At a national level, the growing economic importance of LSCE began creating very strong political clout that took shape in newly formed lobby organizations and trade-unions.

It cannot be said that coal extraction did not generate important economic revenues for both private and public actors. Taking an average coal price (FOB) of 50 USD₂₀₂₀ per ton, over 50 billion USD₂₀₂₀ have been generated by this activity in the past decades.¹⁹ Thousands of people have certainly been employed in coal extraction and Colombia's trade and current accounts have definitely enjoyed moments of windfall. Nevertheless, no genuine economic analysis can limit itself to just the income side of an equation. As the preceding paragraphs show, the phase-in of LSCE was costly, it triggered many economic imbalances and was associated with an array of nefarious socio-cultural and ecologic impacts.

4.1.6. M_{16} : Power Dynamics

Starting at the local level, the introduction of a capital-intensive activity that slowly but steadily displaced established (subsistence) activities such as hunting and gathering, low-intensity agriculture, amongst others, which began in the 1980s, reduces the available resources that local inhabitants have [25]. In fact, the loss of water sheds that has been accounted by different NGOs such as Indepaz [10,11] and associated to the introduction of LSCE must have had some impact. A

¹⁹ To this day, there are no official figures as to how much of this revenue actually stayed in Colombia.

company (be it Cerrejón in La Guajira, or Drummond, CNR or Prodeco in Cesar) able to radically change the ecological fabric of a region necessarily has more *destructive* power than traditional inhabitants. This kind of power refers to the “ability to destroy or annihilate existing resources” [42, p.552].

With less available food, saleable crops and other monetary resources, in the absence of a strong welfare state, local inhabitants end up in a profoundly asymmetric situation vis-à-vis the mining companies. This is precisely what Banks [76] found in her research: communities depend on the coal companies as a *result of a long process of their increasingly asymmetric dependency relationships*. In that sense, indigenous, Afro-Caribbean and peasant communities that originally inhabited coal extracting regions, see that they have less (and decreasing) *constitutive* power than coal companies. Constitutive power refers to “the ability to constitute a distribution of resources” [42, p.552]. As respondents 4–8, inhabitants of the coal region of Cesar, recall, when LSCE was being introduced, they became less and less able to determine how existing (natural) resources such as water or land were distributed. As other NGOs such CINEP/PPP or CENSAT have documented, this is a process that very similarly unfolded in La Guajira [13,135].

At a more regional level, the social outcomes described before and associated to the generation, appropriation of and competition for natural resource rents, also shift power dynamics. Poorly financed and loosely governed by the national government, local and regional administrations, and those actors directly (e.g., political clients, contractors) or indirectly (e.g., armed groups, corruption rackets, etc.) attached to them, face an incentive to support the rent-generating activities. This can be conceived to be an example of (tacit) *innovative* power, understood as the “capacity of actors to create or discover new resources” [42, p.552]. While coal companies may not have directly paid neither local majors or paramilitary groups, to get their support, it is highly unlikely that they ignored that their sheer presence and the resulting monetary flows provide it with important human, artefactual and monetary resources, as conceived by [42]. Human resources such as people wanting to work in or profit from coal extraction, monetary resources such as potential contracts, royalties or salaries to be distributed locally, and artefactual resources such as the extraction infrastructure and the coal employees’ amenities,²⁰ all provide coal companies with resources that are “new” to coal extraction regions at the time of phase-in.

Concerning national-level impacts, with the advancement of LSCE and hydrocarbon extraction, together with other economic developments, the idea that the phase-in of such extractivist activities led to de-industrialization cannot be sustained by either data nor existing research [90,110]. In fact, up until the mid-1990s, industry and extractives experienced a marked growth, as did many labor movements. While economic structure did change, it was not necessarily a competition between extractives and industry. At the sector level, coal companies and Colombian industry had different resources (e.g., natural and monetary resources for the former vs. human and monetary resources for the latter), used different forms of power, and often ended up coexisting or even collaborating.

As for high-level, socio-political dynamics, while coal companies grew, in a context of increasing liberalization and economic opening (to be discussed more thoroughly in Section 4.2.4.), the role of opaque networks of informal actors grew. Coal companies quickly learned to use these new human resources to increase their *innovative* power. As respondent 19 shared, when Cerrejón began its operations, it already had support from the highest level, in the form of World Bank consultants or political operatives, for example. He, a retired lawyer

²⁰ While La Guajira is the second poorest department in Colombia and Colombia’s desertification hotspot, the Cerrejón complex houses the settlement of Mushaisa: a Florida-like suburban gated community with golf courts, swimming pools and lush gardens.

connected to the highest echelons of power, even goes as far as to say that presidents and their families were directly involved in kick-starting the industry, sometimes even as beneficial owners behind front men. This situation continued over the course of the 1980s and 1990s.

The figure of Fabio Echeverry, long-time chairman of the most important trade association of the country illustrates this accurately. He was a key player in encouraging and enabling Drummond to commence operations in Colombia [136]. As was the case with respondent 19, this kind of human resource was not available to those opposing coal extraction. The fact that actors related to LSCE enjoyed unrestricted access to decision-makers at the highest level was a source of power that other actors could not have.

4.2. M_2 : The Entrenchment Spin — 2000–2020

With the turning of the spiral, the entrenchment process potentially at hand can come to a common place: INDs. As power dynamics shift towards enabling actors associated to LSCE to effectively use the resources at their disposition, the impacts of this activity create, activate or reshuffle existing or new actors.

4.2.1. M_{21} : INDs

As opposed to the previous spin (M_1), this second spin finds labor unions such as Sintracarbón or Sintramienergética (the two largest coal unions) already existing and relatively well organized.²¹ They are one of the “new” actors created or activated by the results of the first spin.

The labor unions (amongst other actors) began agitating (almost since the start of LSCE) towards alternative discourses on how coal extraction should occur. In some cases, these divergent INDs partnered up with the increasing resistance put up by local communities. Besides struggling for better working conditions, they opposed both the depredation of nature *and* of local communities. As Chomsky and Striffler [138] discuss, this highly unlikely alliance between local communities, environmentalists and labor-unions provides a completely different perspective than the one set forth by coal companies and the Colombian government.

Further, with the political and social opening triggered by the new 1991 constitution, new issues and struggles began to position themselves, besides established INDs in popular and political discourse. Therefore, not only was the battle of ideas much more intense and diverse in the entrenchment “spin” of the spiral (2000–2020), but it was considerably less asymmetric. By the late 1990s and early 2000s, domestic and international NGOs, different politicians and even some international organizations were mixing up the realm of INDs.

This was not, however, a process that weakened actors engaged in LSCE. Just as industrialization and a strong public sector had been an excuse for beginning coal extraction, new discourses put forward by a variety of actors in the 1970s and 1980s displaced both ISI and Keynesianism. They foresaw a much stronger role for both the private sector and multi-national actors. A driving force for their diffusion, was the World Bank, which strongly encouraged Latin American economies to tap their natural resources to advance towards prosperity [113].

In the post-Cold War era, said INDs included the ideas that privatization and mineral exploitation would take Colombia into the 21st century.²² While it was only coined in 2011 as part of the National Development Plan of the first administration of Juan Manuel Santos (2010–2014) [141], the notion of the Minerals-Energy Locomotive

²¹ While the largest (and oldest) union in the fossil fuel sector is and has been the USO (Unión Sindical Obrera de la Industria del Petróleo), oil workers union, which has played a role in pushing for natural resource sovereignty since at least the 1950s [2,107,137], I will focus on coal workers unions.

²² A crucial trace of this process is the diffusion of the so-called Washington-Consensus, a major manifestation on the arrival of neoliberalism in Latin America (refer for example to [139,140] for relevant accounts on the matter).

(MEL) had already become a slogan, among others, which different (mainly trans-national) mining companies and oil companies [74], as well as successive governments [75], branded to justify their actions. This idea gives the minerals-energy sector a fundamental role in attaining economic development and reaching higher levels of welfare. It nevertheless does not set the condition that extracted raw materials should be transformed to add value to them locally. In this regard, half of respondents mentioned the idea of a minerals-energy sector as the driver for prosperity. As stressed by a respondent 13 “when this sector has a cold, the whole economy suffers”.

A key factor to the role of INDs in this “spin” is the fact that many respondents, as well as public opinion, accept the idea that minerals-energy extraction, by itself, has been a key driver for prosperity in Colombia, despite the evidence suggesting this being weak at best. By the 2000s and 2010s, fewer and fewer publicly salient and decision-making voices were demanding of companies and the government that coal not only be extracted but also *transformed* in Colombia — the one step that can indeed link coal extraction to industrialization.

4.2.2. M_{22} : Policy Process

With those INDs in circulation and power dynamics tending to favor actors such as companies, politicians or the opaque networks of well-connected, LSCE-linked actors discussed in the previous spin, the policy process becomes, once again, the locus, this time, of entrenchment. The following paragraphs present one prominent practice that has been alleged to dominate different segments of political and policy processes leading to policy initiatives: corporate state capture or cooptation.

Since the late 1990s and early 2000s, the processes behind Colombian minerals energy policy have come under increasing suspicion of being subject to a large degree of cooptation [142,143]. Unlike corruption or capture, cooptation aims to change the nature of a regime or system from within, by exercising unaccounted influence or pressure on actors in the system, or by inserting new, friendly actors into it [64].

As interviewees 10, 11, 13, 15, and 20, as well as parts of the literature attest, there is a variety of ways in which actors and institutions have exerted pressure to change or modify the existing policy regime in their favor. Respondent 13, a former policymaker, presents this as the normal way in which things work in the relationship between the Colombian state and the private sector. They have direct communication, share drafts on relevant policy initiatives and accept input from “experts” from the minerals-energy sector. Respondent 10, an analyst at the Ministry of Finance, provided an account of a process initiated by the main mining lobby to reform the royalty regime. According to this respondent, most input was diligently accommodated by the responsible entities. The lobby (the Colombian Association of Mining or ACM) produces policy documents, puts them in circulation in expert and media circles, and engages with the relevant ministries (and ministers) in lobbying. In 2020, the royalty regime was indeed reformed, including many of the proposals from mining lobbies, such as the effective reduction of royalty rates to encourage large-scale mining (see law 2056/2020).

One way to illustrate the logic of state capture is to dissect the relationship between (1) the idea of the MEL as a component of a hegemonic discourse resulting from or in M_{21} ; (2) the continued prevalence of the revolving-door practices present in M_{12} ; (3) the high turnover of civil servants and ministry officials; and (4) the increasingly close relationship of particular corporate interests within public administration.

Hence, if INDs highlighting the unquestioned convenience of natural resource extraction and LSCE having an almost hegemonic level, and thus defining the frames of what is acceptable, desirable and feasible in the process of producing different policy initiatives, conflate with high turnover and revolving-door practices, a (former) mining employee, for example, quickly going from a mining company to the government and back will have a very hard (and short) time to develop (let alone implement) critical perspectives on mining activities.

As respondent 13 shares, there “were five Deputy-Ministers for mining in five years” (2013–2018). Four of them had previously worked in the minerals-energy sector and later returned to it. None of them had enough time or expertise enough to either question the model or develop their own critical stance towards LSCE.

In an environment already characterized by the proximity of public officials to the interests of mining companies, the *process* from which policy initiatives arise can end up being tainted by the suspicion of capture or cooptation. This taint can evolve into a heuristic to critically look at policy initiatives as, at least as far as minerals-energy policy is concerned, more often than not resulting from a very comfortable arrangement between revolving-door practitioners, opaque yet deeply influential lobbyists, and high rotation of public employees, all operating within the idea that mining is the key to prosperity. As one account illustrates [142], this is precisely what occurred in the aftermath of the 2018 electoral cycle. The mining and trade associations pressured Colombia’s new government to accommodate their interests, and out of a catalog of proposals publicly presented in 2017 [144], the government has now implemented many of them (e.g., reducing corporate income taxes or loosening environmental and social standards in mining). Many of those effectively implementing that agenda had been or later became employees in the very same companies or trade associations favored by it [145].

Corporate actors, especially from the minerals-energy, financial or commercial sectors, have thus been able to exercise (unaccounted) influence on Colombian policymaking. The process within which this influence unfolds is opaque, exclusive and not open to integrating criticism [145]. The taint of a potentially captured state operating behind any and all policy initiatives thus leads to a pessimistic, yet potentially helpful heuristic for understanding resulting policy initiatives.

4.2.3. M_{23} : Policy Initiatives

Not free from the practices occurring in M_{12} , which by the new millennium had reached the extremes of M_{22} , an array of policy initiatives was facilitated and produced that, as will be discussed in Section 5, put down many of the roots for the entrenchment of LSCE currently in place in Colombia. Below, the focus is set on four key initiatives that did so.

First, the Mining Code of 2001 [146]. This was a legislative measure enacted with the active involvement of foreign consultancies and lawyers, as well as private sector actors. While discussions on the reform had begun in 1996, with consultancies funded by Canada’s International Development Agency (CIDA) and even a draft prepared by said consultants [147], it was in 2000 that it became law.

As respondent 3 recalls, Canadian-funded consulting firms heavily influenced then Minister of Mining and Energy, Luisa Fernanda Lafaurie, who even had a separate office outside the MME, where much of the mining code was drafted. According to this respondent, who was an employee of the MME at the time, officers at the MME did not see the draft law until it was submitted to congress.

This reform entrenched (coal) mining formally and functionally in several ways. Formally, it declared mining to be an activity of national and public interest and entire chapters are devoted to explicitly supporting natural resource extraction. Functionally, it entrenched mining and particularly coal extraction, as environmental, ethnic participation and social standards were loosened, state participation in mineral extraction was prohibited and tax exemptions or reductions were enshrined, particularly favoring large-scale mining companies [148]. As a necessary result of the passing of the mining code, and under heavy pressure from the World Bank and the IMF, a second initiative was enacted.

This second initiative was the sale of Carbocol’s share in Cerrejón which equated to the privatization of LSCE in Colombia. The SOE representing Colombia’s stake in Cerrejón, was sold in 2001 amidst a process tainted by suspicions of corruption, insider trading and conflicts of interests [112,149,150]. While Drummond, Glencore/Xstrata, BHP Billiton and Anglo American had managed to get to the final round of

the tender, Drummond retreated at the last minute, and the remaining three companies decided to enter into a joint venture — the initial bidding price became the final sale price.²³ Shortly after, Intercor/Exxon sold the rest of the project to the joint venture²⁴ in current USD, the income from privatization is barely a tenth of the initial investments Colombia had incurred when Cerrejón was initiated.

Third, with the enactment of the 2001 mining code and the election of Álvaro Uribe to the presidency (2002–2010), conditions were eased to file and receive mining titles. In less than a decade the amount of total mining titles (not only for coal) almost tripled, reaching more than 9,400 mining titles in 2012, with 19,000 further titles requested [69]. To demonstrate the scale of this, the map in the top right-hand corner of Fig. 1 shows granted mining titles (for all minerals) in yellow and requested titles in red.²⁵ A Mining and Energy Minister at the time, Carlos Rodado Noriega, even went as far as calling the period from 2001 to 2011 a “mining piñata” [151].

Fourth, in 2013, Projects of National and Strategic Interest (PINEs) were created to articulate the state’s response on a series of large-scale economic endeavors. As Respondents 13 and 20 recall, they specifically aimed at guaranteeing that carefully selected projects would have the smoothest operation possible [152]. Criteria to qualify as a PINEs failed to mention coal extraction explicitly, but implicitly favored it in several ways. For instance, projects which “contribute[d] to expanding national exporting capacity”, and “increase[d] installed energy production capacity and hydrocarbons” (ibid. pp.12) usually qualified as PINEs. As respondent 13 attests, “all large-scale coal extraction operations in La Guajira and Cesar were included as PINEs”. This functionally and formally entrenched them. If policies like this genuinely intended to improve economic performance and added value, one would think that they also included coal extraction intended for power generation or industrial activities. However, as respondent 1, the CEO of a coal power plant at the time, and respondent 11, the head of a lobby organization of small and medium coal miners, both found out in their interviews, only LSCE was benefiting from state support.

Policy initiatives were, however, not exclusively created to favor LSCE or FE. An example of a relevant policy initiative in another direction was the signing, ratification and, most importantly, the implementation of Convention 169 of the International Labor Organization on Indigenous and Tribal Rights. Ratified within the framework of Colombia’s new constitution in 1991, when its implementation gained speed in the 2000s, this legal instrument created a new variety of rights and responsibilities that radically changed how the state and companies ought to relate to ethnic communities. Perhaps the most important and concrete is the right to a free, well-informed previous consultation. As Article 16 of the Convention reads, “the peoples concerned shall not be removed from the lands which they occupy”, and, if relocation is exceptionally required, “such relocation shall take place only with their free and informed consent” [153]. As respondents 15 and 18 (both lawyers with human rights and labor background) share, policy initiatives such as this were a conquest by social movements, civil society and labor unions, which would have been unthinkable before the 1991 constitution. The implementation of ILO/C-169 in the 2000s became a fundamental lever to resisting LSCE.

²³ Respondent 3 refers to this as one of the most suspicious and opaque transactions in Colombian history, something that authors such as Acosta [112], who later became a Minister at the MME, agree with.

²⁴ While Colombia sold its stake for 383 million USD, in just 16 months, the final buyers got Exxon’s share for almost three times as much. As one commentator puts it “it may have been the worst business deal made by Colombia” [150].

²⁵ As research shows, most mining titles in the history of Colombia were granted in Mr. Uribe’s administrations [143].

4.2.4. M_{24} : Context

A fundamental contextual change worth mentioning is the 1991 constitution, which in its implementation was accompanied by a larger political decentralization and opening.

In economic terms, the previously “closed” economy was opened. Trade barriers were decreased, the capital account opened, and unrestricted foreign direct investments permitted. Following the school of thought at the time, a great privatization wave began, which engulfed utilities, education, pensions, health services and, in the 2000s, much of the remaining SOEs [110].

This was also a time of very severe internal turmoil due to drug violence, the surge of the guerrilla movements (especially in the late 1990s) and the reaction of right-wing paramilitary groups (especially in the early 2000s).

Most structural features such as high inequality, (external) economic imbalances, a poorly diversified economy and a relatively centralized and restricted political system remained.

As for the surrounding circumstances, in 1999, Colombia was hit by a short but painful economic contraction that left the economy fairly bruised. Fueled by high levels of household debt, the crisis was precipitated by a collapse in real estate markets as a result of ill-conceived policies [154]. In general terms, this crisis, along with ongoing traumas caused by the economic opening, left the country in desperate need of new sources of growth. As respondents 9, 11, 13 and 19 concurred, the acceleration of the minerals-energy sector in the early 2000s and 2010s would provide the needed impetus for growth.

In the 2000s and 2010s, the commodities supercycle constituted a period of very high commodity prices. It was associated with vast inflows of revenues and FDI, especially to the minerals-energy sector. At its height, close to two thirds of exports came from the minerals-energy sector [116]. Further, rich revenues from taxes and royalties filled the state’s coffers and allowed ambitious social and infrastructure investment programs to take shape. Meanwhile, other sectors of the economy such as industry and agriculture lost relative and absolute importance in their contribution to GDP [155]. Countless industries permanently closed their operations, while food imports saw major increases.

As the Observatory for Environmental Conflicts [132] analyzed, a further change occurring in the 1990s and 2000s was the widespread ascent of local paramilitary-linked elites to power in the departments of Cesar, La Guajira and Magdalena. Together with the transference of LSCE ownership to TNEs like Glencore, Vale, Murray, Goldman Sachs, etc., this constituted a major shift in actors and their relations. A key component of this shift in property relations was the evolving role of the US in funding the Colombian armed forces, not only in the war on drugs, but also to protect American interests in coal and hydrocarbon extraction [156].

Towards the end of the analyzed period, the commodities supercycle ended, considerably reducing Colombia’s fiscal space, growth rates, social expenditure and investments. The period 2015–2020 saw relative stagnation, in economic terms, compared to the preceding years.

Finally, a key development in this period was the successful termination of peace negotiations in 2016 between the Colombian government and the leftist FARC-guerrilla, who had fought each other since 1964. The end of hostilities opened up space for other actors and perspectives to challenge established narratives of development and sociopolitical coexistence. It also encouraged companies to invest in Colombian in natural resource extraction, among other things [72].

4.2.5. M_{25} : Outcomes

The combination of mining-based development policies and high commodity prices lead to a boom in mining licenses and operations [143,157]. As Fig. 1 shows, in 2017, over a fifth of Colombia’s land area was either authorized or solicited for mining permits, and even greater areas were being requested for hydrocarbon exploration. Much

of these natural resource extraction activities occurred or were meant to occur in protected indigenous or environmentally important areas.

One trace of the structural outcomes occurring can be found by looking at Colombia's "economic complexity", a measure of how much value added an economy produces. In 2002, Colombia hit its complexity ceiling [158], after which it began a downward spiral of economic reprimarization, as industry began to disappear as a result of the many free trade agreements (FTAs) and the advancing Dutch disease [118,130,131,159].

While the overall context of commodity driven abundance allowed for the major expansions of social and infrastructure programs, it also allowed major tax cuts to be enacted. They particularly favored the extractive, commercial and financial sectors, and when the commodity supercycle ended, left Colombia with great fiscal deficits that further weakened its already limited administrative capacities [63].

Something similar occurred at a local level. While growing amounts of materials were intervened, and millions of tons of coal extracted, local economic conditions barely changed. According to different accounts [126–128,160–163], only a minor trace of the trillions of COP made its way into coal extracting regions. To this day, poverty rates remain high, and access to basic public services is still very low.

The advance of LSCE occurred in tandem with an increasing amount of violence on the part of all actors involved in Colombia's decades-long armed conflict, which was particularly intense in the late 1990s and early 2000s. Even though this was not a direct result of the expansion of the minerals-energy sector, the increasing levels of rents resulting from natural resource extraction have been shown to play a role in fueling local conflicts [164,165]. Recent accounts focusing on the region of Cesar show that local elites played a pivotal role as intermediaries between paramilitary groups, coal companies such as Drummond and the government institutions that were facilitating the initiation of coal extraction [134]. In fact, both CEOs of Drummond since its arrival to Colombia have been formally indicted for funding paramilitary groups [166].

The regions of Cesar and La Guajira did not escape these growing levels of violence across and became the scenario of violent confrontations. Up until 2016, these confrontations would produce more than 300,000 registered victims in the Cesar and La Guajira regions, mostly civilians who were violently displaced [14,15,167]. This exodus would leave profound scars and voids in the territory. In this regard, respondents 4–8 recall how the arriving mining companies took advantage of a territory ravaged by violence, internal divisions and displaced communities. Nationally, the period of 1984 to 2016 produced close to 8 million internally displaced people in Colombia [167].

In socio-ecological terms, by the turn of the century and as a result of the previous phase-in of LSCE and the variety of policies to favor it, fossil fuel extraction became, in biophysical terms, by far the largest Colombian export *and produced good*. At its peak in 2017, over 90 Mt/a were extracted. If one accounts the amount of slag and other materials required for the extraction of that coal, it lays above 720 Mt (plus the original 90 Mt). To present the comparison, the combined production of all agricultural goods and building materials in that year was slightly above 100 million tons [168,169]. LSCE had become a force of nature.

4.2.6. M_{26} : Power Dynamics

At this point, evolving power dynamics can be examined once more. To begin, the relationship between industry and extractives shifts from coexistence to competition as soon as the Dutch Disease, combined with a greater commercial opening, starts to negatively impact domestic industry. Colombia's industry, divided into many sectors and businesses with different sizes and political representatives, must then confront an almost monolithic mining sector now comfortably positioned in the very midst of the political establishment and the prevalent socio-technical regime: fossil fuel extractivism (FE).

As for communities, they must face a growing destructive power wielded, knowingly or not, by coal companies and sponsored by the

state. The water, air and soil they rely on to exist is slowly but steadily affected, reducing available resources, damaging the health, welfare and morale of all ethnic communities who insist on remaining in what they still see as their territories [10,11,122,135].

While said communities are continuously threatened by socio-ecological decay, they still resist different forms of violence and often excruciating levels of poverty. In fact, they quickly find out they have a *different kind of power*. Due to the normative changes introduced by the 1991 constitution, they were granted a variety of rights. One of the most important rights is that of permanence in the territory. Thus, their sheer existence and permanence in areas of importance for the coal mines (e.g., the Arroyo Bruno, one of the last remaining streams flowing in the vicinity of Cerrejón, under which the company expects to mine over 40 Mt of coal) give them a power that the company cannot have. While this puts them in an antagonistic relationship vis-à-vis the LSCE sector, it is a kind of power they did not have (at least formally) before.

There is, nevertheless, an associated problem that stems from Colombia's particular context. Due to the long heritage of the Cold War and the often omnipresent role that the country's internal conflict took, securitization of social protests and natural resource projects is becoming a frequent occurrence. In general terms, securitization refers to the framing of a policy issue as a matter of national security. In this particular case, it means recasting energy or mineral policy issues as security or defense problems [48,170,171].

Respondents 15 and 9 provide important accounts on this. Respondent 15 argues that Colombia has continuously stigmatized labor unions and opponents of mining projects as collaborators of the guerrilla. Illustrating this, respondent 9 does precisely that: he directly links opposition to mining to the guerrilla organization ELN. Historically, this fits the narratives which paramilitary operatives used to enter the region in the 1990s [14,15,134].

Hence, without necessarily having to prove much, actors such as coal companies, mining lobbies, government officials, amongst others, have positioned their view within popular discourse that people and organizations resisting natural resource extraction projects are a threat. As a result, they have been systematically stigmatized, threatened, persecuted and even murdered. That is the case of three labor-union leaders from Sintramienergética, who were simply trying to promote their view of fairer working conditions and natural resource sovereignty. They were murdered in 2001 by paramilitary operatives who have been recently linked to the highest ranks of Drummond Ltd. Colombia, the largest coal mining company in Colombia [16,166].

Stigmatization by coal companies, followed by persecution and even violence by actors thriving on the rents created by those coal companies, is by no means new and by no means over. In 2019, Cerrejón accused indigenous communities and NGOs of being responsible for the collapse of international coal markets,²⁶ their resistance to the mines' expansion apparently being a major reason for the company's poor performance. Soon afterwards, leading figures in local organizations such as Fuerza de Mujeres Wayuu, the indigenous reservation of Provincial, the NGO CAJAR, and even the union Sintracarbón were threatened by neo-paramilitary groups.

This indirect form of power severely affects the way in which public discussion and collective organization can occur. It seems to be only admitted if apparent societal consensuses are not questioned. As respondents 1, 2, 9, 11, 13, 19 and 20 show, questioning the MEL is against this view and thus can be framed as an issue of danger to national security.

Looking at a different manifestation of shifting power dynamics, it is important to look at what has colloquially been coined the "golden rule": those with the gold make the rules.²⁷ In the Colombian context,

²⁶ To see their press statement: <https://tinyurl.com/y9kylg15>.

²⁷ <https://economicsociology.org/2015/08/28/remember-the-golden-rule-whoever-has-the-gold-makes-the-rules/>, last accessed 10.11.2020.

several works discuss this issue from the perspective of cooptation or state capture [64,142]. As the minerals-energy sector, especially the large-scale extraction of coal, becomes more economically and politically salient, its resources increase. More (high-level) supporters, disposable moneys and friendly domestic and international pieces of legislation provide coal companies and their associated growing amounts of human, monetary and artefactual resources.

This enhances their ability to influence how rules are set or enforced, as the accounts provided by respondents 10 and 17 (see section 4.2.2.) illustrate. Not only were coal companies granted direct access to the policy process, but the products of that process were actively improving their position. As Strambo et al. [70] studied, there is perhaps no realm where this is more apparent than taxation. LSCE has accrued a variety of tax exemptions, deductions and non-monetary quasi-subsidies (such as the free provision of infrastructure or security), which have freed up a considerable amount of resources (especially of a monetary nature). Again, this creates a vicious circle. The more monetary resources are freed up by the unaccounted influence wielded by coal companies in the Colombian government, the more such resources can be funneled to influence how these or any other policies can or will be enacted. One major example of this is the direct funding provided by coal companies like Cerrejón, Prodeco or Drummond to Colombia's armed forces and the Prosecutor General's Office. According to the report by Pacifista [172], coal companies closed deals to given billions of COP to fund entire military and crime investigation units in the vicinity of their operations. Whose interests are these public servants beholden to? Local residents affected by the mines or the mining companies?

5. Discussion

Concerning the mechanism that links the (expected) appropriation of natural resource rents as a leading cause that led to the entrenchment and lock-in of LSCE in Colombia, Section 4 provides a multifaceted perspective on a complex and protracted process. In it, specific actors or entities engaged in particular actions that, combined, may offer a potential holistic explanation of why and how LSCE managed to come to its present situation.

To begin, Section 4.1.1 showed how actors in government and coal companies, especially those part of Colombia's "merchant-broker elites" [107] exposed to and reinforcing of hegemonic INDs linking LSCE to grand societal goals such as modernization, progress, or development, without delivering much evidence to substantiate how coal extraction would effectively produce such things, played a fundamental role in the sector's phase-in. By actively casting or passively accepting the discourse of LSCE as a necessary and to an extent inevitable activity that could only possibly bring positive results in a region historically neglected by the Colombian state and characterized by the high autonomy of indigenous and Afro-Caribbean inhabitants, most resistance to the phase-in of LSCE was put-off or invisibilized. Decades later, as section 4.2.1 discussed, newer yet similar discourses and patterns of behavior emerged. Besides progress & development, it was for example now "peace" what would be enhanced or strengthened by coal extraction. To this day, neither reviewed government reports and affirmations, nor that of coal companies have come close to acknowledge any of the inconveniences caused by coal extraction. Even as the links between LSCE and climate crisis [6] or numerous human rights violations (e.g. [14,26]) accumulate, it is still frowned upon to critically question whether LSCE makes any sense for Colombia. In terms of hysteresis, as an on/off threshold through which policies may pass, this equates to some sort of discursive hysteresis. Colombian policymaking and public discourse is so deeply used to the framing of LSCE as "the path towards progress and development" that the energy required to overcome this can be hard to match.

In this way, in an international context marked first by the Cold War and after 1990 by the consolidation of a model of trade liberalization

and privatization under the support of the World Bank and the IMF, the ideas of progress through extractive mining were consolidated as the only path to prosperity in Colombia. In turn, this led to argument that economic development inherently required privatization, if mining was to bring about prosperity. In terms of ideas, narratives, and discourses, there was no other way for Colombia's development than to deepen the extractive character of its economy through the privatization of the industry (cp. [132]).

Compounded with the proclivity of Colombian policy-making to occur behind closed doors, in such ways that are far away from dispelling the suspicion of cooptation and capture by corporate interests, the activities in which entities such as consultants, policy-makers, politicians, amongst others, engaged in and that were discussed in Section 4.1.2 and 4.2.2, clearly suggest that the policy process is (1) heavily tilted towards favoring LSCE come what may and; (2) that this unbalance may be directly linked to the expected appropriation of smaller or larger chunks of coal rents. Whether you are a lawyer accepting to sign the concession contract of the century for someone else, a public servant willing to serve the interests of a company you had been in charge of regulating or a consultant willing to exploit the asymmetries between coal companies and the government, is secondary. Accruing rents comes first.

This is not to say that any and all individuals somehow working in or around coal are only out to appropriate coal rents. Many government and coal company employees are genuinely convinced of their contribution to Colombia's progress & development when they facilitate the workings of LSCE. This raises the importance of considering the discursive dimension of the mechanism. M_{11} and M_{21} show how even the most honest and well-meaning people can be obnubilated by discourses, if the INDs they are exposed to assume hegemonic dimensions. This is a central tragedy unfolding in the case of LSCE: many of the entities most actively facilitating this activity, are most likely not those profiting from it. As LSCE is executed mostly by TNEs, even the most avid rent-appropriator in Colombia's elites misses the fact that the true profits are being accrued elsewhere. It is thus more likely than not, that plenty of actors are playing the role of useful idiots for interests they do not fully understand, and have tended not to care much about.

The initial stages of the Spiral would thus tend to suggest that any pathway leading beyond the array of established practices, networks of actors and procedures that are so disproportionately tilted towards LSCE, requires structural changes in all affected entities (i.e., congress, ministries, oversight agencies, courts, public servants, politicians, etc.). Something similar applies to people's (especially local communities') stance towards government. Corporate capture casts such a large shadow, and distrust is so wide-spread, that it will be a very long way before any state attempt to reorientate policies beyond FE will be both feasible both from a governmental implementation standpoints and credible from the perspective of affected actors.

Yet perhaps the most important component of using the entrenchment spiral is being able to observe the many different outcomes that the process is producing. From displacing people and communities, to fueling conflicts and violence, and increasing some actors' economic incomes while reducing others, it is here that the notions of hysteresis [78], reversibility or revocability [79] can prove the most helpful to debate whether this may be a good heuristic for understanding LSCE's entrenchment and Colombia's carbon lock-in.

In terms of economic structure, the process unleashed by the increasing capital stocks accumulating into LSCE since the 1980s, which were often fed by public debt and compromised resources that could have been spent in other productive activities, undermined Colombia's industry and agriculture, and actively displaced them in the early 2000s and 2010s. Once the commodity supercycle ended, there was no industry and agriculture to go back to – a hysteresis threshold had been crossed. After the supercycle, and because of the public debt for infrastructure investment, as well as the reduction of the tax burden for the extractive industry, which at a certain time had accelerated foreign

investment, culminated in the consolidation of an actor in economic terms so significant that the structural dependence of the Colombian economy on exports from the mining sector makes the transition to another productive matrix highly complex.

Similarly, the socio-environmental devastation in Cesar, La Guajira and parts of Magdalena, brought about by the force of nature that LSCE had become, was for all intents and purposes permanent. All the dried meadows, the lunar landscapes of open-pit mines and the polluted areas, lungs and communities can only be “cleaned” with an enormous economic, social and political effort, which seems very unlikely in times where coal companies can simply relinquish their mining titles at the first sign of adverse economic conditions, as was recently the case with Glencore’s Prodeco operation in Cesar [173].

Entire regions where the most adverse effects of coal extraction have been accumulating, have, for better or for worse, also become deeply dependent on coal extraction to subsist. Over 40% of GDP in Cesar and Guajira and over 90% of municipal GDP in many coal extracting towns still relies on continued coal extraction to keep the economy going [174]. More importantly, social investment, taxes, local public administration, amongst others things, are highly reliant on income that is poised to disappear sooner rather than later, as global coal demand is reduced [175]. It is not that LSCE is ultimately locked-in or entrenched into these places. The problem is that the changes necessary to dislodge LSCE are so all-encompassing that anything short of a complete shift in the (national) economic model will only scratch the surface. How is Colombia supposed to replace the 50% of fossil fuel exports it had in 2019? Or how is the country expected to replace the minuscule coal rents and more importantly the oil rents that together make up to 10% of the central government budget? Where will the support for industrial, agricultural or structural policies for a just transition come from, if the country can only think of engaging in new and old forms of extractivism to sustain its economy?

Such questions and the lack of immediate feasible answers to them are perhaps the clearest signs of economic policy lock-in in Colombia. Due to the nature of the mechanism presented in this article, an open debate on the (in)convenience of LSCE has yet to take place. As a result, pro-coal policies continue to be pushed without much effective resistance.²⁸

This leads perhaps to this paper’s main contribution: providing an understanding of coal sector entrenchment as a system. While the paper’s critical stance may steer the argumentation towards the negative impacts of coal extraction, one insight is crucial. It is not because some profoundly “bad” or malevolent entity decided to phase in LSCE that the activity has created the inconveniences it has, and become more and more entrenched with the passing of time. Rather, it is the conflation of many, dissipated, yet interlocking individual and collective, public and private decisions as well as the multidimensional processes (economic, political, cultural, ecological, etc.) they trigger that can produce entrenchment and potentially carbon lock-in. LSCE thrives on the inertia of a social system that overwhelmingly encourages and facilitates the appropriation of natural resource rents, even though this may not be its only goal or outcome. With the passing of time, festering policy processes, established political actors, commodity-dependent economic structures and the still omnipresent legacy of Colombia’s colonial past and its contemporaneous continuities simply facilitate a situation in which nothing changes — even if no gatekeepers are controlling all the levers to sustain this. For nothing to change, it is simply enough to conform with the existing discourses and to accept the deprecation of local communities and environment as a necessary by-product of “development”.

²⁸ As this article was on its last strokes (October 2021), the MME revealed a “new” roadmap for the future of coal in Colombia, which included further deregulation, tax exemptions and the denial of preparing for a phase-out [176].

At least this can be interpreted from the hegemonic discourses. However, it is interesting to see how, particularly since the consolidation of certain articulation between environmental organizations, indigenous groups, and mining workers’ unions, the discourses of resistance are taking a greater position in common sense. In this line, the findings of this paper show that the most pessimistic positions can lead to take a resigned attitude towards an asymmetric and extractive relationship from a historical perspective about natural resources and the productive and national development model. However, from this place it is also possible to recognize how experiences of effective resistance emerge, both in Colombia and at the regional level, to confront the powers of the LSCE in the impacted territories. One key source of hope seems to be the possibility for so-called “place-based resistance” in local communities [177] to build an own power basis with which they can dispute the established regime.

In general terms, it can be said that the internal validity of the analysis is increased by the amount and diversity of evidence presented. While the analysis was conducted in a mostly abductive fashion going back and forth between theory and empirics, the final version of the paper may sound more deductive, as it tries to follow the steps of the Spiral. Nevertheless, the authors did their utter best to constantly try to revise and sharpen the hypotheses later included into the Spiral.

As for the external validity, the case of LSCE in Colombia may be very informative for plenty other jurisdictions, even though many insights cannot be transferred one to one. First, the case study shows that dispelling the myth of having no alternatives and of needing to conform with existing hegemonic discourses concerning the collateral damage of “development” is crucial for any genuine transition to begin. This relates to the notion of historic memory as a basis for justice. Just as this fits post-conflict countries such as Colombia, it may fit any society aiming to reach energy justice and overcome fossil fuels. Society must know how fossil fuel related actors got to their positions if their spell is to be shattered.

Second, it shows that any analysis that does not examine the evolution of power dynamics around fossil fuel extraction may be insufficient to produce meaningful recommendations on how to phase these out. There is no evidence that fossil fuel related actors will voluntarily relinquish their profits, rents and privileges. Hence, understanding where and how to build up “counter-power” to dislodge them may play a fundamental role. The application within the Spiral-Analysis of a fine-grained perspective of power, constitutes a further step towards more power-savvy analyses in energy & social science research.

Third, being able to integrate the spatial and temporal singularities of the case in form of a context, allows to unpack the concrete ways in which the different elements of the Spiral mechanism produces the outcome in question. The complexity and to an extent nature of Colombia’s context should not scare off readers from other latitudes: the contexts elsewhere certainly play an equally central role in facilitating the understanding the mechanism for phenomena such as FE.

6. Conclusions

If a coal phase-out is to occur anytime soon in Colombia, as the climate crisis urgently requires at a global level [6], there is no way around having to dislodge LSCE. Aiming to provide insights on how this manifestation of fossil fuel extractivism (FE) took root in Colombia, the preceding pages took a six-staged entrenchment spiral to potentially unpack the *mechanism*, i.e., a variety of activities that entities attached to LSCE undertook potentially produce this sector’s deep entrenchment into Colombia’s society and economy.

To do so, insights from an overarching review of literature on the political economy of coal extraction in Colombia, as well as of energy policy and sustainability transitions were drawn. Inspired by Palley’s “theory of economic policy lock-in and lock-out via hysteresis”, it proposed an entrenchment spiral as a potential starting point to adequately explain the current situation of LSCE in Colombia.

Presenting evidence from a wide range of government documents and statistics, NGO reports, scholarly work, amongst others, a process-tracing exercise on the case of Colombia's large-scale coal extraction sector was constructed around two spins of the aforementioned entrenchment spiral. In this process, it is fundamental to recognize that the process-tracing methodology sought to identify causal relationships in the scenario of coal extraction in Colombia. In this scenario, is convenient to recognize that, due to the different adjustments made to both the conceptual dimension of the categories and the consequent analysis based on the entrenchment spiral, the research exercise can be read as a deductive case study (which seems contradictory to the purpose of inferring causal relationships based on process-tracing). However, and aware of the limits that this may imply, a deductive approach permitted us to identify relationships that "embedded" certain practices in the LSCE scenario for the Colombian case. Thus, we opted to maintain the process-tracing methodology because it enabled us to provide a horizon for two moments of the research. The first moment in which the relationships between the significant events in the case could be clearly read from a critical perspective. And the second moment, from which it was possible to infer causal relationships between these events. Thus, after analyzing how coal was and is still being phased in and trained, the following conclusions can be drawn.

Mining-related discourses tying fossil-fuel extraction to progress and development have informed a policy process that consistently tends to overwhelmingly accommodate the interests of the minerals-energy sector. Such a process, characterized by revolving-door practices and tainted by the shadow of state capture, has produced a variety of policies that first enabled the phase-in of large-scale coal extraction and later entrenched it. Interacting with Colombia's context as a commodity-dependent economy and a very unequal and restrictively democratic society, these policy initiatives have produced outcomes which functionally and formally enable the deep entrenchment of coal extraction in national and local economies and society. As a result, while many of the resources available to coal sector opponents were destroyed by coal mines' destructive power, these companies have taken, accumulated and even created new resources to exercise different forms of power in order to wield influence. From setting the rules or topics for public debate, to adjusting and influencing government policies in their favor, LSCE enjoys a great power asymmetry vis-à-vis its opponents. It follows that this has been enabling them to shape public opinion and disseminate their vision on coal extraction.

With this analysis in hand, a robust basis is provided to craft more effective strategies to disrupt the incumbency regime associated with coal: FE. In Colombia's case, this is especially important, as many of the limited resources of coal opponents are – rightly – devoted to supporting communities and individuals affected by coal extraction in the defense of their fundamental rights to a dignified, peaceful life in a healthy environment. One form of power that coal companies cannot have is permanence in the territory. By defending their way of life and ancestral lands, ethnic communities can block further mine expansion and carbon lock-in. Any actor seeking to keep coal underground can do so most directly by supporting local inhabitants in their struggle to stay home and fend off expansion attempts by coal mines.

As the present research identified, a key locus of hysteresis is ideas, narratives and discourses affecting public debate. Since the 1970s, masking and securitization strategies have continuously played a fundamental role in the production and diffusion of coal-friendly frames, as well as in the persecution and stigmatization of coal critical INDS and actors. Hence, deploying unmasking strategies that actively and assertively counter the narratives used by the FE regime is key to avoiding further entrenchment and beginning to reverse it.

Because of the different aspects of the situation described above, there are three guidelines that we observe for dealing with the entrenchment of LSCE in Colombia. In the first place, the challenge is to break with the structural economic dependence that was produced at the initial moment (phase-in) and strengthened from 1990 onwards.

If what is intended is to generate processes of just energy transition for the fulfillment of the Paris agreement and the environmental challenges to come, Colombia must seek ways to reduce its economic dependence on the extractive industry, for which it is required to create value and income from activities that come from alternative industries and businesses, with special care for the consequences for workers in the territories. This implies, in the medium and long term, processes of de-cooptation of public institutions responsible for decision making. It also requires profound reflections on taxes and tax justice, as the state must substitute the rents it gets from fossil fuel extraction.

Secondly, and in a cultural dimension, it is essential to dissociate the idea deployed in common sense that any resistance or criticism to these projects is a risk to national security, whether it comes from social movements, environmental organizations, indigenous peoples, or workers unions. The recognition of territorial organizations is fundamental in the development of modern political systems since it is through processes of dialogue between public institutions and the territories that it is possible to confront extractive interests in the regions.

Thirdly, mechanisms of public control and articulation with local governments and social organizations, indigenous peoples, and peasant communities are required to favor the emergence of new models of local development that allow them to define the lines of sovereignty over their territories.

This paper crafted a narrative to understand some of the key determinants of coal phase-in and entrenchment. With it, the debate and research on how to initiate a just and timely phase-out may be taken one step further.

Declaration of competing interest

The corresponding author, Felipe Corral, has developed a close friendship with some members of several Afro-Caribbean and Indigenous communities in the Cesar and La Guajira. Recently, he was made god-father of a child in the indigenous reservation of provincial, certainly making his interest for this child's and his community's wellbeing ever more present. Any analysis on the damages of the nearby Cerrejón mine must thus be observed from this lens.

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Table A.1

Interview sample Source: own elaboration.

Elites	Experts	Vulnerable communities/Actors
CEO coal power plant (1)	Analyst at NGO, former head of mining at ministry (3)	Member of affected community (4)
Former head of Energy and Mining Planning Unit (2)	Analyst at Finance Ministry (10)	Member of affected community (5)
Former head of mining chapter at industry association (9)	Former coal broker (12)	Member of labor union (6)
Head of lobby organization (11)	Analyst at think-tank close to labor unions (14)	Member of affected community (7)
Former deputy-minister for mining (13)	Analyst at NGO (15)	Member of affected community (8)
Former lawyer of mining company + political leader (19)	Analyst and academic associated to the National Environmental Forum	
Former head of Mining at Mining Ministry (20)	Lawyer at mining law firm (17)	
	Lawyer at NGO (18)	

Appendix

A.1. Context – Coal extraction in Colombia

In Colombia, hydrocarbons and coal accounted for 54.8% of all exports in 2018 [158]. Nationally, coal extraction accounts for close to 3% of GDP [?]. Overall, 91.5% of Colombia's primary energy production comes from fossil fuels, of which 66% (mostly steam coal) is exported [88].

Colombia constitutes a relevant example for how established corporate and state actors not only refuse to initiate the phasing out of fossil fuels, but rather aim to expand their extraction. The current National Plan for Mining Development aimed to increase coal extraction by 30 Mtce/a to 120 Mtce/a in 2020 and to maintain production as high as 60 Mtce/a until at least 2050 [178]. Meanwhile, several corporate and government actors insist on initiating fracking operations [179] and deep-sea drilling [180]. Fig. 1 shows current coal mining areas (bottom left) as well as exploration blocks for hydrocarbons (top left).

Coal extraction is often depicted as an important source of foreign exchange, foreign direct investments, and technical expertise [181]. In official and corporate discourse, it is associated with the development and progress of Colombia and producing regions [75]. In fact, direct government revenues (royalties, corporate & wealth taxes and economic compensations) coming from coal extraction equated to 0.34% of GDP in 2018 [114,182]. Coal income only equated to 2.5% of the 2018 national budget.²⁹

Nevertheless, in the main extraction regions, La Guajira and Cesar, the picture is different. There, coal extraction respectively accounts for 49% and 46%, respectively, of local GDP [174] and plays an important role in municipal and regional budgets. More than 83 million tons were extracted there in 2018 [133]. Over 95% of production is destined for export, almost entirely produced by TNEs [184]. Approximately 30,000 people are employed in these capital-intensive, large-scale, open-cast mining operations [89]. As the top right-hand region of Fig. 1 shows, coal mining occurs in vast areas surrounded by natural and indigenous reserves.

Besides the large-scale sector, Colombia also has small- and medium-scale coal mining in the interior regions of Boyacà, Cundinamarca, Norte de Santander and Antioquia (see lighter areas in bottom left-hand region of Fig. 1), which produce less than 10 Mtce/a, while employing more than 60,000 direct workers. The mines, mostly nationally owned, produce steam and metallurgical coal, partly for power generation or other industrial processes [133,185].

A.2. Interview sample

Information on the interviewees has been anonymized to protect their identities. For more information about them and to access transcripts of the interviews, please contact the author (see Table A.1).

²⁹ That year's budget was 235.6 billion COP, while total government income from coal was slightly below 3 billion COP [182,183].

A.3. Question catalog

To tie together the different pieces of information resulting from the interviews, questions are divided into thematic blocks. In them, personal aspects of interviewees, as well as their opinions and perspectives on the political economy of coal extraction in Colombia are to be reflected. Questions serve to guide the interview, which by no means requires asking all of them. The goal is to allow interviewees to unfold their perspectives in the ensuing conversation, while the different research topics are covered.

A.3.1. Block I: Personal profile/opening questions

- Can you tell me how did you started working in this sector/institution?
- What are/were your responsibilities?
- Given your performance in the XYZ position during the XXXX period, it seemed that you could be a suitable person to interview. What can you tell me about the situation of the coal sector and your role in it during this time?
- Would you say you know the sector well? Why? From what perspective does your knowledge of this sector come from?
- When was the first time you heard about coal in Colombia? Where (radio, television, friends, newspaper, etc.)?
- What narrative would you associate with coal mining? (e.g., progress, economic development, socio-ecological impacts, human rights violations, etc.)

A.3.2. Block II: Structural factors

- What obstacles/stimuli do you think the sector has had in its development over the last twenty years?
- Tell us a little bit about how well you think the Colombian state can control the conditions under which coal is extracted (e.g., in terms of collecting taxes correctly, determining environmental impacts or guaranteeing labor rights)?
- What effect do you think the lack of state has on mining operations?
- Beyond geographical factors or the scale of operations, what differences do you recognize between inland and Caribbean mining?

A.3.3. Block III: Conjunctural factors

- Thinking ahead, what challenges do you see the coal industry facing in the years to come?
- Taking into account the different national and international concerns, what relationship do you see between the coal sector and the following issues (energy security/sovereignty, investment security, climate change, human rights, renewable energy, environmental pollution, deindustrialization, tax burden, energy prices)?
- How do you assess the current attitude of the public or the mining sector towards the environmental problems of coal mining? Do you believe that environmental activist groups are currently a threat to the continuation of this mining activity in the long term?
- What prognosis do you give to the quoted prices of Colombian coal?

A.3.4. Block IV: Interdependencies

- How do you evaluate the role of the state in the mining and energy sector?
- Do you think the taxes charged to mining are too high/low?
- What do you think about procedures such as environmental licenses?
- Do you think that rights such as prior consultation with indigenous/afro communities or mechanisms such as popular consultations go too far/not far enough?
- What avenues of communication and negotiation are you aware of between the state and the coal companies? Which is the most important, in your opinion? Can you tell us about your experience working with lobbyists?
- How do you evaluate the legal instruments XYZ or institutional ABC, implemented in HIJ, when regulating the extraction, transport or export of coal?
- What is the context surrounding the creation of energy battalions, roads and miners in the Colombian army?
- Do you believe that there is collaboration between the state and coal companies beyond what the public knows? Beyond the legal framework? How does it work?

A.3.5. Block V: Manifestations of lock-in/irreversibility

- What is your opinion of the investment protection treaties that Colombia has signed?
- Do you know anything about Colombia's possible accession to the Energy Charter Treaty?
- What impact do you think the privatization of Carbocol had on the coal sector?
- What is the purpose of giving a project the status of PINE?
- What impact can judicial decisions such as that by the court in Ciénaga (on coal in Sta. Marta), the State Council (on fracking/popular consultations) or the Constitutional Court (e.g., moorland delimitation, popular consultations) have?
- What aspects do you believe have been irreversibly changed as a result of coal mining?
- What is the reason for ceding judicial sovereignty before international arbitration tribunals?
- Do you know anything about the different projects to build thermoelectric plants in Colombia? Do you see any future for them? Do you know of alternatives to coal-fired electricity generation? Does Colombia need coal to cover its energy demand?
- What can you tell us about the importance of coal mining for Colombia's fiscal health? What importance does it have for the balance of payments?
- What role have actors such as the World Bank or the International Monetary Fund played?
- What kind of transformations have taken place in the territories affected by coal mining? Do you think it is possible to return to the pre-mining situation?
- What implications do you think mining has had for local economic, social or cultural structures?

A.3.6. Block VI: Personal prospecting

- What do you think are the main threats to the coal sector?
- How aware do you think coal companies are of the threats it identifies? The public sector? Public opinion?
- Do you think these threats are indicative of the end of coal mining in Colombia? Why?
- What future do you see for new alternatives for energy generation such as solar, wind or geothermal energy?
- How do you assess the attitude of the public or within the mining sector towards the environmental problems of coal mining? Do you believe that environmental activist groups are a threat to the continuation of this mining activity in the long term?

- What alternatives do you see for the mining and energy sector? Do you think an economy without coal mining/extraction is possible?

If you have something that you consider key to keep in mind, now would be the right time to mention it. Otherwise, I thank you very much for your time and support, and I will keep you informed of the next steps in my research.

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