"Materials for a Better Life": Strategic Minerals and the Sustainability Transition

A Study on the Strategic Framing of Cobalt & The Material-Discursive Practices of the Extractive Industry in the Democratic Republic of the Congo

Written by: Gustav Dahlqvist
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Abstract

Rechargeable batteries are set to power sustainable development by 2030. In this context, the increasingly important role of certain ‘strategic minerals’ used in emerging renewable technologies has become highly topical. As the geopolitical landscape is changing as the world moves away from fossil fuels, a surge in demand for these minerals will entail an increase of production at unprecedented levels. A case in point and a focus of analysis in this thesis is the extractive sector sourcing one of the most important of transition minerals ‘cobalt’ that is predominantly mined in the Democratic Republic of the Congo (DRC). Against the challenge of secret and non-transparent mining industry, this thesis has identified and listed all operational and openly communicative Multinational Corporations (MNC’s) extracting cobalt in the DRC.

By conducting a critical discourse analysis on seven different cobalt extracting MNC’s, the analysis unveils different ways in which the companies ‘frame’ cobalt as strategic. Thus, a new and relevant ‘material-discursive framework’ has been utilised to bridge the underlying discourses of these companies with their material practices relating to cobalt. By employing this theoretical framework, the findings point at three main logics of corporate narrative the MNC’s in the sample use to form and maintain their operational activities: securitisation, environmentalism and developmentalism. Central discourses within these themes point at the way in which companies seek to maintain their economic security and legitimacy in an increasingly contested industry by continuously representing themselves as central actors with the responsibility and knowledge to deliver sustainable development for local communities affected by the industry in the DRC and for the sustainability transition.

Key words: cobalt, the Democratic Republic of the Congo, strategic framing, the sustainability transition, extractive industries, multinational corporations, sustainable development, material-discursive practices, securitisation, environmentalism, developmentalism, international relations.

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<table>
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<tr>
<td>DRC</td>
<td>The Democratic Republic of the Congo (Congo-Kinshasa)</td>
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<td>WEF</td>
<td>World Economic Forum</td>
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<td>GBA</td>
<td>Global Battery Alliance</td>
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<tr>
<td>MNC</td>
<td>Multinational Corporation</td>
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<tr>
<td>OECD</td>
<td>Organisation for Economic Cooperation and Development</td>
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<td>IRENA</td>
<td>International Renewable Energy Agency</td>
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<td>IEA</td>
<td>International Energy Agency</td>
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<tr>
<td>LiON</td>
<td>Lithium-ion Battery (rechargeable battery)</td>
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<td>EV</td>
<td>Electric Vehicles</td>
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<td>ASM</td>
<td>Artisanal- and Small-Scale Mining</td>
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<td>LSM</td>
<td>Large-Scale Mining</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<tr>
<td>HDI</td>
<td>Human Development Index</td>
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<td>EITI</td>
<td>Extractive Industries Transparency Initiative</td>
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<tr>
<td>Gécamines</td>
<td>La Générale des Carrières et des Mines</td>
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<tr>
<td>CDA</td>
<td>Critical Discourse Analysis</td>
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<tr>
<td>MI</td>
<td>Mineral Intelligence</td>
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<tr>
<td>CEO</td>
<td>Chief Executive Officer</td>
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<tr>
<td>US(A)</td>
<td>The United States of America</td>
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<tr>
<td>EU</td>
<td>The European Union</td>
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<tr>
<td>CSR</td>
<td>Corporate Social Responsibility</td>
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<tr>
<td>ERG</td>
<td>Eurasian Resources Group</td>
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<tr>
<td>CNMC</td>
<td>China Non-Ferrous Metal Mining</td>
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Chapter 1: Introduction

1.1. Research Problem & Field of Study

The twenty-first century has seen a fundamental shift in how climate change is addressed globally, in effect moving away from fossil fuels towards renewable energy (hereinafter referred to as 'the sustainability transition’). Only during the last ten years, the debate on geopolitical implications over this transition has surged (Vakulchuk et al., 2020). In this context, the foundational role of ‘strategic’ non-fuel minerals (also referred to as ‘critical minerals’/‘critical raw materials’/‘transition minerals’) in the sustainability transition has become highly topical (see: WEF 2019; OECD 2018; World Bank Group 2017).

Where past conflicts have revolved around oil interests, many scholars now argue that future resource conflicts may focus more on the competition for strategic non-fuel minerals that enable emerging renewable energy technologies (see Gulley et al., 2018; Burgess & Beilstein 2013). Similarly, many scholars also point out that the sustainability transition will significantly reduce the dependency on petroleum resources and significantly increase the dependency on critical materials, which will intensify the international competition over these minerals (Vakulchuk et al., 2020; Månberger & Johansson 2018; Gulley et al., 2018; see also OECD 2018; World Bank Group 2017).

Dominant in the literature on geopolitical rearrangements due to the sustainability transition, are technical assessments and the modelling of the changing global trade in certain strategic minerals (see Hache et al., 2019; Kim et al., 2019; Grandell et al., 2016). Other scholars have focused on the ‘race’ in control over strategic minerals by particularly analysing the critical raw material strategies of China, the European Union (EU) and the United States (US) (Kalantzakos 2020; Bonnet et al., 2019). Most prominent in this field of literature has, however, been the focus on the specific material and discursive practices of extractive industries and the discourses around their changing priorities in response to the 'framing' of materials as strategic (see Van Alstine & Barkemeyer 2014; Parsons et al., 2014; Cowell et al., 1999).

A case in point is the role of the cobalt mineral in the Democratic Republic of the Congo (hereinafter ‘the DRC’). Cobalt is deemed as ‘critical’ for batteries to power sustainable development by 2030 and around 70 percent of the global sourcing is done in the DRC (WEF 2019). Still, the DRC has for long suffered from the counter-intuitive thesis many call ‘the resource curse’ (Lajli 2007). The country is one of the wealthiest in the world in regard to its abundance of valuable minerals. Yet, it is ranked the 10th poorest country in the world (World Bank Group 2020) and suffers from large inequality rates

1 The resource curse is a term used to describe a paradoxical situation where a country underperforms economically despite holding an abundance of valuable natural resources. Also referred to as the paradox of the plenty (Fernando 2020).
and major socio-economic inequities (UNDP 2020). Meanwhile, some of the wealthiest multinational mining companies (hereinafter referred to as ‘MNC’s) in the world are continuously sustaining their incomes through their well-established large-scale mining operations in the DRC that have been operational for decades (see e.g., Glencore: Statista 2020). As the demand for cobalt is expected to surge at unprecedented levels, there are serious concerns over both the access and supply of the mineral as well as the social, environmental, and economic inequities associated with the extractive industry in the DRC.

1.2. Research Aim and Question

Thus, with the increasingly important role of ‘strategic minerals’ in the sustainability transition and the potential challenges of reproducing inequities (Bazilian 2018), there is a considerable cause for inquiring into how extractive industries position themselves discursively and in what ways they organise material operations subsequently. This can be prominently understood through what Akong (2020) formulates as a ‘material-discursive framework’, which emphasises the way in which ‘framing’ of matter become central in understanding the intra-linkages between nature and society. Thus, unravelling how the extractive sector in the DRC frame specific minerals as strategically important, materialise their operations, and organise discourses around it, can help to understand how the sustainability transition will evolve.

Therefore, the aim of this thesis is to critically analyse how extractive industries in the DRC strategically frame cobalt in the context of the sustainability transition. It is seeking to showcase an inherently secret and non-transparent industry, in order to stress the power of discourses informing and maintaining material practices. This will be done by utilising the material-discursive framework as outlined by Akong (ibid.). Therefore, the following research question is presented:

How is the strategic framing of cobalt expressed in the material-discursive practices of the extractive industries in the Democratic Republic of the Congo?

1.3. Outline of Thesis

Following this introduction, the thesis is structured as follows. In chapter two, it briefly considers the background of cobalt and the DRC to outline the basic pointers to the field of International Relations (IR). Chapter three discusses the academic literature relating to the research question by outlining the basic theoretical pointers of minerals and their strategic importance as well as reviewing scholarship fundamental in comprehending the role of extractive industries in contemporary IR. In chapter four, the theoretical framework is presented in relation to previous literature to make case for using Akong’s (2020) material-discursive framework. In chapter five, the research design is outlined including the
choice of data (seven different corporate narratives analysed from the openly communicative MNC’s) and method of analysis. In chapter six, the findings are presented to demonstrate the strategic framing of cobalt in the material-discursive practices of the abovementioned MNC’s. In chapter seven, the thesis concludes by discussing the findings as well as considerations for future research on the topic.
Chapter 2: Case Background

Having thus introduced the research aim, problem, and guiding research question of this thesis, this chapter seeks to introduce the particular case of cobalt in the DRC, the different international dynamics associated with the cobalt industry, and the IR relevance therein.

2.1. Cobalt in the International System

The importance of the cobalt mineral has since long been recognised by industrialised countries. Where it once was used solely for colouring ceramics in ancient Egypt and Persia, it has later been labelled ‘strategic’ (now ‘critical’) because it is deemed as crucial for national and economic security (see US Geological Survey 2019; European Commission 2020). To the extent that cobalt is dominantly mined in the DRC, the mineral consistently contributes to the country’s position as the main supplier in the international system (Bazilian 2018). This is especially true today where the demand for, and production of, cobalt is expected to surge in the context of the sustainability transition.

Whilst the biggest deposit of cobalt is located in the DRC (100,000 tonnes in 2019), it does not mean that it is the only deposit in the world. Yet, the cheap labour, the since-long well-established extraction systems, and the scale of the reserves in the DRC have made it unprofitable to extract the mineral to the same extent in other countries, such as Russia (6.500 tonnes), Australia (5.500 tonnes) and the Philippines (4.600 tonnes) (NS Energy 2021). Despite the increasing efforts to recycle the mineral for usage in Electric Vehicles (EV’s) and phones as well as ‘ending the dependency’ on the DRC’s cobalt, the large-scale extraction of the mineral in the country is not expected to decrease any time soon and the DRC will continue to be the main supplier of the mineral (Alves Dias et al., 2018).

Historically, as with many African countries, the stature of the DRC has largely been viewed to hinge upon the production of cobalt and copper. The DRC has become a politically inviting target for large International Financial Institutions (IFIs), countries and MNC’s that are in want for the mineral (Bleischwitz et al., 2012). Clearly, cobalt and copper have not elevated the DRC on the hierarchy of great powers across the world. Nonetheless, it plays a crucial economic role both for the local population where a majority of people depend on the mining industry, and the state where 99,3 percent of total exports of the DRC in 2017 came from the mining industry (EITI 2017).

Indeed, cobalt is not in isolation the most important mineral in the sustainability transition. Lithium, as an example, has been considered almost, if not more, important. Australia is the biggest producer of Lithium (65.000 tonnes in 2019), followed by Chile (18.000 tonnes) and China (7.500 tonnes) (NS Energy 2020). The DRC is, however, unlike these countries referred to as being a case in point of the resource curse paradox. Despite the extraordinary potential that its abundance of critical minerals could
mean for the transformation of the country, 65 percent of the population still live in multidimensional poverty and the country is ranked the 10th poorest country in the world (UNDP 2020). The average artisanal miner, referred to as ‘creuseurs’ in the DRC, earns between one to two dollars a day. There are 40,000 children reported to work in the cobalt and copper mines around the cobalt-copperbelt stretching over the Katanga Region in the southern area of the DRC (Amnesty International 2016a).

The historical and growing dependence on cobalt for the industrialised countries is a by-product of the post-World War II modernisation of the global economy, the military technology advancements of the Cold War (Ogunbadejo 2016), and now the race towards renewable energy. Cobalt has two innate features that make it indispensable for new battery technologies: high thermal stability and energy density (Cobalt Institute n.d.). As figure 1 below show, the end-market for cobalt has significantly changed over the last two decades, where the usage of cobalt in Lithium-ion batteries (LiON) have increased from 20 percent in 2006 to 62 percent in 2020. A car driven by a LiON battery contains on average 12kg of cobalt (Azevedo et al., 2018). In 2020, over three million electric vehicles were sold, an increase of 43 percent from 2019 (Carrington 2021).

![Figure 1: Cobalt’s End Market, Batteries by Dominant Sector](image)

In the midst of the transition, both the US and the EU have established Critical Raw Material (CRM) lists to identify and assess the supply chains of minerals strategic to the economy of the respective actors. Both are clearly determined to end dependency on these minerals, including cobalt, while recognising...
the need to extend production to meet the needs of demand (see US Geological Survey 2019; European Commission 2020). The Trump Administration, under the umbrella of ‘America first’, signed an executive order to end dependency on foreign minerals, including cobalt, because the regions from which these minerals come from are, in their view, politically unstable (Humphries 2019).

The increasing concern for the supply risks are also connected to what some scholars refer to as ‘resource denial’, in how main supplier of the strategic mineral assumes a powerful position to control the access to these minerals. The DRC government signed a new mining code in 2018 where cobalt was labelled ’strategic’, essentially meaning an excessive increase of royalties of the production of the mineral (Reuters 2018).

The worry of a resource-denial scenario, however, is more palpable in relation to China. China imports all of the cobalt mineral sourced in the DRC, refines most of it, distributes it and then sells it to US or European-based consumer brands (see map 1 above). To be the epicentre for transition minerals is a

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1 A royalty is a form of ‘mining tax’. Basically, it is a ‘right’ of the DRC government to receive payment based on a percentage of the minerals (or other products produced at a mine) or of the revenues or profits generated from the sale of those minerals or other products at a mine in their country (Norton Rose Fulbright 2015). The DRC raised royalties for cobalt, when labelling it ‘strategic’, from 3 percent to 10 percent in order to harness the potential profits from the transition (Reuters 2018).
main objective in China’s strategy ‘Made in China 2025’ (ISDP 2018), and the general division of labour around the world for cobalt.

2.2. The Role of MNC’s in the DRC’s Cobalt Extraction

Indeed, the DRC along with the rest of sub-Saharan Africa, has long been incorporated into the global capitalist network. Historically, cobalt and copper, gold and silver, and all the rest of the abundance of minerals located in the DRC have for centuries been systematically exploited by Western (and now also Eastern) powers and their MNC’s as prolonged arms. As Ogunbadejo (2016) phrases it, the important linkage of strategic dependency between the ‘core’ countries and the mineral-exporting ‘periphery’ helps to illuminate the core-periphery analysis in contemporary International Political Economy (IPE).

A major reason of the integration of the DRC economy into the world capitalist system was colonialism. The mining sector perhaps best illustrate this integration. Extractive industries were created by the MNC’s with support from the colonial powers in most colonised countries, including the DRC (Ogunbadejo 2016). An example of this is the Union Miniere de Haut Katanga (now ‘Umicore’) which was the colonial emissary of the Belgian government in the DRC after King Leopold II lost his ‘claim’ to the land (Britannica n.d.). The division of labour in the industry remain, however, somewhat the same. The operations were, and are, largely supervised by the MNC’s, where the local populations are poorly paid and perform dangerous work in the mines (Amnesty International 2016a). As previously mentioned, an average Congolese citizen working in the extractive sector earns between $1-2 a day (ibid.). Meanwhile, the newly appointed CEO of Anglo-Swiss company Glencore, the biggest producer of cobalt in the DRC, has been offered a starting-salary of $11 million a year (Fualdes 2021).

Local communities in the DRC have very little access to the wealth generated from the exploitation, and control over the production, of cobalt (Amnesty International 2016a). Whilst 20-30 percent of the cobalt exported in the DRC come from Artisanal- and Small-Scale Mining (ASM) operations, the generated wealth from, and control over production of, cobalt remains in the hands of MNC’s. Considering these power-imbalances, local peoples stand little chance in deriving any benefit generated from cobalt and the sustainability transition (ibid.).
Chapter 3: Theorising Strategic Minerals

The discipline of International Relations (IR) has some of its oldest roots in geography (Corry 2017: 102). As Daniel H. Deudney (1999) maintained, “[...] the idea that nature is a powerful force shaping human political institutions is extremely old” and is one of the first in Western political science. Despite this, international relations theory has been criticised for its almost exclusive ‘humanity’ perspective and neglected, with some exceptions, the physical environment’s relationship with political economic outcomes (see Corry 2017; Cudworth & Hobden 2013; Deudney 1999). How the ‘framing’ of matter relates to broader political economic discourses and practices, then, remains central to understand nature and society relations (Akong 2020).

In approaching the literature on strategic minerals, it is noticeable that the role of critical minerals in relation to the debate on the sustainability transition has surged in the academic literature in recent years (Vakulchuk et al., 2020). Subsequently, the thesis outlines the literature encompassing (1) the ‘framing of matter’ in international relations including the basic ontologies on studying minerals and power, (2) the material-discursive practices of extractive industries involving the basic theoretical themes across the literature, and (3) the extractive industries in the DRC. The literature review is concluded in chapter 4, where the theoretical framework is presented.

3.1. Framing Matter(s) in International Relations

Previous literature concerned with the ontology, epistemology, and methodology in humanities vis-a-vis nature, has mainly focused on enwrapping how nature, or matter/material agency, can be conceptualised, or framed, in complex relationships with political economy, human agency, political institutions, development, and structures of authority (Corry 2017). There are some particularly notable strands in the literature around this issue. The most relevant for this literature review is the meta-theoretical differences of social constructivism and neorealism.

Firstly, social constructivist’s basic ontology is that social reality is constructed by humanity (Reinecke & Ansari 2016; Snow 2013; Hopf 1998). Matter, and minerals, have thus inscribed certain meanings by humans. ‘Framing’, then, is a tool that can be used to understand new focal points of agency and power through social interactions (Akong 2020; Tannen 1993). In contrast, and historically more generally accepted across the IR spectrum, is the neorealist presupposition with power and the relative ability of actors to extract and mobilise resources from society that shape the types of internal balancing strategies that countries are likely to pursue (Taliaferro 2006). Matter is sequentially ‘framed’ as an asocial input and merely a physical mean to leverage economic and/or political power (Akong 2020; Harvey 1974).
In a prominent attempt to bridge this ontological gap between the neorealist and social constructivists approaches, Akong (2020) proposes a new framework on how to study the powerful material-discursive practices of the physical, chemical, and social dimensions of mineral assets in the extractive sector. Akong (ibid) particularly highlights the implication of the material agency and extractive industry built around it on the broader political economic context. In Akong’s (ibid.) primary example of ‘development minerals’, which are framed in a specific way, central concern is given to the materiality (chemical and physical attributes) of which minerals are deemed relevant and crucial for development potentials.

In the same vein as the ‘framing’ of certain minerals as ‘development minerals’ has had specific impact on the industry it concerns, the ‘framing’ of certain minerals as ‘strategic’ has supposedly had more, maybe even un-proportionate, impact on the industry it concerns (Ogunbadejo 2016). Thus, before identifying the further relevance of using a material-discursive framework in analysing the particular ‘strategic framing’ of cobalt in the DRC (see chapter 4), the subsequent part will review the literature on the broader role of discursive practices in shaping material and political economic agency of extractive industries.

### 3.2. Discursive Practices of the Extractive Industry

There has been a wide range of research concerned with corporate narratives and how extractive industries position themselves strategically through discourse. Patterns across the literature can be categorised into three different logics of corporate narratives: securitisation (see e.g., Barteková & Kemp 2016; Mancini et al., 2016; Tiess 2010), environmentalism (see e.g., Parsons et al., 2014; Alstine & Barkmeyer 2014; Fairhead et al., 2012), and developmentalism (see e.g., Akong 2020; Hilson 2012; Campbell 2010). Underpinning these logics are discursive elements of neoliberal globalisation that is maintained through the consistent emphasis on capital accumulation and the commodification of nature (Smessaert et al., 2020). While the narratives sometimes differ and/or align depending on the context, below follows some basic tenets of each theme with relevance to this thesis.

#### 3.2.1. Logics of Securitisation

Logics of securitisation in this context refer to the practice in which matter (or nature) is framed as a reference object for security (Peoples & Vaughan 2015:110). Whilst such discourse might be prevalent for states framing minerals as ‘strategic’ because its importance to national or economic security, the logics identified in the extractive sector slightly differ. Most particular of the extractive sector is the neoliberal-informed discourse of survival in the sense of economic security (Tiess 2010). In other words, security is expressed through different risk indicators made by the industry in order to secure supply over resources (Barteková & Kemp 2016; Lusty & Gunn 2015; Tiess 2010). This has been
expressed by different conflicts regarding property rights between large-scale foreign corporations and small-scale local artisanal mining (Katz-Lavigne 2019; Geenen & Hönke 2014; Ballard & Banks 2003). It also involves threats against companies’ ‘social licence to operate’ (Parsons et al., 2014; Owen & Kemp 2013) and threats against the 'formal' licence to operate. The latter is expressed through neoliberal logics of economic liberalisation to secure 'free entry' of the minerals to a country which privileges the 'right' of large MNC’s to assume ownership over nature (Campbell 2010). Strategic framing of minerals, such as cobalt, then, can be seen as a way for corporations to ensure its secure and free access to supply, property, and land as well as a maintained 'social licence to operate'.

3.2.2. Logics of Environmentalism

Logics of environmentalism refer to the way in which extractive industries frame minerals, such as cobalt, as strategic for environmental concerns. In other words, the environmental logics refer to non-renewable sources of finite minerals to be crucial and essential for sustainable development (Akong 2020; Bridge & McManus 2000; Cowell et al., 1999). Again, with reference to the social licence to operate, practices include rearranging business operations from purely economic to 'sustainable business' with regards to 'managing' environmental and social impacts (through e.g., Corporate Social Responsibility, CSR) that is affected by the operations of the company (Parsons et al., 2014; Alstine and Barkemeyer 2014; Fleming et al., 2013). Concepts of 'green-washing' and 'green-grabbing' have taken prominent root in theoretical strands of political ecology, where large acquisitions of land and displacement of local populations are justified and ‘framed’ as a necessity for sustainable development and environmental purposes (Fairhead et al., 2012).

3.2.3. Logics of Developmentalism

Lastly, logics of developmentalism refer to the way in which extractive industries have rearranged their discursive practices to 'good governance' and 'development partnerships' with both host countries and local populations (IRP 2020; Alstine and Barkemeyer 2014). In this vein, some have argued that in some countries (such as the DRC) the boundary between the public and the private in relation to responsibility and accountability has been blurred as MNC's have introduced practices which delivers social services to affected communities (ibid.; Campbell 2010; Barkemeyer 2009). Examples of such services are social investments, construction of villages and investment in schools, hospitals etc., for communities around extraction sites, infrastructural development and 'transformation’ projects for ASM communities (see Fairhead et al., 2012; Jansson 2011).
3.3. Studying The Extractive Industry in the DRC

Having thus considered both the more meta-theoretical issues of 'framing' as well as the different material-discursive practices of previous literature, some methodological considerations of previous literature on the DRC and its extractive industries should be made. A wide collection of literature has approached the controversial practices connected associated with extractive industries across the world, particularly what concerns CSR practices. With a preference of document analysis combined with critical considerations of discourses, scholars have both set out to address and locate the issue of transparency in the extractive sector (see: Fortmeyer 2018; Winanti & Hanif 2020; Hauffer 2010), map out different reporting practices (see: Sethi et al., 2016; Gilberthorpe & Banks 2012; Slack 2012) and account for the extensive field research in light of the recent transition-constituted cobalt-boom (see: Sovacool 2021, 2019; Sovacool et al., 2020; Amnesty International 2016a).

The issue of transparency has been approached in different ways. For example, Kolk & Lenfant (2010) has followed three steps to collect data from a non-transparent industry: (1) identify actors (openly) operating in the industry, (2) searched through websites of the identified actors establishing whether or not the companies are still actively operational in the industry (as well as where communication is closed or disclosed), and lastly (3) sampled communicative tools representative for reporting on operations and corporate culture (ibid.). Fortmeyer (2018) also utilise contracts as identification tools (as well as subject of analysis) of transparency indicators.

Furthermore, identification of themes across extractive industries (such as exemplified in 3.2.) has been of prominent interest and called for (Kolk & Lenfant 2010; Visser 2006). There is a general view, in this regard, that corporate narrative research ” [...] constitutes an important means of communicating with organisational audiences, including shareholders, stakeholders, and society at large”, establishing annual reports, CSR reports, websites, press-releases, e.g., as central for analysis of identifying themes (Merkl-Davies et al., 2012).

For some, however, the representation of the local populations has been of more prominent interest in order to establish more comprehensive account of the social realities of mining communities affected by the operations of MNC’s involved in cobalt extraction (Sovacool 2021, 2019; Sovacool et al., 2020; Amnesty International 2016a). This branch of research has highlighted the major challenges of displacement controversies, accidents and occupational hazards, environmental pollution and degraded community health, alienation, and violent conflict and death followed by the extractive industry of strategically important minerals (Sovacool 2019).
Chapter 4: Theoretical Framework

Thus far, the discussion in this thesis has centred on the issue of framing in international relations, the role of strategic minerals, and the discursive practices of the extractive sector as well as some approaches to analyse and identify themes in the extractive sector. This chapter will contribute to this discussion by presenting the theoretical framework employed for the analysis of this thesis. It will do so by presenting in greater detail the material-discursive framework conceptualised by Akong (2020) and how the research question can be understood and answered through this framework.

The way in which we can understand power in the international system today is beyond states and also concentrated to, and maintained by, powerful companies (Cartwright 2018; Strange 1989), in this case cobalt extracting MNC’s in the DRC. As demonstrated in the literature review, there are certain discursive practices that intra-act with material practices wherein companies position themselves with agency to maintain certain control through, again, material-discursive practices. The thesis, therefore, is adhering to the different logics of corporate narratives outlined in the literature review above, in which legitimacy is thought to be maintained through different, sometimes overlapping, material and discursive practices.

4.1. The Material-Discursive Framework

Departing from theories on agential realism, the material-discursive framework refers to the way in which we can understand, explain and analyse processes (and power) in and between nature and society. It assumes that discourses and material practices intra-act, which means that agency is not only "[...] entrenched and constructed by discourses and structures, but also by the specific materiality of minerals" (Akong 2020). In other words, the framework holds the discursive ‘framing’ of minerals, such as cobalt, to not be in isolation from the innate socio-material characteristics of the minerals. The way in which the extractive industry position itself, organise its operations, and the implications it has, is an agency constructed through human’s inscribed meaning to a mineral, i.e., the technologies it is used for, and the material meaning ‘inscribed by nature’, i.e. the innate features of minerals.

How we can understand the strategic framing of cobalt is by investigating into how the material-discursive practices of the extractive sector in the DRC is expressed. Cobalt, then, becomes a referent object for discursive practices, i.e., social constructions such as securitisation, environmentalism and developmentalism, and material practices, i.e., to acquire and own possessions, inhabit spaces with cobalt configurations, or to perform and reconfigure public, political, economic or other social contexts (Akong 2020; Filimowicz 2019). The framework assumes the materiality of specific minerals, such as
cobalt, to be inherently different from any other and thus must be treated as a specific entity as we analyse, frame, and seek to gain an understanding of how agency has been enacted around it.

As figure 2 below illustrates, the strategic framing/discursive practices is assumed to intra-act with the mineral in question, in this case cobalt, where agentic capacities are enacted under a specific political economic context, in this case the extractive industries in the DRC. The different logics of corporate narratives as identified in the literature review are invoked in order to guide the analysis of sample (see chapter 5). Considering that this thesis aims to comprehensively review how extractive industries in the DRC are organised in relation to the wider political economic context based on their strategic framing of cobalt, this theoretical framework will help to make such an account.

**Figure 2: The Material-Discursive Framework**

![Diagram showing the intersection of Cobalt, Intra-action (Agentic Capacities), and Strategic Framing/Discursive practices (Securitisation, environmentalism, developmentalism).]

*Adapted from Akong (2020). See original figure in Appendix I.*
Chapter 5: Research Design

Having thus established the theoretical framework of this thesis, this chapter will discuss three different aspects of the research design employed in this thesis: (1) meta-theoretical considerations, where the qualitative critical paradigm of corporate narrative research is discussed and privileged (2) sample and data selection, where the sample-set and limitations of the study is discussed, and (3) methodological considerations, where the method- and data analysis process will be substructured. By doing so, this research design is accounting for the basic ontological, epistemological and methodological assumptions upon which this thesis is founded, as well as to guide the thesis towards a rigorous analysis.

5.1. Meta-Theoretical Considerations

Following the lines of previous research and as stipulated by the theoretical framework, the thesis will adopt a qualitative research design upon which the material-discursive practices of extractive industries can be understood, analysed and described critically. As the thesis aim to address the framing of cobalt and the disclosed power relations therein, the basic tenets of critical discourse analysis (CDA) developed by Fairclough (2010) will be employed. Due to the methodological nature of a qualitative critical discourse design, this thesis does no seek to establish replicability or generalisability. Rather, CDA serves to gain holistic insights into how language is used to create social realities in a specific context. Thus, language is regarded as being dialectically interconnected with other elements of social life (ibid.; Merkl-Davies et al., 2012; Janks 1997).

Critical approaches assume organisational actors (such as MNC’s) to act in a symbolic manner and engage in sense-making and retrospective rationality (Merkl-Davies et al., 2012). To compare, positivist qualitative research designs would rather assume organisational actors to behave in rational, purposeful and goal-directed manner (ibid.). Critical approaches, on the other hand, seek to understand and describe organisational actor’s definitions of reality as well as how such definitions or discursive practices enact power (ibid.). Accordingly, the definition of discourse can be understood in how the discourse, realised in text, is not merely a tool to describe the MNC’s and the material practices they refer to, but actually constitute them in the first place (Akong 2020; Hardy 2001).

The purpose of this thesis is to expose latent (rather than surface) meaning in corporate narrative documents (see sample and data selection for reflections on dependability and confirmability) that is assumed to serve the interests of the socially, economically and politically powerful (Merkl-Davies et al., 2012; Fairclough 2010; Prasad and Mir 2002). A CDA approach, then, seeks to disclose interpretations and values of powerful actors that they systematically place above others ”[...] raising the question of who has the power to communicate their own ideology and how that power is achieved and maintained” (Merkl-Davies et al., 2012). Thus, the language and realities of people in less powerful
positions are manoeuvred. A qualitative CDA thus target the way in which extractive industries in the DRC construct a specific form of social reality through their language around cobalt, as language in itself reflect dominance and power.

5.2. Sample and Data Selection

After considering the qualitative methodological premise of the analysis, this section will introduce the method in terms of what material and data is of relevance to the research question of this thesis. There exist many methodological approaches to understand, describe and discuss corporate discursive practices, as the literature review has shown. The relevance of corporate narrative documents is, however, widely acclaimed by all methodological stands to provide an account of managerial actions and decisions, inform both shareholders and the public about strategy, establish organisational identity and reputation, and persuade the wider public of the legitimacy of the organisation (Merkl-Davies et al., 2012). Corporate narrative documents are a way for extractive industries to (re)frame and (re)present themselves as an actor of legitimacy and their material practices as equally legitimate.

Previous research of corporate narratives has varied across a wide spectrum of data, all of which deemed legitimate in profiling corporate discursive practices (ibid.). Examples of specific data are annual reports; operating and financial reviews; management discussion and analysis; profit forecasts; press releases; websites; and stand-alone social and environmental reports. The selection of data depends entirely on the research aim and question, as well as the accessibility of communications. Notable to mention, is that the absence of communications itself is deemed to say something about the practices of corporations (more on this in 5.2.1. below).

This section of the research design will discuss the choice of data relevant to the research question, outline a sample of texts upon which the analysis is founded, and establish the analytical tool for analysing the data. To adhere by the principles of reflexivity and trustworthiness, the section below will also discuss the main issues this facing this thesis concerning finding and analysing relevant material that will enable this thesis to answer the research question.

5.2.1. Sampling Process

As the research question ask how the strategic framing has been expressed in the material-discursive practices of extractive industries the sampling process has been purposive, meaning that the sample was informed by the specific aim of the thesis. However, apart from an inherent issue of concern to this thesis, the lack of transparency in the extractive sector of cobalt in the DRC is a wide and fundamentally problematic issue. Across the industry is a significant pattern of incomplete, unbalanced, or completely absence of corporate and government disclosure as well as mining data and statistics. Lack of disclosure allows conflicts and inequalities to fester, enabling powerful companies and governments to exploit both
natural resources, workers and local populations (Fortmeyer 2018). Speculations about foreign interests affecting the transparency in mining operations across the DRC raises fundamental ethical concerns for investors and consumers. In this sense, strategic interests take precedence, dictating the type and amount of data publicly available (ibid.).

There is no public or accessible list of all MNC’s operating in the cobalt industry in the DRC. The closest we can get is the platform for ‘resource contracts’ where (arguably) all contracts from 2001 to 2020 signed between mining MNC’s and the DRC state are published (see: https://www.resourcecontracts.org/countries/cd). The contracts by themselves do not enable an answer to the research question asked by this thesis, as the contracts are often many years old and does not contain any information about contemporary operations. However, while the contracts might not be a fruitful subject of analysis in themselves for the scope of this thesis, they have been useful in order to identify companies which extract cobalt in the DRC (see complete constellation of contracts in Appendix II). As mentioned in the literature review, to identify relevant data where transparency is a prevalent issue can be done through three steps (Kolk & Lenfant 2010). The sampling process of this thesis has been done in the same way.

Firstly, an identification of actors (openly) operating in the industry was done (see Appendix II). There are in total 88 contracts related to cobalt, signed as a joint venture between the DRC’s state-owned mining company La Générale des Carrières et des Mines (Gécamines) and the MNC’s bound to establish cobalt-sourcing operations in the country. Out of those 88 contracts, 45 are main contracts and 43 are supporting/annexed. The 45 main contracts found represent different clusters of companies (groups and subsidiaries), where 70 companies could be identified.

Secondly, whether or not the companies still are operational in the DRC’s cobalt industry was established as well as where communication is closed or disclosed. Initially, an open internet search was made to find out if the 70 companies have any form of official communications platform. To be certain, company profiles were double-checked on the Bloomberg List of Company Profiles (see: https://www.bloomberg.com/profile/company/3385986Z.US) where the ‘active’ (or ‘inactive’) status of the company operations are listed.

Out of the 70 companies in the resource contract list, 29 companies were identified to be (openly) operational in the DRC’s cobalt industry. These 29 companies are listed in table 1 below, represented as ‘contract clusters’ where the ‘main’ company or ‘group’ is listed first, followed by its subsidiaries operating in the industry (in brackets). As the table show, out of the 29 companies, 21 are subsidiaries. Only 12 companies have any form of communications platform. Out of those 12, 8 are cobalt-mining companies (the others, e.g., China Railway Resources Co., are construction companies).
Thirdly, communication tools representable for gaining an insight into company operations, culture and perceptions were identified. As made clear in Table 1, most subsidiaries do not communicate on their operations (see cluster of: Glencore; ERG; CNMC; and Umicore). In some cases, the subsidiaries are the only reporting entities (see Chemaf, as part of Shalina Resources; Zheijan Huayou Cobalt as part of China Railway Resources; and Metorex as part of the Jinchuan Group). Neither Groupe George Forrest or Malta Forrest Co. report on their cobalt-operations in the DRC and are thus excluded from the sample. The companies listed as ‘reporting entity’, and the ‘sample’ in Table 1 represents the final findings of data collected by the author.

Table 1: Contract Clusters & Sample of Analysis

<table>
<thead>
<tr>
<th>Contract Cluster</th>
<th>Company (subsidiaries)</th>
<th>Reporting entity</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Glencore</td>
<td>Glencore Inc. (Katanga Mining; MUMI; Kinross; Kamoto Mining)</td>
<td>Glencore Inc.</td>
<td>Annual Report 2020</td>
</tr>
<tr>
<td>2: China Railway Group</td>
<td>China Railway Group (Zheijan Huayou Cobalt (Dongfang Int.); China Railway Resources co.; Sinohyoro Corporation Ltd; Sinohyoro Harbour Co.; China Metallurgical Group Co.)</td>
<td>Zheijan Huayou Cobalt</td>
<td>CSR Report 2019</td>
</tr>
<tr>
<td>3: Eurasian Resource Group (ERG)</td>
<td>ERG (Boss Mining; Frontier Mining; Comide; Metálkol RTR)</td>
<td>ERG Africa Branch</td>
<td>2019 Sustainable Development Report</td>
</tr>
<tr>
<td>4: The Jinchuan Group</td>
<td>The Jinchuan Group (Metorex; Ruashi Mining)</td>
<td>Metorex</td>
<td>Metorex Corporate Brochure 2018</td>
</tr>
<tr>
<td>5: Groupe George Forrest</td>
<td>Groupe George Forrest (Malta Forrest)</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>6: China Non-Ferrous Metal Mining (CNMC)</td>
<td>CNMC (AFG Africa)</td>
<td>CNMC</td>
<td>2019 Sustainable Development Report</td>
</tr>
<tr>
<td>7: Shalina Resources</td>
<td>Shalina Resources (Chemaf)</td>
<td>Chemaf</td>
<td>Chemaf Corporate Brochure 2018</td>
</tr>
<tr>
<td>8: Umicore</td>
<td>Umicore</td>
<td>Umicore</td>
<td>Annual Report 2020</td>
</tr>
</tbody>
</table>

5.2.2. Delimitations

Whilst the process of identifying actors involved in the industry of cobalt in the DRC has been done carefully, it might still be subject to certain fallacies. It is, thus, important to mention that only because this thesis has not been able to find any communication platforms for certain companies, it does not mean that the companies not listed in Table 1 are not operational cobalt-mining companies in the DRC. It does, however mean that the companies that are listed in Table 1 control the public discourse over the operations and thus make case for interesting inquiry into how the discourse around cobalt is structured. Furthermore, the choice of sample as outlined in Table 1 relates to some other questions of
concern. The problem of transparency poses limited possibilities for this thesis to ask and answer certain research questions.

First of all, the different documents are not of uniform type. Rather, some companies communicate through CSR reports, some through Annual Reports and some through a 'corporate brochure'. No other communication exists for the companies in the sample, at least not publicly available on their websites. However, as the research question asks how the strategic framing of cobalt has been expressed in the material-discursive practices of the extractive industry, the type of communication do not pose a problem to this thesis, but rather is subject to analysis in itself. In other words, the way in which these companies communicate their operations also represents how they represent themselves as a certain kind of actor in relation to cobalt. This will be further elaborated upon in the analysis.

Second of all, based on the limited transparency in the industry there is no way for the thesis to properly understand how the industry is shaped and how well it reflects social reality in the DRC’s cobalt operations. This relates both to how material operations are actually conducted, as well how well the discourse reflects social reality. Therefore, the objective of the thesis and the research question is rather to gain an understanding into how we can understand the social reality as constituted by these companies. In other words, it is because of the transparency problem that we can gain an interesting understanding of how the public discourse, and the framed material practices thereof, is constructed by these companies.

Moreover, because there are no previous publications of most of these companies (or, sometimes, no 'updated' report), the thesis cannot 'measure' how the strategic framing of cobalt has been expressed in the material-discursive practices of the extractive industries over time. Thus, giving a comparative-historical account is not the main objective of inquiry, nor would it be feasible. Rather this thesis seeks an understanding of how the companies have chosen to position their discourse to the wider public based on the most updated data, as well as to gain unique insights into a specific field, such as stipulated by CDA.

5.3. Data Analysis
As is commonly used in CDA (and in previous literature), the analysis has focused on identifying themes in a deductive manner that illustrate the ways cobalt is strategically framed. Hence, this thesis has deployed thematic analysis. Having made use of the logics of securitisation, environmentalism and developmentalism, provided by previous literature (see chapter 3), the open coding process sought to gain an understanding in how well these discursive themes reflected the content and context around the word ‘cobalt’ in the documents under scrutiny.
After re-coding the documents, as well as running a word-frequency query through NVivo (see Appendix II), the thesis could establish larger patterns of themes capturing the material-discursive practices of the extractive industries in the DRC (see Appendix IV for coding scheme). This was primarily done by making sense of the prioritises made by the companies in what they report and prioritise in their material practices for cobalt (see 6.1). After the third round of coding, sub-themes emerged that further elaborates how the abovementioned logics are evident in the strategic framing of cobalt of the extractive industries in the DRC. These themes are summarised in table 2 below.

The framework of analysis and the analytical categories, then, has emerged during an iterative process of moving back and forth between data and theory. As exemplified by Merkl-Davies et al., (2012), reliability is replaced by 'reproducibility’. Validity, furthermore, is not understood in terms of how well the results and the analytical process reflect reality, but in terms of ‘performativity’ which entails demonstrating a plausible case of patterns in the meaning of texts are constitutive of reality in some way (ibid.) Those patterns are presented in the analysis.

<table>
<thead>
<tr>
<th>Table 2: Identified Themes (Summarised)</th>
<th>Identified Sub-themes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Deductively Invoked themes</strong></td>
<td>(1) Economic Security; (2) Social Licence to Operate.</td>
</tr>
<tr>
<td>Securitisation</td>
<td></td>
</tr>
<tr>
<td>Environmentalism</td>
<td>(1) The Sustainability Transition; (2) Responsibility.</td>
</tr>
<tr>
<td>Developmentalism</td>
<td>(1) Artisanal and Small-Scale Mining; (2) Social Investments.</td>
</tr>
<tr>
<td>Developmentalism</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 6: Examination of the Strategic Framing of Cobalt in the Material-Discursive Practices of the Extractive Industries in the DRC

The purpose of this chapter is two-folded. First, it highlights the material-discursive practices of the extractive industries exploiting cobalt in the DRC. Second, it reveals and discusses themes across the extractive industry in how the strategic framing of cobalt has been expressed in the material-discursive practices in the DRC. Thus, it is important to recall the guiding research question of this thesis, which asks: how is the strategic framing of cobalt expressed in the material-discursive practices of the extractive industries in the Democratic Republic of the Congo?

As previously mentioned, CDA has been employed to unpack the strategic framing and corporate narratives of cobalt from the varying material-discursive practices of the extractive industries listed in table 1 in order to operationalise this research question. The analysis is structured around the following deductively invoked themes: securitisation, environmentalism and developmentalism. For each category considered, discursive and material practices have been identified in the form of sub-themes to highlight the ways in which companies position themselves strategically in the industry of cobalt extraction.

6.1. Setting the Scene

Across the analysed data, corporate 'strategic priorities' are commonly identified through a 'materiality' analysis conducted by the companies. By 'understanding what matters', materiality analyses aim to inform reporting and management approaches of the companies. This is a way for the companies to include (and exclude) what is important to report and by extension their operations. Common across the data are identified 'material issues' that relate to (1) portfolio development, financial resilience and operational efficiency; (2) health and safety, and labour relations; (3) community impacts and development; (4) environmental stewardship; and (5) responsible sourcing.

The structure of these reports is, furthermore, based on the conducted materiality analysis and the identified material issues thereof, wherein discursive practices and text are organised accordingly. Suitably, the identified material issues as common across the data relates to the thematic categorisations invoked from previous literature and will be discussed accordingly (see Appendix IV for coding scheme). The sub-categorisations made below are, furthermore, a product of an extensive review of these strategic reports, wherein cobalt and the material-discursive practices around it have been strategically framed in different contexts that have been (re)produced in the texts.
6.2. Logics of Securitisation

While logics of securitisation are dominantly prevalent across states for national and economic security (Ogunbadejo 2016), the data investigated for this thesis rather enwraps securing assets for the sake of profit. Therefore, different risks and factors that might be a 'threat' to production and securing those assets is usually fundamental for the material issues identified by the companies. As such, the sub-themes identified are (1) economic security, referring to the way in which cobalt is strategic to corporate economic security, (2) the social licence to operate, referring to the way in which framing assets as strategic for economic security is safeguarded through different practices that uphold a 'legitimacy' for the companies operating in a contested practice.

6.2.1. Economic Security

It is a given finding that the material issues prioritised in this context, and the discursive practices organised thereof, enwraps issues of harnessing economic opportunities related to cobalt. The strategic framing of cobalt is, thus, widely expressed as sustaining and maintaining profits and economic survival of the companies under scrutiny. Recurrently, the forewords of the documents, usually containing an introductory message from the CEO or Chairman of the company, is marked with reassurances made about the safeguarded profitable sources of minerals crucial to the transition. Economically, they are 'perfectly positioned' to 'benefit' from cobalt and the transition.

Given the volatile and fragile nature of sourcing mineral assets, demand represents the most wide-ranged challenge, or opportunity, to the continued generation of value for the companies. To the extent that cobalt is now (or will be) in primacy demand, expected increased production is imminent as evident in how cobalt is contextualised throughout the data. Careful consideration is, thus, made by the companies to the changing geostrategic importance of natural resources, where practices are rearranged to sustain the economic benefit of changing macro-economic trends (see all documents).

As continuously emphasised throughout this thesis, the move-away from petroleum towards mineral and base metal depositions, remains a threat to traditional petro-economic beneficial derivatives and a sustained value-generating opportunity for new extractives (Vakulchuck et al., 2020; Curtin et al., 2019). Whilst most of the companies under scrutiny in this thesis are almost exclusive cobalt and copper-extractors, the larger companies such as Glencore are also major coal and petroleum producers in other parts of the world (Glencore 2020). As the most vivid example, thus, is Glencore’s rearrangement of its practices, expressed in the introductory chapter of their 'strategic report' as:

"[t]he majority of our earnings comes from the metals and minerals that enable the transition to a low-carbon economy. We are one of the largest global producers of copper, nickel, zinc,
vanadium and cobalt and will continue to prioritise investment into these commodities" followed by "[...] a commitment to a managed decline of our coal portfolio [...]" (Glencore 2020:2).

For companies such as Metorex, CNMC, and ERG, which are either new in the cobalt-sector or in a transitional period between operational mines, the strategic importance of cobalt is lucidly expressed both in terms of successful and dependable growth trajectories and new material production sites set up across the cobalt-copper belt in southern DRC. To exemplify, Metorex, in the context of stressing the 'critical juncture' in their economic growth after a long period of operational instability, state that "Metorex’s focus on copper and cobalt in the last decade has been, without a doubt, the reason for our continued growth trajectory" (Metorex 2018:2). Furthermore, as a signum of reprioritised material production, ERG has opened up a new and massive mine near Kolwezi, southern DRC, where they assert that "[...] this strategically important operation will make us a major player in the global cobalt market” (ERG 2019:24).

Having thus considered some of the basic tenets of the strategic framing of cobalt as key to economic security and profitability for the companies, the sub-theme below considers another aspect of prioritised material issue of the companies: social security. Social security is expressed as maintaining and sustaining a 'social licence to operate'. As discussed in the literature review, extractive industries’ discursive practices often raise the concern over access to supply and the limited 'formal licence to operate’, relating to a satisfactory 'liberalised' mining sector. The discourse across the collected data, however, focus on potential risks and threats against the companies (informal) legitimacy as a large-scale extractor in the wider society. This will be further elaborated below.

6.2.2. The Social Licence to Operate

Common across the data is a priority given to 'managing impacts' of the mining operations where the companies operate. In other words, the way in which cobalt has been strategically framed as economically imperative, the ramp-up of production entail accompanying social and environmental implications on surrounding areas of operations. Thus, the strategic framing of cobalt as expressed in 'capital accumulative potential' for the companies, is also expressed widely across the companies in the sample to be directly associated with 'managing social and environmental impacts' of their operations.

In this context, cobalt is framed in the sense that it will affect, not be 'beneficial' (or strategic), to the local communities around the company mines. In other words, cobalt is not framed in any of the corporative narratives as strategic for the benefit of either local communities or the DRC state.
recurrent emphasis is instead made on 'social risks', highlighting 'the negative impact of operations' (see all documents).

An example of this is the prioritised material issue of 'social investments' by the ERG, where they rationalise the issue as follows: "[o]ur business activities may negatively affect nearby communities. Therefore, there is a risk that this could affect our social licence to operate" (ERG 2019:17, emphasis added). Notable in this quote, is that the risks associated with the mining operations in the region are not deemed a threat because it will negatively influence on the local community, but rather a threat to the company’s social license to operate. Following on these lines, Chemaf frames the issue as "[o]ur commitment to safeguarding our employees, contractors and those impacted by our operations is critical to maintaining our licence to operate and ensuring that our business can continue to thrive" (Chemaf 2018:7).

Interestingly, the way in which these companies recurrently 'admit' to having negative impacts on communities are often vaguely expressed and combined with 'commitments' to 'responsible mining practices'. Where reference is made to negative social risks, the formulations are also often combined with 'economic benefit' or self-interested logic to 'protect' operations. While corporate attitudes towards CSR might be expected to largely depend on the prospects of making a profit of it (Wang 2014), it is also a way for companies to uphold a certain legitimacy in a contested practice (Parsons et al., 2014; Owen and Kemp 2013).

Such discourses are not only expressed in the sense that the issue is 'framed' in a certain way as exemplified above, but also through companies' communicative tools that they use to justify operations. Out of the data collected (see table 1), all companies communicate their operations through either Integrated Annual Reports, meaning a combination between financial reviews and sustainability approaches (Glencore, Umicore); stand-alone Sustainability Reports/Sustainable Development Reports (see ERG and CNMC); CSR reports (see Huayou); or generally prioritise 'responsibility' as the prevailing approach to operations (Metorex, Chemaf). This way of communicating, Parsons et al., (2014) show is an increasingly common practice across the extractive sector in general. It represents, in short, a way for companies to respond to increasing pressure to legitimise mining operations, marginalise dissent and manage reputation (ibid.).

The concern over the social licence to operate, or at least discursively emphasising it and materially prioritise the issue, might very well be a central explanation for companies' priority to integrate 'sustainability' and 'responsibility' approaches to cobalt and its agency (see 6.3.2. below). At least, this form of discourse stretches way beyond social security for local communities and continue to highlight environmental impacts of operations, which brings us to the next logic of corporate narrative: environmentalism.
6.3. Logics of Environmentalism

Logics of environmentalism, as it refers to both the previous literature in this field and to the data gathered in this thesis, represent the most broadly based discourse and material issue prioritised across the sample. As already mentioned, the discursive landscape of 'responsible mining' represents a new norm in governing the pathways for transitional minerals and is representative in how each preface of the data collected is organised. To exemplify, the companies make the following 'slogans': "'uncasing the potential of the copper-cobalt'' (Meteorex 2019:3), "'[r]esponsibly unlocking the potential of the Earth and its people, ensuring the prosperity of those who rely on us'' (ERG 2019:5), "[m]aterials for a better life'' (Umicore 2020:3), and ''responsibly sourcing material that advances everyday life'' (Glencore 2020:1). Across the data gathered, the word 'responsibility' ('responsibly', 'responsible' etc.) is used over 677 times across all documents.

Logics of environmentalism, in this vein, can be described to redirect focus away from the facts that exploitation of minerals can be hazardous for employees, that extractive spaces degrade local environments, and that resources are finite and non-renewable to conceal such risks with different discourses of 'responsible sourcing'. As such, the sub-themes identified includes (1) the sustainability transition, referring to the way in which cobalt is deemed strategic to sustaining the transition, and (2) responsibility, referring to the wide-ranged discourse and material issues of how 'responsibility' is defined and framed in relation to sustainable development.

6.3.1. The Sustainability Transition

Notably, the companies in this sample which extract such as cobalt as a 'transition mineral' emphasise the importance of their business and operations in relation to the sustainability transition. In this context, the companies position themselves in certain ways in the global fight against climate change. The strategic framing of cobalt is most prominently expressed in this contextual theme, where cobalt is framed as imperative for the continuum of the transition, and as beneficial for all (but most beneficial for the companies).

Examples are (1) Umicore: "Umicore is uniquely positioned in all aspects of clean mobility materials" (Umicore 2020:3), (2) the ERG: "'[o]ur integrated mining, metals, energy and transport business creates products that support the manufacturing, construction, infrastructure and logistics sectors - and that will help ensure that we support, and benefit from, the transition towards a green economy'' (ERG 2019:7), (3) Chemaf: "'[t]he worldwide battery revolution is being fuelled by cobalt. What once was a little known mineral is now in greater demand than ever. Chemaf is perfectly positioned to meet that demand - safely and responsibly" (Chemaf 2018:3), "'[a]ll energy demand decarbonisation pathways require our metals enabling commodities'' (Glencore 2020:7).
With a reference to the commodification of cobalt, the companies position themselves as central actors in the sustainability transition because of their material specialisation. Interestingly, as evident in these quotes are the framing of cobalt as strategic for the companies’ economic interests in regard to 'profitability' and 'benefit'. Particularly, the companies rearrange their material practices to conform to the changing geopolitical landscape as well as new trends in the international trade of energy materials, given the economic potential of cobalt.

Furthermore, multiple contextual factors are important to consider in this regard. As part of 'managing impacts' the companies frame ‘environmental security’ as being central in assuring continued business. Most peculiar is the way in which focus is redirected from scarcity and environmental risks to continuous emphasis on 'responsibility' as well as 'cruciality for sustainable development'. Notably, it is evident that cobalt production in the DRC has a negative impact on local environments, due to large accessions of land, deforestation, high energy consumption and large levels of emitted pollution (Farjana et al., 2019). As a response, many have advocated for the establishment of 'green mines’ and environmentally responsible mining through various environmental assessment tools (Goodland 2012).

The corporative narratives of the data emphasise the noteworthy negative impacts that the operations might have on the local environment, especially in prioritised material issues for the direction of the companies. A paradox of sourcing cobalt to mitigate climate change seem to emerge as cobalt is inherently non-renewable and finite with severe impacts on local environments. This is perhaps best captured by Umicore’s framed and identified environmental challenges:

"Developing technologies, such as increasingly powerful rechargeable batteries to reduce the environmental impacts of society, increases the demand for specialty and precious metals. Mining metals from primary sources has significant environmental impacts, including a high carbon footprint. Easy-to-mine deposits are increasingly scarce and ore bodies poorer” (Umicore 2020:8).

With the exception of Umicore, no other company give much concern to the finite nature of cobalt. While Umicore’s response to the stated challenge above is increased priority of ‘recycling’ materials, the other companies mainly emphasise the, again, principle of ‘responsible mining’ without substantiated strategies for environmental protection. Interestingly, ‘while resources are finite and sourced in ways that might harm the environment’, it is still framed as a 'necessity' for sustainable development and in mitigating climate change. This brings us to the second part of the strategic framing of cobalt, as it is expressed in relation to ‘responsibility’.
6.3.2. Responsibility

As evident in the context of the sustainability transition above, the strategic rearrangement of practices related to the cobalt industry is often associated with words such as 'responsibility' (or 'responsible', 'responsibilities', responsibly'). As repeatedly mentioned, the discursive landscape of 'responsible mining', is the overarchingly dominant discourse pertaining the sample scrutinised.

One noticeable branch of discourse under this theme, is combining 'responsibility' (or alike) with wordings such as 'adding value' or 'benefit' (or alike) in regard to economic terms. This can be exemplified as: "[f]or ERG, Sustainable Development is about more than the responsible management of our environmental, social and governance impacts; it is also about: [c]onvincing our business is resilient, fit for the future and can generate long-term value (2019:8). Whilst the discourse is prevalent and integrated throughout the data, it appears most clearly in 'portfolio development' chapters. These 'strategic' chapters represent both strategic directives for the future of the business as well as the fundamental priorities made by the companies to attract investments and by extension showcase competitiveness. An example of this is as follows:

"We believe our success is linked to how we balance the economic, environmental and social impact of our operations. Our integrated approach to sustainability is not just about minimizing the impact of our industrial operations: our commitment to ethical and responsible sourcing distinguish us from our competitors while delivering value for all" (Umicore 2020:3).

By 'distinguishing' themselves from competitors (which, ironically, the rest of the companies mention too) as evident in the quote above as well as framing the issue as 'going beyond' what is necessary, the 'positive duty' expressed in the discourse highlight environmental discourse of good governance. Rationalising sustainable development as part of corporate strategy for cobalt, however, mostly refers to responding to increasing pressures from the international community (Huayou, Chemaf, CNMC) and/or increasing demand (ERG, Glencore). Demands from the international society to 'source cobalt responsibly' is, in turn, a response to the inherent inequities associated with the industry. It seems that the companies, then, make use of the word, frame cobalt, and position themselves accordingly as 'responsible' actors that 'want' to do good by the industry. Another representative example of this is:

"[W]e want to deliver assurance to our own customers (and their own value chain partners) that the products we sell have been responsibly mined and processed, and are not associated with negative environmental, social or governance impacts. This is particularly the case with respect
to the cobalt we produce in the DRC, given growing stakeholder demand for transparency and responsible performance around battery supply chains” (ERG 2019:82, emphasis added).

The way in which ‘responsibility’ is emphasised, furthermore, relates comprehensively to one large branch of practices, namely ‘developmentalism’. With reference to previous sections in the analysis that stresses the principle of social licence to operate and the advancement of ‘responsible practices’ as a forefront priority, developmentalism is the logic that can supposedly address discursive and material practices of the data to the largest extent. Most importantly, however, is the way which the companies utilise logics of developmentalism represents for whom cobalt is not framed as strategic. It shows how developmentalism is more of a mitigation measure for the companies to ensure continuous extraction of cobalt that does not pose a threat to their economic security and social licence to operate.

6.4. Logics of Developmentalism
Logics of developmentalism include positioning of the companies as central ‘development actors’. Not only does this entail ‘transformative potential ’of economic growth following the endless profits ensured by extracting cobalt but also in terms of social change and sustainable development. As such, two themes have been identified to capture developmental approaches of the companies: (1) Artisanal and Small-Scale Mining (ASM) and (2) Social investments.

6.4.1. Artisanal and Small-Scale Mining (ASM)
Perhaps the most wide-stretched problem of the extractive sector operations (not limited to the DRC) is the issue of land contestation and property rights over mineral assets between local populations and MNCs. Land contestations involve particularly a ‘clash’ between multinational mining companies and local populations (which is categorised when involved in mining as ‘artificial miners’) through dispossession, relocation of communities, environmental pollution of local environments, degradation of community resources, loss of livelihoods and human rights abuses (Geenen & Hönke 2014; Ballard & Banks 2003; Hilson 2002).

In the case of cobalt and the DRC, the issue of child labour in artisanal mines (and reportedly Large-Scale Mining (LSM) operations as well) across the country has been reported (Amnesty International 2016a). Apart from all large-scale mines across the DRC are the ASM operations, which account for approximately 20-30 percent of the entire production of cobalt in the DRC (ibid.). The analysis of the corporate narratives revealed that the most prevalent discourse is for the companies to disclaim liability from any association with ASM operations and child labour. In other words, the ASM mining is roughly framed as ‘outside’ or as ‘them’ in contrast to the ‘we’. This has been done in multiple different ways,
though a common phrase evident in all corporate narratives is ’we do not source or purchase cobalt from artisanal miners’ and ’we do not employ child labourers today’.

Two of the companies under scrutiny have included specific chapters on how they work in relation to ASM (Glencore, ERG), whilst the rest mention ASM as related to their sustainability approach, though however scarce in substance (Umicore, Huayou, CNMC, Chemaf, Metorex). Interestingly, Huayou, the only company with rights to source cobalt from artisanal mines (see contract list in appendix II) solely disclaim liability of being associated with child labour without any further substantiated indication of their approach and relation to ASM.

Moreover, perhaps the most lucid example of a conflict between local artisanal miners and the MNCs is found in the ERG report. As discussed above, the ERG has ramped up production at a new mine (Metalkol RTR) in the DRC as a strategic measure to enlarge cobalt-operations to meet the demands of the sustainability transition. With reference to an incident that occurred during the initial development stage of the mine, the ERG reports an ”illegal invasion of artisanal miners’ (2019:24, emphasis added). In the ERG’s ’approach to artisanal mining’ as part of the ’community development and well-being’ section, these artisanal miners are deemed as ’illegal’, and ’occupants’ (2019:53-55). This discourse raises certain concerning questions.

Control over the discourse around cobalt mining operations in the DRC is very evident to be limited to these companies. The local populations of the regions around the cobalt-copperbelt have very little chance of dismantling or challenging the narrative constructed by these companies, particularly where the companies refer to 'clashes' over land such as at Metalkol RTR. Endemic poverty is deeply rooted in this region, and ASM activities are attempts by people from local communities to integrate their land resources into value-chains and create sustaining income-based cooperatives.

In line with DRC law, the ’invading’ artisanal miners did illegally ‘occupy’ the mining site. The Metalkol RTR production site is land officially owned by the ERG and the DRC government for the purpose of large-scale mining of cobalt. Yet, this represents a wider problematic issue of landownership and socio-economic relationships between MNC’s and ASM as the process behind acquiring land for large-scale business activities has been reported in many other cases to entail land-grabbing. Landgrabbing in the name of sustainable development (or, more frequently referred to as ’green-grabbing’), is a scenario in which natural resources are viewed as a commodity rather than a right (Fairhead et al., 2012). As cobalt is deemed strategic for the companies and for the sustainability transition (see 6.3.), the expansion of mining concessions is legitimised, and the rights of local populations and ASM by extension minimised. Describing this act by local opposing communities as illegal stipulates their social. Reality of what should be considered a right or not by ‘legal’ definition.
As a response to the "illegal occupation" of the Metalkol mine, the ERG assert that "[i]n line with our Clean Cobalt Framework [...], we support a range of initiatives to help improve the lives of local communities near Metalkol RTR" (ERG 2019:84). "Improving the lives" of local communities is perhaps the most emphasised issue related to ASM and cobalt. Glencore, being the biggest producer of cobalt in the DRC, asserts that (also in line with new 'clean cobalt frameworks') the company is "transforming artisanal mining in the DRC" (Glencore 2020:14). To exemplify further:

"High unemployment and subsistence living can push miners into taking great risks resulting in child labour and illegal intrusions onto active industrial sites - including our own - continuing to present risks to both our people and communities. As a responsible miner, we do not tolerate any form of child or forced labour. Also we do not tolerate illegal intrusions onto mining concessions." (Glencore 2020:15).

Framing the issue in this way indicate how the companies seek to help local communities engaged in ASM, in order to help themselves. When the companies prioritise to create social change for local communities, they frame it in a way that manoeuvres any threat to their own production and economic security through the promise of 'development'. The quote above further illustrate the second pillar of developmentalism, which relates to 'combatting' fundamental causes of poverty in the DRC as well as mitigating negative impacts of the companies’ operations: social investments. Social investments, discursively, are almost exclusively tied to retrospective and 'repairing' considerations of potential operational hazards. This will be discussed below.

6.4.2. Social Investments
Across the sample, there is an evident positioning of these companies to maintain a role as an essential agent in the communities they operate. As cobalt is deemed as strategic in multidimensional ways, many companies indicate a rearrangement of their material practices (as repeatedly mentioned). This, in essence, means an increase of the production of the mineral, which in turn entails increased attention to social implications of surrounding communities. The interaction between MNC’s and local communities are, as already stated, often very controversial. It is, thus, not surprising that the companies situate themselves in relating to the local in positive ways. The basic principle of social investments, such as evident across the analysed data, can be exemplified through Chemaf’s outline of future strategic objectives:
"We have structured our approach to ensure that the value that we derive from mining and processing is ploughed back into the local economy. We are offering opportunities to some of the DRC’s brightest minds, and we are also giving back through a considerable philanthropic programme - to schools, hospitals and infrastructure projects.” (Chemaf 2018:7).

The basic tenet of this form of discourse and the material practice thereof captures a wider problematic issue across the industry. By 'taking from nature' and then 'generating wealth' from the mining operations that later 'trickles down' to local communities can be explained as a way of 'managing impacts of operations'. This is especially problematic because the operations, in the companies’ own words, have negative impacts on surrounding communities. To highlight another example, the above-mentioned expanded cobalt production in the Metalkol RTR mine owned by ERG resulted in multiple displacement controversies. As part of the company’s strategy for 'managing impacts' of the ramped-up production was to finance infrastructure of a new village "[...] which offers a better standard of accommodation than the families previously enjoyed" (ERG 2019:47). This way of framing their own operations as serving the interest of local communities can be seen as a way of maintaining control over production and manoeuvre contestation rather than actually assessing and meeting the needs of the local communities (Geenen & Hönke 2014).

The way in which the strategic framing of cobalt is expressed in the material-discursive practices in this regard is widely problematic in how it might legitimise increased, continuous, and new large-scale production of cobalt in the DRC. This is especially the case when the companies refrain from the problems associated with the industry by referring to unsubstantiated approaches of 'sustainable' and 'responsible' mining in relation to the sustainability transition.

6.5. Making Silence Matter

Having thus examined how the strategic framing of cobalt has been expressed in the material-discursive practices of seven MNC’s operating in the DRC, this part will conclude by making some final considerations of the research question. As noted by Rappert (2010), qualitative research is often faced with issues of secrecy and absence of information, posing questions of if researchers can gain an adequate appreciation of the field under study. Arguably, by highlighting absences and secrets we can do proper justice to our understanding of the situation. There are two aspects to consider here.

First, the material issues as defined by the companies highlights, furthermore, what is not included or defined as a priority for operations. With low levels of accountability in the sector, there is no way for us, or me as a researcher, to know what is not prioritised as a ‘material issue’ and important when properly understanding the strategic framing of cobalt and the material-discursive practices therein. The
arguably most influential accountability mechanism internationally, where it relates to combatting secrecy around the mining industry in the DRC (as well as world-wide), is the EITI. It is, thus, widely problematic that the DRC has not been extended for further validation due to the delayed reporting practices related to the extractive sector (see EITI 2019). This issue further highlights the ‘power of discourse’ maintained by the companies analysed above.

Second, as previously noted there are 41 companies identified in the sampling process where no communication platform exists. There is almost never any record of how these companies are, or have been, operating in the cobalt industry and where there exist, the companies’ operations have been suspended due to breach of contract. Publishing contracts for public use, then, amounts to little when trying to inform and enable public debate. While most of these companies can be determined to be non-operational, there are still some companies which are existent and undoubtedly related to the cobalt industry in the DRC.

While the analysis above has highlighted how the strategic framing of cobalt can be understood in the visible material-discursive practices of the extractive industry, the rest of the companies not included in the analysis might instead highlight how it is not expressed. The strategic importance of cobalt might very well be the reason to withhold public disclosure of operations. The scale of the secrecy and non-transparency in the DRC’s cobalt sector (or mining sector overall), will be equally important to understand when analysing the premise upon which the cobalt foundation for batteries to power sustainable development by 2030 will be based.
Chapter 7: Conclusion

Having thus examined the findings of the data analysis, this chapter will briefly reiterate the research problem, theoretical premise, and methodology in relation to the findings and discussion. It then concludes by critically considering future research paths.

7.1. Research Question Revisited

This thesis sought out to make a comprehensive account of how cobalt is strategically framed by extractive industries as well as to make case for new ways in which we can understand the parameters for sustainability transition. The premise has been that when new geopolitical arrangements occur, such as the sustainability transition, it is critical to analyse minerals due to their specificity in order to understand the implications global events and change might have in local conditions. Where the extractive sector is dominated by powerful MNC’s, such as in the DRC, the discourses and positioning of certain actors and the material-discursive practices therein, indicate how the wider industry organise itself in relation to our socially constructed demands, and the intra-enactment of agency constituted from specific characteristics of minerals. Herein lies the contribution of this thesis, and the concluding remarks made around the data analysis.

Appropriately, let us return to the research question of this thesis, which asked: how is the strategic framing of cobalt expressed in the material-discursive practices of the extractive industries in the DRC?

As demonstrated in the analysis, the way in which the strategic framing of cobalt has been expressed in the material-discursive practices of the extractive industry in the DRC has been multidimensional. A summarising and basic tenet of practices found in the data is that cobalt should be sourced extendedly, and in a responsible, sustainable and ethical way while ensuring profit and long-term value.

Interestingly, the companies under scrutiny have followed similar logics of narrative, where the prevailing practices enwraps the discursive landscape of 'responsible mining' reflecting the 'new norm' of global mining discourse (see IEA 2020; IRENA 2019; WEF 2019). Reading these documents without critical consideration, one would understand operations of these companies to be extensively socially and economically sustainable and necessary (or even crucial) for the continuum of every-day life around the world. The strategic framing of cobalt, thus, relates to all three invoked logics in how securing continuation of production by mitigating threats (securitisation), ensuring the success of the sustainability transition and increasing 'responsible' practices (environmentalism), and promising social benefits to local communities negatively affected by extended operations (developmentalism) all serve the economic interest of the MNC’s.
For whom it is not framed as strategic for, however, relates to local communities as their economic benefits and social welfare are considerably lower than the companies profiting from cobalt. Rather, the companies widely position themselves as the 'helpers' of local communities, retrospectively 'mitigating' the negative impacts of mining operations on local livelihoods. It is, therefore, a given general finding that all the companies build both material and discursive practices upon neoliberal principles of commodifying nature. The strategic framing of cobalt is expressed in a way that is strategically crucial for economic growth, as well as for the advancement of every-day consumerism. Not only is this expressed in economic terms but also in the way in which commodifying cobalt has been, is, and will be, strategic for environmental and sustainable development. This also departs from the idea that these benefits will 'trickle-down' to local communities as 'taking from nature', 'sustaining economic growth of the company', and 'giving back to people' are basic tenets of practice. The implications of how the strategic framing is expressed invite further discussion.

7.2. Considerations for Future Research

The critical approach taken to analyse the framing and material-discursive practices have been done on a justifiable premise. The iterative process of moving back and forth between data and theory as stipulated by the critical discourse approach enabled the analysis to make comprehensive case for how the contemporary practices of the extractive industry in the DRC is positioned in relation to previously identified discursive themes. Particularly, by employing a new and relevant framework, the thesis has made case for future research both where it relates to extractive industries and society and in international relations where it concerns more in-depth analysis of nature-society relations. This is especially true now where the sustainability transition is set to change the international relations in its entirety. Moreover, the sample represented a controlling discourse around the operations related to sourcing cobalt in the DRC in how the companies construct an image of partnership with local communities and how they position themselves as central responsible actors in the sustainability transition. Moreover, by making a comprehensive account of companies openly operational in the DRC’s cobalt industry, the thesis can contribute to future development of the field of study.

As with any (particularly qualitative) research project, however, unintentional biases particularly perhaps in terms of selectivity, factors in. Whilst the selection of companies for the sample was made carefully and prominently illustrates the issue of transparency in the sector, there are multiple ways in which further and perhaps more in-depth accounts can be made in relation to the research question. In particular, the representation of ASM operations (as highlighted in the analysis) must be adequately accounted for in relation to the cobalt extraction in the DRC. Thus, more field studies are recommended in ways that could seek and understand how the strategic framing of cobalt has been expressed in the material-discursive practices of the ASM industry in the DRC.
Furthermore, whilst the issue of transparency remains a challenge, this thesis calls for more in-depth scrutiny of how the companies listed in this thesis position their material-discursive practices. Whilst it has been out of the scope of the thesis to make any form of account of the social reality of the cobalt industry in the DRC, a recommendation is made to demand access to information from these companies and analyse the sampling process carefully. Additionally, observatory (or even participatory) research on the different mining sites operated by these companies in the DRC would be of further relevance.

Lastly, the thesis highlights the importance of seeking an understanding of the strategic framing of specific minerals. Thus, the material-discursive framework as it is developed throughout this thesis would be interesting to apply to other, specific, minerals crucial to the transition (such as, e.g., lithium). This would also enable dialogue on how (and potentially why) the strategic framing has been expressed differently in the material-discursive practices of the extractive industries in different countries and across mining sectors.

7.3. Concluding Remarks

So, why does matter matter? Why should this be of central concern for both the field of IR as well as the wider public? The supposed critical role of cobalt for the sustainability transition is far from clean, responsibly managed, and transparent. Yet, as this thesis has shown, the companies under scrutiny imply nothing but positive positioning environmentally and socially. There is a serious cause for the field of IR to be gravely concerned with the implications this transition will have on countries that are now subject to increased production and potentially reproduced inequities. A 'green' capitalist international system will risk being built upon an industry which is inherently secret, problematically positioned and inadequately sourced.

The 3 million buyers of electric vehicles in 2020 would presumably assume they do a good act by reprioritising their consumption of energy from fossil fuel to renewable energy. Consumers expect that companies to which they acclaim good acts and climate-friendly solutions to be knowledgeable of where the components driving the vehicle comes from and that it is ethically sourced. Yet very few consumer brands are (or even can be) aware, and if they do know there is no public data available to prove it. Pioneering companies that drive sustainable development through technological innovation should be held equally accountable for any mismanagement of the cobalt supply chain and so should countries of origin which support these companies.

The 2019 lawsuit against multiple MNC’s involved in the cobalt supply chain is perhaps a perfect example of this issue. It is the single and first case of this type, where Apple, Google, Dell, Microsoft and Tesla are accused of aiding and abetting the mining companies, i.e., Umicore, Glencore (and
Kamoto Copper) and Huayou (and Dongfang International) that profited from the labour of children who were forced to work in dangerous conditions leading to 14 deaths as mentioned in the lawsuit (Kerry 2019; International Rights Advocates 2019). While the case is still open, the accused are not expected to be held accountable for the deaths of these children or any inequitable aspect of their sourcing due to the inherent difficulty to prove their involvement. While the lawsuit is based on extensive field research, all of the companies (including those under scrutiny in this thesis) disclaim liability for being related to child labour.

However, one thing is for sure. Cobalt is in dire need of increased attention. The sustainability transition must not continue to excavate the inequality divide between North and South as it currently does. As the world calls for increased transparency and accountability in the cobalt supply chain, the future of the sustainability transition remains to be determined as either the greatest paradox of our time or the fulfilment of true sustainability. Before that, however, more research is needed in relation to the changing institutional logics of extractive industries if then only to be able to finally conclude that these minerals will truly be “materials for a better life”.
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Appendices

Appendix I: The Material-Discursive Framework

Source: (Akong 2020)

Appendix II: List of all Contracts

Note: the list of contracts can be found in the attached link.

List of all contracts:
https://drive.google.com/file/d/1Uxm0QDJGfwuq58iL21mcBla6A9ktOE3/view?usp=sharing
Appendix III: Word Frequency

Note: The Word Frequency has been run through NVivo.

Appendix IV: Coding Scheme

<table>
<thead>
<tr>
<th>Target Unit</th>
<th>Invoked themes</th>
<th>Identified Sub-themes</th>
<th>Codes (identified material issues, ex.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cobalt</td>
<td>Securitisation</td>
<td>(1) Economic Security</td>
<td>Financial resilience, portfolio development, operational efficiency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2) Social Licence to Operate</td>
<td>Health and safety, labour relations, community impacts, responsibility</td>
</tr>
<tr>
<td></td>
<td>Environmentalism</td>
<td>(1) The Sustainability Transition</td>
<td>Environmental stewardship, the transition</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2) Responsibility</td>
<td>Responsible (sourcing/mining)</td>
</tr>
<tr>
<td></td>
<td>Developmentalism</td>
<td>(1) Artisanal and Small-Scale Mining</td>
<td>Community impacts, development, ASM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2) Social Investments</td>
<td>Community impacts, development, social investments</td>
</tr>
</tbody>
</table>

Note: Simplified coding scheme (without quotes examples). Derived from NVivo.