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Which security is it anyway? An analysis of the security culture(s) underlying the EU's critical raw materials strategy

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Author's Declaration

No portion of the work referred to in this thesis has been submitted in support of an application for another degree or qualification from this or any other university or other institute of learning.

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ABSTRACT OF THESIS submitted by:

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Underlying the EU critical raw materials strategy is a complex security culture, which main objective is resource security in order to ensure 1) the functioning of the European socio-economic system (energy and digital transitions, energy security) 2) the European geopolitical leverage ("strategic" security) and 3) the European security and defence ("comprehensive" security); all against the backdrop of the climate crisis. The dependence on critical raw material (CRM) imports and single suppliers is perceived as the main threat, which should be countered through the development of an EU CRM value chain, the diversification of supply and circularity. "Sustainability" is regarded as the central value that warrants the extraction and operation of the EU. Value-led practices such as the making of criticality, CRM onshoring, the establishment of "win-win" partnerships translate the means to achieve resource security into action. The divergence between strategy and practice points out the ambiguities of the EU's security culture and its goal of uninterrupted access to CRMs and green growth. To be successful, an alternative narrative on CRMs needs to semantically, conceptually, and practically break with the security cultures which are upholding the extractivist mode of being and living.

Keywords: critical raw materials, European Union, security, security culture.

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List of Abbreviations

CRMA	Critical Raw Materials Act
CRMC	Critical Raw Materials Club
CRMs	critical raw materials
EC	European Commission
EGD	European Green Deal
EP	European Parliament
ESG	environmental, social and governance standards
EU	European Union
EU-SA	European Union strategic autonomy
EV	electric vehicle
HDS	High Demand Scenario
HR/VP	High Representative/ Vice President
IEA	International Energy Agency
JRC	Joint Research Centre
MSP	Minerals Security Partnership
NGO	non-governmental organization
REE	rare-earth elements
RES	renewable energy systems
SRMs	strategic raw materials

Positionality Statement

I am a 26-year-old white female born and raised in Germany in a family of migrants from Eastern European countries. I hold a bachelor's degree in political science. I strive to be aware of i) my biases ii) my privileges and non-privileges; and recognize how these shape my work and research. This positionality statement is included to recognize that no research can be fully objective, and that the same research results and information could be interpreted differently by persons with differing identities.

> "resources are not; they become" (Zimmermann, 1933)

> "Security is a political concept that remains culturally contested and develops its political impact as a social construct. This also means that as society changes, so does the understanding of security and, vice versa, that a changed approach to security has an impact on society" (Checkel 1998, in Daase et.al., 2012, 30)[1]

> "The EU must secure a sustainable, affordable and diversified supply of CRMs to succeed in its green and digital transitions, which go hand in hand with a just transition, as well as to ensure its security and defence" (COM(2023) 165 final, 19)

1. Introduction

Critical raw materials (CRMs) are increasingly considered a "security" issue by the European Union (EU). Defined as "non-energy, non-agricultural raw materials […] the supplies of which are subject to a high level of supply risk" (COM(2023) 160 final, 1), these materials (e.g. lithium, cobalt, graphite, copper, nickel) are regarded as essential for several sectors such as renewable energy, the digital industry, and the space and defence sectors. The freshly proposed Critical Raw Materials Act (CRMA), which is the first legislative proposal regarding CRMs in the EU, calls for their "secure and sustainable supply" (ibid.).

This thesis looks at the security understanding(s) behind the European CRM strategy. "Security" is considered one of the central legitimation criteria of political action, which brings many social processes under a common denominator (Kern 2016, 10). "Security discourses", which are structured by the anticipation of (socially generated) insecurity, often "present themselves as

[1] All translations of passages quoted from foreign languages are my own.

ultimately unquestionable and thus continually elude social processes of negotiation" (ibid.). To discover and analyse these discourses with regards to CRMs in the EU, the thesis deploys the approach of "security culture", which is "the sum of convictions, values and practices of institutions and individuals that decide what is to be considered as a threat, and how and by what means this threat should be countered" (Daase et.al. 2012, 40). **Which security culture(s) underlie(s) the EU's critical raw materials strategy?** is the research question aimed to be answered.

The thesis is structured as follows. Chapter 2 provides a background on CRMs and their connection to the global energy transition, an overview of the EU's CRM strategy, as well as a literature review. Chapter 3 introduces the theoretical framework, which outlines security as an analytical concept and "security culture" as the framework for analysis. Chapter 4 presents the research design, including the method, which is qualitative content analysis. Chapter 5 delivers the first part of the analysis results (What is being secured? What is perceived as a threat? By what means should it be countered?). Chapter 6 completes and discusses the results (What convictions, values and practices are decisive?) and pictures the security culture. Chapter 8 addresses some ambiguities of the discovered security culture and outlines alternative narratives.

2. Background and Literature Review

2.1. CRMs and the global energy transition

"Gleeful celebratory statements around the rate of progression towards RES [renewable energy systems] are often overblown" (Barbesgaard & Whitmore 2022, 3); fossil fuels are still on the rise globally (Ritchie et.al., 2023). Nevertheless, despite its current insufficient substitution of fossil fuels, the global energy transition is increasing the demand for raw materials significantly. CRMs are necessary for the "expansion of lower-carbon technologies (e.g. wind, solar and hydrogen product diversification), grid reinforcement, digitalization (e.g. "smart" censors and applications), new battery storage technologies and electric mobility" (Dunlap & Riquito 2023, 4). Thus, for example, the "global demand for the lithium used to manufacture batteries for mobility and energy storage is expected to increase of up to 89-fold by 2050" and the "EU demand for the rare earth elements from which the permanent magnets used in wind turbines or electric vehicles are manufactured is expected to increase six to seven-fold by 2050" (COM(2023) 160 final, 1). Despite intensive research, currently there are no substitutes for CRMs that could meet global demand, and the increase of materials efficiency and circularity are not likely to reverse the trend (ibid.).

The EU is highly dependent on CRM imports, and its suppliers are "concentrated in a small number of third countries, both at the extraction and processing stage" (ibid.). Currently, China provides 100% of the EU's supply of heavy rare earth elements, and 97% of the EU's magnesium (COM(2023) 160 final, 1); South Africa provides 71% of the EU's needs for platinum; Chile provides 78 % of the EU's needs for lithium; and Turkey provides 98% of the EU's supply of boron (European Council 2023).

The consumption of CRMs is highly unequal. Global patterns of ecologically unequal exchange reveal "asymmetric net flows of biophysical resources from poorer to richer countries" (Dorninger et.al. 2021, 1). These patterns "arise from and reproduce global socio-economic inequalities and hamper socio-environmental sustainability through environmental burden-shifting to poorer nations (Wiedemann and Lenzen, 2018 in ibid.).[2] The global supply chains for CRMs follow the patterns of unequal exchange and the appropriation of CRMs from global peripheries (Silva in Barlow et.al., 2022, 379).[3]

2.1.1. Global scramble for CRMs

The strategic importance of CRMs was already identified by China in the 1980s (Cooper et.al., 2023). Today, China dominates global supply chains and the processing of a broad spectrum of CRMs. Vivoda (2023) brings the facts together: China a) refines 73% of cobalt, 40 % of copper, 59% of lithium, and 68% of nickel; b) hosts 78% of the world's cell manufacturing capacity for EV batteries; c) is the largest poducer and refiner of rare-earth elements (REE) worldwide; d) is a major strategic player in manufacturing battery cell components (Vivoda 2023, 1). Since 2021,

[2] The theory of ecologically unequal exchange and the World systems theory point out that "economic growth and technological progress in 'core areas' of the world system occurs at the expense of the peripheries (Jorgenson and Kick, 2003; Wallerstein, 1974), i.e., growth is fundamentally a matter of appropriation (Hornborg, 2016)" (Dorninger et. al. 2021, 10) and "a prerequisite for the seamless functioning of modern technology" (ibid.).

[3] This thesis deploys the terms „Global North" and "Global South". It shall be acknowledged that these are descriptively inaccurate and imply geographic determinism. Nevertheless, they are useful since "the global patterns of ecological unequal exchange establish a material basis to distinguish a group of countries that are net appropriators of resources and work (core, Global North) from a second group of countries that are net suppliers (periphery, Global South)"; "the existence of these patterns at the global level do not deny the existence of similarly unequal dynamics at sub-national or intra-group levels" (Silva in Barlow et.al., 2022, 376).

amid the COVID-19 pandemic and risking commodity prices, China has stepped up its acquisitions of new mines to extract CRMs around the world (Umbach in Cooper et.al. 2023).

In the 2000s, the EU has overlooked its vulnerability and underestimated China's dominance as a supplier of CRMs (Christmann in Reisch, 2022, 2). In present times, the dependence of the EU on China for CRMs abides "even higher than the oil and gas dependence on the Gulf region has ever been" (Umbach in Cooper et.al, 2023).

Since an increasing number of states are active in the CRM supply chains, a global scramble for these materials can be witnessed, causing geopolitical realignments (Vivoda, 2023, 1). According to Vivoda, "the challenge lies in addressing the market imbalance, where China holds the majority of the global critical mineral supply amidst increasing international demand" (ibid.). Currently, especially the African continent is in center of attention due to its raw material wealth. Some criticise that the global scramble for materials "mights perpetuate existing global inequalities and dependencies as well as power imbalances" (Müller 2023, 3). One the other hand, Müller argues that the current situation "open[s] a window of opportunity for African states to overcome existing export dependencies in the raw mateirals sector and foster value creation" (ibid.).

2.1.1. The power of the mining industry

This thesis is going to analyse the EU, which is a conglomerate of nation-states. However, states do not function on their own: "[i]n recent decades, neoliberal policies have challenged the primacy of the states in raw materials sectors and empowered markets and firms to coordinate extraction" (Bakker and Bridge 2008, 224-225; Perreault 2020, 231-232) in Riofrancos 2022, 24).

In a brief issued by the Transnational Institute (tni), Barbesgaard & Whitmore (2022) outline "[h]ow the mining industry plans to profit from the energy transition". Overall, "the mining

industry is currently strategizing as to how to benefit forn the rise in demand [of CRMs] through rapidly expanding their production" (ibid., 3). The mining industry pursues its interests through a) its investment strategies of extensification (expanding spaces of extractions) and intensification of extraction (new forms of technology and labor organization) b) its political strategies of rebranding (rebranding mining as sustainable), stakeholder engagement ("involving" local communities, Indigenous peoples and NGOs) and rule-setting. Especially the last point is reshaping the relations between companies and governments (ibid., 14): "in tune with the broader language of partnerships in sustainable development, mining companies now claim partnerhips with governments and other "stakeholders" in the pursuit of the energy transition" (ibid., 14-15). The challenge to state authority is enacted a) by "industry organisations setting their own voluntary standards for mining" (ibid.); b) through the use of (outdated) Investor to State Dispute Settlement mechanisms.

"What is the role of the state in all this?" (ibid., 17) is Barbeesgard and Whitmore's concluding question. Overall, "the affinities as well as tensions between state and corporate strategy make clear that powerful decision makers are operating in a states of flux and contingency" and reveal "the heterogeinity of interests, power, and profitability along […] supply chains" (Riofrancos 2022, 35)

2.1.2. Extractive frontiers and contestations

The mining industry and infrastructure have a tremendous socio-environmental impact on the associated geographies. (Barbeesgard & Whitmore 2022, 6). According to the Environmental Justice Atlas, the mining industry encompasses over a fifth of the conflicts registered (https://ejatlas.org/). These conflicts concern water use, land use oder the pollution of air, soil or water due to mining. Moreover, mining is associated with serious human rights violations, such as

forceful displacement, lack of labor rights, lack of occupational safety, sexualized gender violence, child labor, insufficient wages, water shortages, heavy metal pollution (Schönwald, 2023). Especially affected are lands of indigenous and peasent peoples, which contain over 50% of the energy transition minerals: "[w]here large-scale mining projects interact with territories with high ecological and cultural values and traditional forms of land tenue and ownership, the effect is a basic incompatibility between the preserve and protect functions of UN instruments, and the extraction of the orebody" (Owen et.al. 2022, 206). Mining sparks protests globally (e.g. Dunlap & Riquito 2023, Matebesi & Marais 2018, McDonnell, 2015).

2.2. EU's CRM strategy – an overview

Raw materials became an issue for the EU when China entered the geopolitical stage in the 2000s. In 2008, "the US and EU policy makers first framed China and other emerging economies as threatening Global North acess to 'critical' minerals" (Riofrancos, 2022: p. 22). 2008 marks the year of the first European Raw Materials Initiative, which "aimed at gaining 'undistorted access' to resources under the imperative of 'free trade'" (VIDC, 2023). In 2008-2011, the attention to 'critical minerals' has been sharpened due to the global commodity boom and the Western governments' realisation of dependency on Chinese CRM supplies (Riofrancos 2022, 22). Moreover, emerging countries started "pursuing strategies aimed at protecting their resource base to generate advantages to their downstream industries" (COM(2008) 69 final, 4), also known as "resource nationalism". In 2011, the EU introduced its first catalog of critical raw materials, which has doubled since, from 14 in 2011 to 24 in 2023 (VIDC, 2023).

In March 2023, the European Commission presented the Critical Raw Materials Act (CRMA), which is the first legal proposal dealing with "critical" raw materials in the EU. The CRMA "aims

to strengthen all stages of the European critical raw materials value chain, diversify the EU's imports to reduce strategic dependencies, improve EU's capacity to monitor and mitigate risks of disruptions to the supply of critical raw materials, and improve circularity and sustainability" (Q&A, European Commission, 2023).

2.3. Literature Review

This thesis can be placed among research on the political economy, political ecology, and geopolitics of the raw materials sphere and global energy transition. According to Riofrancos (2022), "[a]s this scholarship reveals, renewable energy systems are criss-crossed by multiple tensions: between fossil fuel interests and emergent green capitalists, between incumbent industrial powers and an ascendant China, and between a greener status quo and a transformative "just transition" (Riofrancos 2022, 23). Due to the nature of the topic – this thesis takes a comprehensive look on the different security understandings behind the European CRM strategy – several clusters of previous research lay the foundation for this work. Moreover, due to a deductive approach to research (see Chapter 5.1.), this thesis brings together these various understandings in the discussion. Overall, no paper has been identified that examines the diverse security culture(s).

The first cluster looks at the intersection of security and sustainability with regards to CRMs (Barbeesgard & Whitmore 2022, Riofrancos 2022, Wojewska et.al. 2023, Dunlap & Riquito 2023, Pickles 2023). Here, the work by Riofrancos (2022) takes a central place, who describes the phenomenon of "critical minerals onshoring" and theorizes the novel security-sustainability nexus. The second cluster explores the (European) geopolitics of CRMs and the (European/ global) energy transition (Hache et.al. 2021, Blondeel et.al. 2021, Christmann 2021, Reisch 2022, Müller 2023, Vivoda 2023). The third cluster looks at the CRMs necessary for security and defence. Here,

the literature is very scarce and remains quite technical, not questioning the security understanding behind the material requirements for this sector. For example, Girardi et.al. (2023) are mapping out the European industry needs of strategic raw materials (SRMs) for defence. The fourth cluster looks at CRMs for the energy and digital transitions, specifically at the material requirements for those (Groneweg et.al., 2021, Reckordt et.al., 2023, Bolger et.al. 2023, Umbach, 2023).

4. Theoretical framework

4.1. Security as an analytical concept

Over the past 50 years, the understanding of security has changed fundamentally (Daase in Daase et.al. 2012, 24). There are different ways to describe this change. Daase points out three developments, which are going to be outlined in the following.

First, the meaning of 'security' has expanded significantly. Therefore, today many more problems are considered security-relevant than in the past[4]. Daase systematizes this change based on four dimensions. The first dimension concerns the *reference object*, which puts into question whose security is to be guaranteed (ibid., 24); "[…] no longer the state, but also society and the individual are looked at for security policy considerations." (Waever 1992; Axworthy 1997 in ibid., 25). The second dimension is *factual*, meaning that it refers to the problem area of politics where security threats are identified (ibid., 24): "For a long time already, it has not only been the military area, but since the 1970s the economic, since the 1980s the ecological, and meanwhile also the humanitarian area that is discussed under the aspect of security" (Renner 1989; Allenby 2000 in

[4] On the theoretical level, an important contribution to this development has been made by the Securitization Theory of the Copenhagen school, which will be introduced in 4.2.2.

ibid., 26). The third dimension is *spatial*, meaning the question of the geographical area for which security is sought (ibid., 24); today, not only national but regional, international, and global security are addressed (Stockholm Initiative 1991, in ibid., 25). Finally, the fourth dimension is concerned with *threat*, i.e., "how the problem is conceptualized to which security should respond" (ibid.). Daase sees the change in this dimension as most consequential: "The change that can be traced here is the shift from concrete Cold war threats to vulnerabilities to potential risks that are expected to be reduced (Daase 2002; Beck 2002 in ibid., 26).

Second, due to the expanded concept of security, the demands on policy change as well. According to Daase (ibid., 26), this means, firstly, that security policy is now required to take proactive measures at an early stage to protect not only against concrete threats, but also against potential risks; secondly, that security must not only be ensured in one's own country, but that global responsibility should also be assumed, "which makes […] every international crisis security relevant" (ibid.); thirdly, security policy has to take into account not only the military, but also other policy areas, which may entail complex tasks and cooperation problems between different state and international institutions (ibid., 27); and, fourthly, "if not only the state but all social relations and, finally, individual life are addressed under the aspect of security, then security policy is ascribed an all-encompassing responsibility that tends to overburden it" (ibid.).

The final development of 'security' concerns the fact that "[t]he divergence of security policy requirements and institutional capabilities is leading to a creeping legitimacy crisis of governmental and intergovernmental security institutions", which in turn raises the question of whether the ambitious goal of comprehensive security could be implemented on different scales (ibid., 27-28).

4.2. Critical approaches to security

"[C]onventional theories of security have been unable (and, at times, unwilling) to engage effectively with […] 'new' security threats" (Shepherd 2013, 2). Deriving from political realism (i.e., positivism, empiricism, progressivism, and secular humanist philosophy), these approaches see the threat of 'power competition' among states as the central security issue (ibid., 3). Critical approaches to security challenge these conventions of traditional security studies research. Their critical pluralism is mainly "[…] designed to reveal embedded power and authority structures, provoke critical scrutiny of dominant discourses, empower marginalized populations and perspectives, and provide a basis for alternative conceptualizations" (Biersteker 1989, 264, in Shepherd 2013, 5). This critical pluralism is further necessary to address the changed understanding of security, as outlined in 4.1.

There are numerous critical approaches to security, such as feminist and gender approaches, postcolonial perspectives, constructivist theories, post-structural theories, securitization theory, ontological security, human security, green/ environmental/ planetary security, security as emancipation, critical theory, environmental geopolitics (and more). Important to note is that "Critical approaches to security endeavour to challenge and unsettle anything that is taken for granted in the research process, including their own assumptions and politics" (ibid., 3). For this study, the introduction of two approaches is considered useful: green/ environmental security and securitization theory.

4.2.1. Green Security

The approach of Green/ Environmental Security mainly acknowledges that "environmental degradation is a security threat in itself" (Foster in Shepherd 2013, 37). Historically speaking, over

the 20th century, the environmental movement was not of political interest amongst Western/ Northern countries, especially because of the movements' anti-capitalist and anti-industrialist positions (ibid.). The position of these countries started changing in the late 1980s, when an increased politicisation of the environment and the (gradual) incorporation of environmental degradation and resource scarcity under the thematic umbrella of security by national governments took place (Peoples & Vaughan-William 2021, 134). An important document contributing to this development has been the 'Brundtland Report' (United Nations, 1987), which "identified a context of a 'threatened future' based on "environmental trends that threaten to radically alter the planet, [and] that threated the lives of many species upon it, including the human species' (ibid. in Peoples & Vaughan-Williams, 2021, 134). According to the report, the threats were intensified by human population growth (ibid.). Further, it stated that "[t]he deepening and widening environmental crisis presents a threat to national security […] – that may be greater than well-armed, ill-disposed neighbours and unfriendly alliances" (United Nations, 1987: Chapter 1: Para 22 in ibid., 136) and noted 'environmental stress' to be a 'source of conflict' (United Nations, 1987: Chapter 11 in ibid.).

In fact, since the 2000s, environmental issues have been observed to have a place on the agendas of various security organisations, such as the UN Security Council (Foster in Shepherd, 2013, 38). However, debates regarding the advantages and pitfalls of linking the security domain with the environmental/ climate crisis domain are extensive and ongoing.

The arguments in favour of linking the two domains state that "a move to 'securitise' the environment is rhetorically powerful because it draws the attention of states to problems that would otherwise be left unaddressed" (Peoples & Vaughan-Williams, 2021, 133). In other words, "narrating environmental degradation and climate change as a threat to security offers a particular status or *gravitas* to the problem and therefore assists in mobilising collective action against

environmental harms" (Foster in Shepherd 2013, 38). Furthermore, "the securitisation of the environment also helps to frame the problem as 'in need of urgent attention', so more than mobilising action from different 'bodies' it also arguably invited those bodies to mobilise immediately" (ibid., 39).

Arguments against linking the domain of security and the environmental/ climate crisis have "questioned the appropriateness of thinking about the environment through the lens of security, effectively calling for a 'desecuritization' of the issue" (Peoples & Vaughan-Williams 2021, 133). Traditionally, the notion of security has been focused on nation-states and violent interstate/ intrastate conflict, with the military being the primary actor. Thus, "because of traditional preoccupation with politico-military notions of security as between states" (Dyer 2001, 442 in Shepherd 2013, 39), putting the environment forward as a security question may obscure the reference frame for security (ibid.). Moreover, critiques of the securitization of environmental issues concern a) the militarization of responses to the environmental crisis, including the streaming of extra funds to military bodies (ibid., 46) and that defining environmental problems in this way "could contribute to the militarization of environmental politics than to a demilitarization of traditional security thinking" (ibid., 47) and b) the anthropocentrism and technocratic responses to environmental problems (ibid.).

4.2.2. Securitization Theory

The decision to introduce the Securitization theory in the theoretical framework was made on three grounds. Firstly, it is one of the most influential theories on security issues across subjects; secondly, when the terms "securitized" or "securitization" are used, these can be referred to this

school of thought; thirdly, for an explanation of why this thesis does not deploy this theory, even though it seems suiting.

Securitization theory, which was developed by the Copenhagen School, "aimed to broaden security beyond the traditional political and military sectors, introducing five sectors of security: military, environmental, economic, societal and political" (Nyman in Shepherd, 2018, 52). It looked at "the process through which an issue is labelled a "security" issue by an (elite) actor, a process which moves the issue out of the normal political sphere into the security sphere" (ibid.), thus "allowing extraordinary measures to deal with it" (Buzan et.al., 1998 in ibid). According to Waever (1995), "labelling something as a 'security' issue affects policy, and as such 'security' is a 'speech act" (Waver, 1995 in ibid).

Securitization theory has a number of serious limitations. One of the main problematics is that "it is still to an extent wedded to (neo) realism" and "attempts to incorporate some of the traditionalist position" (ibid.). Another problem is the focus of the theory exclusively on speech and language by so called "elite" actors, not taking into account the audience. Moreover, Howell et.al. outline the "Civilizationism, methodological whiteness, and antiblack thought in the Copenhagen school" (Howell et.al. 2020, 3). Due to its limitations and various problematics, this thesis is careful in deploying the terms "securitization" and "securitized".

4.3. Energy Security

Defining and theorising 'energy security' in one short chapter is not easy, yet necessary for the purpose of this thesis. One reason for the difficulty of the task is that 'energy security means different things in different situations and to different people" (Cherp & Jewell 2014, 416). Since

the unit of analysis of this research is the European Union, this chapter will look at the Western/ Global North/ Eurocentric concept of 'energy security', as produced and deployed in Europe.

Over the course of the 21st century, the term has become a 'buzzword', with the content frequently being unexplained (Szulecki 2018, 4). Furthermore, there are not enough analyses that are critically (conceptually and normatively) looking on energy security (Dannreuther, 2010 in Nyman 2018, 121), for example, questioning the connection between energy security and the state/ national security. Specifically in public administration and policy-making circles globally, "[e]nergy security is linked continually with national security and the need to secure state energy supplies it portrayed as increasingly urgent" (ibid.).

One of its 'classic' definitions is attributed to D. Yergin, who states that '[t]he objective of energy security is to assure adequate reliable supplies of energy reasonable prices and in ways that do not jeopardize major national values and objectives' (Yergin 1988, 111 in Szulecki, 2018, 12). Since contemporary energy security challenges include a broader range of challenges, the classic approaches were re-examined (Cherp & Jewell 2014, 415). A popular contemporary approach are the 'Four A's" of energy security: availability, affordability, accessibility, and acceptability (ibid.). This definition "is in line with the widespread equating of energy security with supply security" (Szulecki 2018, 5). Cherp & Jewell (2014) criticize the 'Four A's' approach, showing that it does not reply to any of the tree main security questions, which are ""Security for whom?", "Security for which values?" and "Security from what threats?"" (Cherp & Jewell 2014, 420). As an alternative, the authors propose to define energy security as 'the low vulnerability of vital energy systems' (ibid., 418).

Energy security in Europe

> "The European Union's prosperity and security hinges on a stable and abundant supply of energy. The fact that citizens in most Member States have not had to experience any lasting disruption of their energy supply since the oil crises of the 1970s' is a testimony of the success of the Member States and the EU in guaranteeing this. For most citizens, energy is available 'on tap', it is ubiquitous and un-intrusive. This has a major influence in the factors that affect national decisions on energy policy, with security of supply not being on par with other considerations. (European Commission 2014, 2 in Szulecki 2018, 1).

Szulecki rightfully so notices, that "this opening paragraph from the 2014 'European Energy Security Strategy' captures the total nature of energy in our modern [A.n.: European] societies. It is omnipresent, it is abundant, and it is 'on tap' - at least that is the societal expectation" (ibid.). For a long time, energy security was a secondary issue for Europe due to smooth energy import flows (Pilloni, 2022). However, especially since the energy crises in 2006 and 2009, energy security increasingly emerged as a major priority (ibid.). A further strong push for tackling the issue came with Russia's annexation of Crimea in 2014 (ibid.). In the same year, the European Energy Security Strategy has been introduced, which 'displayed an unprecedentedly geopolitical tone (Youngs 2014 in Szulecki 2018, 2). The EU's 2016 Global Strategy and the European Parliament / Normandy Regions Normandy Index identify energy insecurity as the main threat facing the EU (Russel 2020, 1).

The official definition of 'energy security' in contemporary European politics is proposed by the International Energy Agency (IEA), which is 'the uninterrupted availability of energy sources at an affordable price' (IEA, 2023). Pilloni notes, that "given, the EU's heavy reliance on imports, its current energy policy focuses on ensuring a stable flow if energy and affordable energy prices

in the face of potential energy crises" (Pilloni, 2022). Indeed, the EU is heavily dependent on energy imports. In 2020, it imported 58 % of its energy (Eurostat, 2022).

The Russian war in Ukraine became a major catalysator for the EU to decouple from its reliance on Russian oil and gas and search for alternatives. In March 2022, the EC presented its REPowerEU program, which serves as a blueprint for ending the dependency on Russian imports before 2030. The green and just energy transition is taking a central role (JOIN (2022) 23 final), next to the diversification of gas supplies and renewable hydrogen trade.

4.4. Security Culture

For the methodological operationalisation of this study, the different theoretical considerations of security (4.2.-4.3.) require a common empirical perspective. In terms of methodology, a viable concept which grants the possibility to integrate socio-political ambivalences and tensions into the analysis is "**security culture**", as proposed by Daase (Daase et.al., 2012). The author shows that a cultural studies approach "is better suited to explain societal changes, political challenges, and institutional crises" than conventional security study approaches (Daase in Daase et.al. 2012, 29). Further, this approach allows to take a broad and interdisciplinary perspective on security policy – which is particularly important for this study, since all the different security understandings behind the critical raw materials strategy and practice of the EU are of interest and explored.

Until the mid-1990s, security was regarded as a fundamental necessity of every state and hence was not subject to cultural variation and changeability (ibid.). Only with the "constructivist turn" (Checkel 1998, in ibid., 30) the concept of culture was used to explain security policy (ibid.). Constructivist approaches radically break with a conventional understanding of security:

> "What security is or is not cannot be scientifically substantiated, proven, or defined. Security is a political concept that remains culturally contested and develops its political impact as a social construct. This also means that as society changes, so does the understanding of security and, vice versa, that a changed approach to security has an impact on society" (ibid.).

What is both appealing and problematic about the concept of culture is that it may be used to explain political behaviour both as a variable and as a deeper context for explaining political behaviour (ibid., 33). Another frequently raised problem is that the concept of culture is too unspecific; in fact, it may be one of the most debatable terms in social and human sciences (ibid., 34).

Daase notes that "the cultural studies approach to security policy research is not intended to simply introduce another variable into security policy research, but rather allow a different perspective which would enable to explore the change in security policy from different disciplinary perspectives" (ibid.). What should be adopted is a cultural studies understanding of "culture as a discourse of practice" (ibid., 35). According to Reckwitz (2008)

> "the research program in cultural studies aims at 'explicating the implicit, usually unconscious symbolic orders, cultural codes and horizons of meaning that are expressed in and enable a wide variety of human practices of different times and spaces' (Reckwitz 2008, 17). This makes visible the contingency[5] of social practices, i.e. their non-necessity and their historicity." (ibid).

[5] The term contingency was majorly influenced by N. Luhmann. Luhmann wrote: "Contingent is something that is neither necessary nor impossible; what is how it is (was, will be),

Daase further writes that security studies is a field of study where structural constraints and a lack of alternatives for political options are constantly recalled (ibid.). A cultural studies approach and especially the 'contingency perspective' (as conceptualized by Reckwitz and Luhmann) could provide an alternative to the determinism of traditional security policy theories.

Daase defines security culture as

> "*the sum of convictions, values and practices of institutions and individuals that decide what is to be considered as a threat, and how and by what means this threat should be countered*" (ibid., 40).

4.4.1. Security regime – an alternative approach

Another concept that has been considered for the methodological operationalisation is "security regime". According to Kern (2016), it designates "institutionalized regulatory processes consisting of norms and principles as well as discursive and non-discursive practices that can be grouped around topics that are dealt within the political field of security policy" (Kern, 2016, 157). The term covers transformational, economic, political and subjective aspects of social regulation and mediation in capitalism (ibid.) and makes possible an empirical analysis of domination and power structures in order to deconstruct relations and narratives that are considered 'natural' and are negotiated under the 'cipher of security' (ibid., 158). Security regimes are "specific arrangements of social regulation" which are "effective only in a specific time frame" (ibid.).

but could also be possible otherwise. The term thus designates given (experiences, expected, thought, fantasized) things with regard to possible otherness." (Luhmann 1987, 152)

Deploying the concept of 'security regime' for this study would have allowed a materialist security criticism. The advantage of a materialist perspective is that it takes the social processes in the context of societal reproduction seriously (ibid., 154). Indeed, after the identification of the security culture beyond the European CRM strategy, the analysis could be taken to the next level with the help of the 'security regime' - framework.

5. Research Design

5.1. Method: Qualitative content analysis

This thesis is methodologically based on qualitative content analysis, which has established itself as a standard method of text analysis in social sciences. Since there are numerous definitions of qualitative content analysis, this research deploys the conceptualization proposed by Mayring (2022), who writes that content analysis wants to survey (1) "fixed communication" (2) systematically, (3) rule-guided, (4) (sometimes) theory-led, (5) with the goal to "draw conclusions about certain aspects of communication" (Mayring 2022, 13).

Despite its interpretative character, the category-guided qualitative content analysis is characterized by a rule-guided procedure (Mayring 2022, 49). The individual steps of the process will be explained below; those are (1) the definition of the empirical material and (2) the operationalization through the category system.

5.1.1. Definition of the empirical material

Raw material policy is complex, especially since the EU consists of many countries which all need coordination (e.g. trade policy, permissions, technologies, legislation etc.). Thus, the raw materials strategy of the EU is composed by a plethora of documents, plans and initiatives.

The empirical material chosen for this analysis consists of official communications by the European Commission (EC) and the European Parliament (EP), which represent the executive and legislative structures of the EU (see Table 1). The main documents for this analysis are 1) the Communication on the Critical Raw Materials Act (2023)[6] since it outlines the current CRM strategy of the EU 2) further policy documents specifically related to CRMs[7]. Cross-references within this first set of documents helped to further extend the selection. The timeframe chosen for the selection is 2019-2023[8], which reflects the most contemporary developments in the sector.

Table 1 Documents selected for analysis.

Name	Type	Issued by	Date
Critical Raw Materials Act "Regulation of the European Parliament and of the Council – establishing a framework for ensuring a secure and sustainable supply of critical raw materials and amending Regulations (EU) 168/2013, (EU)	Proposal for Regulation	European Commission	2023

[6] The Communication accompanying the proposal outlines "the overall strategic vision for strengthening Europe's supply [of] critical raw materials, through action both within and outside the EU" (COM(2023) 160 final, 2). For the purpose of this research, the study of the Communication rather than the Act itself was regarded more fruitful. The Act is also part of the analysis.

[7] Even though excluded from the analysis, some important studies and foresights through specific agencies of the EU (such as the Joint Research Centre) were included in the discussion section.

[8] A document from 2008, which depicts the EUs first Raw Materials Initiative, is included in order to show how that CRM strategy changed and potentially trace the changes in security cultures underpinning over time.

2018/858, 2018/1724 and (EU) 2019/1020"			
"A secure and sustainable supply of critical raw materials in support of the twin transition"	Communication	European Commission	2023
"A new outlook on the climate and security nexus: Addressing the impact of climate change and environmental degradation on peace, security and defence"	Communication	European Commission	2023
"EU external energy engagement in a changing world"	Communication	European Commission	2022
"A strategic compass for security and defence"	-	European Commission	2022
Versailles Declaration	Declaration	European Council	2022
The Global Gateway	Joint Communication	European Commission High Representative of the Union for Foreign Affairs and Security Policy	2021
"2021 Strategic Foresight Report – the EU's capacity and freedom to act"	Report	European Commission	2021
"Critical Raw Materials Resilience: Charting a Path towards greater Security and Sustainability"	Communication	European Commission	2020
The European Green Deal	Communication	European Commission	2019
"The raw materials initiative - meeting our critical needs for growth and jobs in Europe"	Communication	European Commission	2008

5.1.2. The category system

The category system builds the heart of the qualitative content analysis (Mayring 2022, 50). It enables a systematic extraction of text components from the research materials that are relevant for answering the research question (ibid., 96). The analysis is carried out as a rule-guided interpretation, in which the concrete text passages are assigned to the respective categories.

The definition of the categories is considered a very sensitive process, an art (Krippendorff 1980 in ibid., 84). There are two approaches: (1) “A deductive definition of categories determines the evaluation instrument through theoretical considerations. Based on preliminary studies, on previous research, on newly developed theories or theoretical concepts, the categories are developed in an operationalization process” (ibid.) (2) “An inductive category definition derives the categories directly from the material in a generalisation process, without referring to previously formulated theoretical concepts” (ibid.). Especially the inductive approach is useful for qualitative analysis, since it “strives for a representation of the material that is as naturalistic as possible and as close to the subject matter as possible, without distortions due to the researcher's presuppositions” (ibid.).

This thesis deploys a deductive approach. Categories are built deductively and operationalized with the help of the “security culture” concept (see 5.1.3.).

5.1.3. Operationalization

To analyse the security culture(s) underlying the EU's critical raw materials strategy and practice, two sets of questions need to be answered. The first set of questions is: *What is being secured?*[9] *What is perceived as a threat? By what means should it be countered?* The second set of questions is referring to the first set: *What convictions, values and practices are decisive*? (see Figure 1 for an overview).

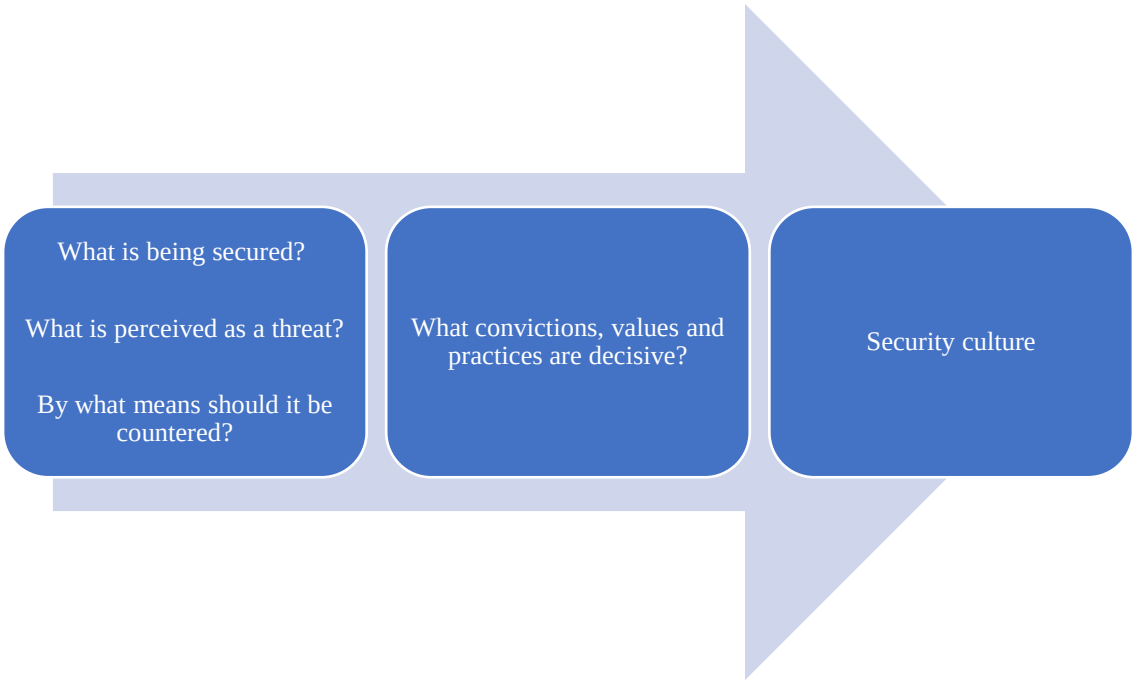

Figure 1 Operationalisation Security Culture

Operationalisation: further considerations

There is an academic debate about whether energy security can be deducted under the concept of "security in general". For example, how well do the concepts of national security and energy

[9] Even though not included in the initial set of questions of "security culture", the question concerning the *object* and the *objectives* of security were regarded as necessary.

security function together in hypotheses and theories? (Cherp and Jewell 2014, 416). Indeed, Cherp and Jewell argue, that within the two domains of energy security and 'security in general', "*threats* are of a qualitatively different sort" (Cherp and Jewell in Szulecki 2018, 10). However, they also point out that "a valid concept of energy security should be based on a concept of security in general" (Cherp and Jewell 2014, 416). Whilst this claim is debatable (see Ciuta, 2010), their proposed energy security approach, which is based on the three questions "security for whom? For which values? From what threats?" closely resembles the questions proposed by the security culture approach. This underlines even more that "security culture" is suitable for the research question since it allows to analyse the very different understandings of "security" behind the EU CRM strategy.

5.2. Discursive elements

With regard to the research question and documents as empirical material, the qualitative content analysis method was chosen as the most suitable for this study. However, it is important to note that "discourse and policy are […] co-constitutive, as 'neither ideas not materiality have a meaningful presence separate from each other'" (Hansen, 2006, in Nyman, 2018, 125). Thus, discursive elements will inevitably be incorporated into analysis and discussion. Discourse can be seen as "an institutionalized way of speaking or writing about reality that defines what can be intelligibly thought and said about the world and what cannot (Social Theory Rewired, 2023). This means, that it is particularly important, *who* speaks; the *words* which are used; what is *spoken* about and what is *not spoken* about. Foucault inextricably links the notion of Discourse to Power. "By power I do not mean "Power" as a group of institutions and mechanisms that ensure the subservience of the citizens of a given state" (Foucault, 1978: p. 92), writes Foucault in his "The History of Sexuality", rather, "[p]ower must be understood in the first instance as the multiplicity

of force relations immanent in the sphere in which they operate and which constitute their own organization" (ibid.). Overall, "[t]he world is not simply available to objectively decipher, but it is made meaningful only through the ways by which we perceive, interpret and contextualize it using language" (Campbell 1998, 6 in Sztancovics 2021, 11).

5.3. Considerations and missing pieces

Analysing the security culture(s) behind the EUs CRM strategy turned out to be an extensive undertaking. Firstly, each of the different security understandings – e.g. energy security, resource security, strategic security, European security and defence – deserves a more extensive examination and discussion. Secondly, CRM policy is a highly dynamic field; this thesis was written during the very negotiation of the EU's Critical Raw Materials Act. Nevertheless, even though not exhaustive, the results of this thesis still allow to paint the bigger picture of the status quo and answer the research question.

6. Analysis

The following sections outline the findings on the two sets of questions as formulated in the Operationalisation chapter (5.1.3.).

6.1. What is being secured? Objects and objective.

The introductory paragraphs of several communications of the EU are a good starting point to examine what is being secured by the EU's CRM strategy. First, it is acknowledged that "[r]aw materials are essential for the sustainable functioning of modern societies" (COM(2008)699: p. 2) and that "[m]etals, minerals and natural materials are part of our daily lives" (COM(2020)474, 1). It is further stated that especially "[c]ritical raw materials are essential to the functioning and integrity of a wide range of industrial ecosystems" (ibid.). CRMs are seen as an indispensable part of (Western) modernity, especially in its technological, digital and industrial forms.

The Critical Raw Materials Act (2023) acknowledges a "**secure and sustainable supply of critical raw materials**" as a top political priority (COM (2023)165final, 1). The supply of CRMs is needed (a) for the twin energy and digital transition and is (b) "essential for increased security capabilities in the defence, space sectors" (ibid.). Moreover, (c) energy security is dependent on "the resilience of critical supply chains" (COM(2020)474, 6). Comprehensively, the main *objective* of EUs CRM strategy is achieving "**resource security**" (COM (2023)165final, 1; COM(2019) 640 final, 22). Resource security, in its turn, is essential for its *objects*, which are: 1) **EU's socio-economic system** (energy security, energy and digital transition); 2) **the European geopolitical leverage;** 3) **EUs (national) security and defence** (security capabilities).

6.2. What is perceived as a threat?

Predominantly, what is perceived as a threat is EU's **dependence on CRM imports** and **the dependence on single suppliers**:

> "For most CRMs, production is heavily concentrated in a few suppliers, and the EU relies heavily on imports. Excessive dependencies on single suppliers could disrupt entire supply chains, particularly as export restrictions and other trade restrictive measures are increasingly used amid intensifying global competition. Russia's illegal aggression against Ukraine showcased how untrustworthy suppliers can exploit and weaponize such dependencies to their advantage" (COM(2023) 165 final, 1).

Moreover, the Covid-19 pandemic "has revealed just how fast and how deeply global supply chains can be disrupted" (COM(2020) 474 final, 1.). However, this is not only a problem for CRMs, but for other 'key materials necessary to a successful twin transition", such as wind turbines and batteries: the EU heavily depends "on a very limited number of suppliers for all the strategic technologies in several stages of their supply chains and, for some technologies, throughout the complete value chain" (COM(2023) 165 final, 1).

Furthermore, the supply of CRMs is seen as "confronted with greater **geopolitical**, as well as **environmental** and **social** risks and challenges" (ibid.). It is often acknowledged, that other countries such as China, the United States and Japan "are already working fast to secure future supplies, diversify sources of supply through partnerships with resource-rich countries and develop their raw materials-based value chains" (COM(2020) 474 final, 6).

6.3. How and by what means should it be countered?

The Critical Raw Materials Act is based on three pillars, which are building the means of the current EUs CRM strategy ("comprehensive approach" ibid., 2) to "scale up and speed up primary and secondary raw materials supply" (ibid.) These are:

I. "Developing the critical raw materials value chain in the EU" (ibid.).

The objective is that the "EU should make the most of its reserves" (ibid.), meaning the development of "exploration, extraction, refining, processing and recycling activities at home" (ibid.) and in consideration of the home environmental ecosystems (ibid.). A list of critical and strategic[10] raw materials is proposed (ibid., 3), which will be the target of so called "Strategic Projects". These projects are designed 'to cover the entire value chain including recycling" and "will notably benefit from streamlined permitting processes" (ibid.).

II. "Boosting the diversification of supply and partnering in a mutually beneficial manner support of global production" (ibid., 3).

Overall, "the EU will never be self-sufficient in supply of CRMs and will continue to rely on imports for a majority of its consumption" (ibid.). Thus, the EU's objective is to "strengthen its global engagement to develop, diversify investment, production and trade with reliable partners"; further, to build "mutually beneficial long-term relationships with resource-rich countries" (ibid.), especially "win-win partnerships on full complementarity with the Global Gateway strategy" (ibid.).

[10] Strategic raw materials are defined as "of high strategic importance, characterized by a potentially significant gap between global supply and projected demand, and are materials for which an increase in production is relatively difficult" (ibid).

The EU works together with interested partners and is part of various initiatives. Thus, it plans the creation of a Critical Raw Materials Club, which will intend "bringing together consuming and resource-rich countries to promote the security and sustainable supply of CRMs" (ibid., 8). Further, the EU is part of the Minerals Security Partnerships (MSP), which is an initiative by the United States from the year 2022 and is "a grouping of like-minded countries to share information on CRM developments in third countries, identify investment opportunities and co-invest in mining, refining and recycling projects that respect high environmental, social and governance standards in partner countries as well as in 'target countries' (ibid.).

Since 2021, the EU has been building bilateral strategic partnerships, which are "stimulating sustainable investments in CRM value chains and other components down the value chain and turning economic opportunities into mutually beneficial realities" (ibid., 11). Especially the Global Gateway is seen as a "mutually beneficial approach where the EU stands out", which "will be the vehicle to assist partner countries with concrete projects in infrastructure and connectivity, including by boosting and leveraging concrete private sector investments along the CRM value chain" (ibid., 12).

III. "Fostering sustainable sourcing and promoting circularity" (ibid., 15).

a. Circularity

With its Circular Economy Action Plan adopted in 2020, "the EU is stepping up action to boost resource-efficiency and move from the linear to circular economy" (ibid., 2). This will allow for CRMs to be recycled and repurposed in new products, hence reducing the need for these (ibid.). Further benefits could include "security of supply, reducing negative impacts associated with extraction, and creation of economic value" (ibid., 15). The internal aim of the EU is to ensure "that its own recycling capacity is able to produce secondary materials covering at least 15% of its

annual consumption" (ibid.). However, it is acknowledged that "recycling rates of most critical raw materials [in the EU] remain low, while recycling capacities, systems and technologies are often inadequate to the specificities of these materials" (ibid.).

b. Sustainability

For the EU, "Improved security and affordability of CRM supplies must go hand in hand with increased efforts to mitigate any adverse impacts, both within the EU as well as in third countries, with respect to labour rights, human rights and environmental protection" (ibid.). The EU sustainability work includes an extensive mix of voluntary and mandatory measures, which are[11]: 1) The support and encouragement of "companies to conduct their business responsibly", for example the Corporate Social Responsibility/ Responsible Business Conduct (CSR/RBC) (CSR/ RBC); 2) The EU Principles for Sustainable Raw Materials and Batteries regulation (ibid., 16); 3) The Conflict Minerals Regulation, which "promotes mandatory supply chains due diligence as a tool to identify risks of contributing to armed conflict and other related severe human rights abuses in value chains of tin, tantalum, tungsten and gold" (ibid.). 4) Several legislative proposals necessary for the sustainable sourcing of CRMs (see ibid.) 5) The recognition of "the importance of internationally agreed standards to ensure predictability for businesses, such as the Responsible Business Conduct. Lastly, the EU intends to "proactively use […] trade agreements to support sustainable development (ibid.: p.17).

[11] For a complete list see CRMA pp. 17-19.

6.4. What convictions, values and practices are decisive?

The security culture underlying the CRM strategy is the sum of the convictions, values and practices behind the object of security which determine the threat and the means to counter it. The process of analysis showed that:

a) Mainly, practices and values could be identified, with fewer convictions. Indeed, a conviction as "a strong persuasion or belief" (Merriam-Webster Dictionary, 2023) can be better prescribed to individuals or groups.

b) The sharp separation of values and practices as two distinct categories turned out to be useful for the rule-guided analysis. However, for the purpose of discussion, instead of a separate deliberation of values and practices, their combined assessment as **value-led practices** is more useful.

c) The "practices" and the" means to counter threat" presented two overlapping categories in the primary analysis. Only with the application of the theory and further supporting literature, the distinction between the two categories will become apparent.

Consequently, for this second set of questions, the analysis results will be integrated into the following Discussion and Results Chapter. Table 2 presents an overview of the material corpus (chosen examples) of the analysis (See Appendix, Table 2).

7. Discussion and Results

7.1. Convictions, values and practices

7.1.1. Security-Sustainability Nexus

The term "security-sustainability nexus" used in this thesis is mainly coined by Thea Riofrancos (2022). The researcher defines the nexus as "an interlocking set of policies and justification that promote lithium extraction and emphasize the environmental credentials of Global North mining" (Riofrancos, 2022, 20). The nexus allows to contextualize how "EU governments are deploying new corporate-friendly industrial policies to "dominate" green technology supply chains, in explicit competition with China" (ibid.). Even though Riofrancos deploys the nexus primarily for the inquiry of lithium onshoring, this thesis sees the possibility of a meaningful transfer of the concept beyond its primary inquiry. The nexus allows to cluster and contextualize four **value-led practices** identified in the document analysis, which are: 1) the making of criticality; 2) critical minerals onshoring; 3) win-win partnerships; 4) circularity. What does the CRMA reflect with its quest for "secure and sustainable" CRM supply? (COM(2023) 165 final, 2023).

7.1.1.1. The making of criticality

According to Huber (2021), "resources are actively 'made' in socio-technological processes" (Huber, 2021 in Wojewska et.al., 2023, 7). Criticality is produced in "a bureaucratic practice of classification" (Macharek, 2017, 368, in ibid.). As outlined by Riofrancos (2022), "'criticality' is less a stable condition than an emergent outcome of interacting variables: the discovery of deposits, the development of new extraction methods, government promotion of EVs [electic vehicles], evolving battery chemistries, and recycling capacity, among others." (Riofrancos, 2022, 24). The researcher claims, that "[t]he volume of extraction is not a given but a result of political and

economic choices" (ibid.), meaning that "policies favouring public transit and improving materials recovery will reduce [CRM] demand while accelerating decarbonization" (ibid.).

Looking at the criticality of lithium, Wojewska et. al. contend that "the making of criticality in socio-technological processes involves three interrelated levels" (Wojewska et.al., 2023., 7). Firstly, the 'risk of disruption' is determined using supply, demand and price estimates, and the process of estimation is neither just technical nor objective (ibid., 8). Actors with particular information on lithium development, i.e. sector specialists, consultancy firms, independent analysts, "follow their own strategies and subscribe certain narratives around desirable development trajectories and imaginaries of the role of lithium within them and, hence, exert power in 'reporting' (and determining) supply, demand and price data" (ibid.). Secondly, states and their policies are crucial in determining criticality: "Current policies around sustainability transformations and electro-mobility have not only made specific materials such as lithium to central components of these transformations and hence created demand in the first place" (ibid., 8). Moreover, "state actions secure the conditions for accumulation around new products, technologies and infrastructures through their multiple functions and roles as facilitator, regulator, producer and byer" (Horner, 2017, in ibid., 9). Thirdly, „these policies enacted by states, are linked to and based on broader narratives and imaginaries around resources" (ibid.). According to Dorn et.al (2022),

> "there has been a shift from the 'commodities consensus' (Svampa 2015, 2) to the 'climate change consensus', which centers technology as a means of climate protection, justifying extractive activities not only as imperative but also as 'green' and denying possibilities for other meanings of development". Importantly, „in regions of extraction, the climate change argument adds a new layer of legitimacy to the classical development paradigm, leading to

the acceptance of social inequality and environmental destruction", as the climate change consensus relies on 'a non-ideological reframing of commodity extraction beyond political camps" (Dorn et.al. 2022, 3 in ibid., 9).

Critical and Strategic Raw Materials in the CRMA

The first list of CRMs for the EU was published by the Commission in 2011, and updated in 2014, 2017, 2020 and 2023 (COM(2020)474, 2). Even though CRMs seem to be at the centre of the EU's raw materials policy, the CRMA (2023), for the first time, introduced the concept of strategic raw materials (SRMs), which are titled "the most relevant" (COM(2023) 165 final, 2023: p. 3): "Whereas a critical raw material is characterised by a high risk of supply disruption and its importance for the overall EU economy, as strategic raw material is additionally characterised by its importance for strategic areas such as renewable energy, digital, aerospace and defence technologies, its projected demand growth relative to current supply, and the difficulties of scaling up production" (JRC Foresight Report, 2023: p. 4). The move from "critical" to "strategic" raw materials (for the strategic security of the EU) points to a further "securitization" of CRMs by the EU.

In tandem with the CRMA, a foresight study by the Joint Research Centre by the European Commission is published, which "contributes scientific evidence to underpin the CRMA" (ibid.). The study delivers a supply chain analysis based on the Criticality Assessment exercise 2023 (ibid., 5). Furthermore, the study pictures a demand forecast analysis, which develops two "material demand scenarios based on policy-relevant scenarios and market trends, with the aim of quantitatively assessing future material needs in each selected technology" (ibid., 8). The High Demand Scenario (HDS) pictures an alignment between the EU climate change mitigation targets

and the necessary technology expansion. The HDS results in a steep increase of demand in materials.

The projections based in the analysis by the JRC are of vital importance for the classification of raw materials as “critical”, “strategic” and to assess demand. As shown by Wojewska et.al. and Riofrancos, the scientific evidence underpinning the CRMA is not objective or merely technical. Indeed, for example, the HDS assumes a drastic growth of e-mobility over the next several decades. The growth of e-mobility, however, is a political choice, and the ambiguities of this ‘green’ policy choice against the necessity of a decrease in CRM demand will be outlined in chapter 7.1.5. Another example is the assessment of the demand projection for the defence sector, which will be outlined in chapter 7.1.4.

Further analysis (which is beyond the scope of this work) is needed to theorize and describe the (qualitative) making of critical and strategic materials specifically in the context of the EU’s CRMA. Wojewska et.al (2023) provide excellent ground for this inquiry.

7.1.1.2. Critical minerals onshoring

As already outlined, the first pillar of the CRMA is the exploration and extraction of CRMs domestically. Even though “the EU accounts for a miniscule portion of the world’s lithium”, the EU has “prioritized expanding lithium mining and projects are under development in Portugal, Spain, and Germany”, the Czech Republic, and Serbia (Riofrancos, 2022, 25). Riofrancos coins this new policy paradigm “critical minerals onshoring” (Riofrancos, 2022).

According to the CRMA, the domestic exploration and extraction of CRMs “will allow Europe to boost industrial capacities in an open and trade friendly manner […], creating quality jobs and boosting growth while increasing out open strategic autonomy” (COM(2023) 165 final, 2).

Moreover, it should happen under "high environmental and social standards" (ibid). Thus, the creation of public awareness and acceptance are coined as particularly important (ibid., 4). By 2030, the EU aims to reach a capacity of 10% domestic SRM demand, 40% for processing and refining, and 15% for recycling (ibid., 3). The Strategic projects will have the advantage of streamlined permitting processes (ibid.).

At first sight, EU's CRM onshoring "appears to be a more just arrangement than neoliberal globalization" and to counter "unequal ecological exchange" (Riofrancos, 2022). However, an underlying agenda and several concerns can be identified in connection with the onshoring imperative. Riofrancos highlights that "US and EU policy makers see sustainable and ethical production as 'the West's last hope to resume its manufacturing prowess – the one terrain on which its manufacturers can outperform China" (Riofrancos, 2022, 31). The EU's sustainability agenda and sustainability standards are regarded its trump card and justify the diversification away from China (ibid.)

Critical minerals onshoring does not come without contestation. On the one hand, there are arguments that "mining in Europe can be more environmentally friendly than in other regions of the world (Umbach in Reisch 2022, 6). Thus, according to Umbach, "it is important to clarify priorities and to manage the balancing act between local conservation and global climate protection" (ibid). On the other hand, however, mining always comes with environmental consequences for local communities. Especially the creation of "social acceptance" can be quite problematic, as shown by Dunlap & Riquito (2023)[12]. Looking at Northern Portugal, the authors "explore the subtle efforts attempting to engineer the social acceptance of the Mina de Barroso,

[12] The creation of social acceptance varies a lot across European countries.

revealing the 'slow' social warfare tactics employed by the company to infiltrate rural social bonds, exploit psycho-social vulnerabilities and attempt to disable anti-mining organisation and unity within the region" (Dunlap & Riquito, 2023, 1). The researchers display "the insidious social technologies of pacification employed to engineer extraction and assemble an open-pit lithium mine with severe socio-ecological impacts in northern Portugal" (ibid.) and conclude that "mining companies, in (more or less direct) cooperation with state authorities, are promoting a hyper modernist worldview based on climate reductionism and techno-fixes, thus seeking to dismantle what is left of low-impact agrarian and traditional lifeways" (ibid., 18.).

7.1.1.3. 'Win-Win' partnerships

In order to secure its access to CRMs and diversify its supply chains, a new paradigm with regards to EUs approach to partnerships can be observed; "one, that attempts to combine successfully competing with China for raw materials access through "partnerships of equals" with resource rich countries, whilst emphasizing sustainability" (Pickles 2023, 3). According to the CRMA, "with a view to building beneficial long-term relationships with resource-rich countries, the EU will seek win-win partnerships in full complementarity with the Global Gateway strategy" (COM(2023) 165 final, 2). These partnerships are "win-win" since "they should […] enhance the sustainability and value addition in the production of these resource rich developing and emerging countries" (ibid.).

The CRMA outlines two directions of work with regard to its "win-win" partnerships. Firstly, the EU aims to enhance its trade and investment agreements, which should provide a "investor friendly, predictable and stable" business environment and sustainable investment (ibid., 9). Secondly, the EU strives for bilateral strategic partnerships "turning economic opportunities into mutually beneficial realities" (ibid., 10), promoting "sustainable growth and [contributing] to

resilient raw materials and industrial value chains" (ibid.). Strategic partnerships are already established with Canada, Ukraine, Kazakhstan, Namibia. A special role is attributed to the Global Gateway, which is seen as "the mutually beneficial approach where the EU stands out" (ibid., 12)[13].

Pickles (2023) points out several issues with the proposed strategic "win-win" alliances. According to the European Green Deal, "the EU should use its expertise in 'green' regulation to encourage partners to design similar rules that are as ambitious as the EU's rules, thus facilitating trade and enhancing environmental protection" (COM(2019) 640 final, 21). Whilst this is undoubtedly important, it is also necessary that partnerships and negotiations are done on an equal footing (Pickles 2023, 6). This would mean, amongst other things, that "traditional practices and situated knowledge to reduce the technology gap between countries and promote technological autonomy and sovereignty" must be respected (ibid.). Moreover, this would mean taking widespread criticisms by the producer countries seriously, such as the issue of the non-transformation of minerals into metals (processing and manufacturing) in country by multinationals (ibid., 7). As claimed by Küblbock, "the EU conceived its strategies without entering into a dialogue on equal terms with those who are affected by it" (VIDC, 2023). Further, there is indication that African countries are not getting enough support from the EU with regards to to building their own battery processing and recycling capabilities (ibid.).

Another issue is the promise of sustainability in existing agreements between the EU and resource-rich countries. "When it comes to mining the term "sustainability" is widely debated" (Pickles, 2023, 8). "There is no globally agreed standard for sustainable mining, although options have been

[13] The Global Gateway will be discussed in chapter 7.1.3.

proposed" (ibid.). Pickles examines recent EU raw material agreements and shows that there is a lack of clarity how sustainability and responsibility are defined and will be delivered (ibid., 9-14). Furthermore, a similar issue can be observed with voluntary/ sector-specific industry standards assuring responsible/ sustainable production (ibid., 15). This is particularly evident with the EU Conflict Minerals Regulation, which intends to prevent the sourcing of tin, tantalum, tungsten and gold from regions where profits finances armed conflict (European Commission, 2023). Here, abundant evidence exists that the industry schemes underlying the regulation are weak and inefficient (Pickles, 2023, 18; Bolger et.al., 2023, 33; Gonzalez 2023, 5).

7.1.1.4. Circularity

According to the EU, "measures to increase circularity and efficient use of critical raw materials will be the key contributor to mitigate the import the dependency that the EU is facing" (Q&A European Commission, 2023). For Riofrancos, the EU Comission's Sustainable Battery Regulation is "the apotheosis" of the security-sustainability nexus. The researcher writes:

> "Aligning with commitments to a circular economy and the Green Deal, the regulations requires batteries to be manufactured with increasing levels of recycled content and with carbon footprint labels […]. These environmental goals have a geoeconomic logic. […] Alongside onshoring, circular economy approaches reduce "environmental and social impacts" and "Union dependency on materials from third countries". It is worth noting, however, that when tensions between security and sustainability emerge, security is prioritized: in the event of supply risks, the Commissions can "[amend] the targets for the minimum share of recycled" battery materials" (EU Commission 2020, in Riofrancos (2022), p. 32).

Currently, the recycling rates of several CRMs are still at the lower end, such as for lithium and rare earths at less than 1% (Levinger 2023, 4). Generally, what needs to be acknowledged is that "recycling is strictly limited in its ability to provide resources for an expanding material economy" (Parrique et.al., 2019, 5).

7.1.1.5. Security and Sustainability

The value-led practices clustered under the Security-Sustainability Nexus – the making of criticality, CRM onshoring, win-win partnerships – legitimize EUs extraction of CRMs in order to cut its dependence on CRM imports. Sustainability is the central value of EUs CRM strategy and practice, which warrants the extraction and operation of the EU in order to achieve its security objectives. Security and sustainability are laid out as parallel goals. As Riofrancos writes, "For policy makers and corporate executives, "secure" lithium is "sustainable" lithium, and vice versa" (Riofrancos 2022, 35).

"Sustainability", "sustainable development", "sustainable mining" are often considered to be "fuzzy buzzwords" (Palmer et.al. 1997, 87), meaning – among other things - that they are (often) poorly defined. For the EU, in context of the CRMA, sustainability is connected to human rights, labour rights and environmental protection (COM(2023) 165 final, 15). EUs sustainable development of CRM value chains aims to support partners in their own sustainable transition, as well as to promote human rights, conflict resolution and regional stability (ibid.).

Sustainability is regarded EUs trump card in its competition with China. The comparison between the Chinese and European "sustainability" agendas is widely discussed, especially in the context of the Global Gateway vs. China's Belt and Road. As President of the EC Ursula von der Leyen puts it: "We, as Europeans, want to diversify our inputs away from producers like China because

we want more sustainability, we want less environmental damage, and we want transparency on labor conditions" (Von der Leyen 2021 in Riofrancos 2022, 32). Indeed, China is being criticized for its engagement in resource-rich African countries. For example, the DR Congo recently re-negotiated most of its resource-for infrastructure deals with China, "which it estimated allowed Chinese companies gain over 10 billion in minerals over the past 10 years for only 822 million built infrastructure in DR Congo" (Hansrod, 2023).

The EU praises itself as a supporter of the global green energy transition, who "should use its expertise in "green" regulation to encourage partners to design similar rules that are as ambitious as the EUs rules, thus facilitating trade and environment protection and climate mitigation in these countries" (COM(2019) 640 final, 2019). However, as Pickles (2023) shows, there are various issues with the EU sustainability promises. Pepe (2022) notes, that the EU has been vastly unsuccessful to tackle the trade-off between sustainability and supply security goals (Pepe 2022, 4). According to Riofrancos, "it is too soon to tell whether the competing objectives of national security, environmental sustainability and corporate profitability will coexist in an equilibrium or whether one will prevail over the others" in the context of CRMs (especially since the CRMA is freshly proposed legislation).

7.1.3. Geopolitical Reasoning on CRMs

The Critical Raw Materials Act emphasizes that the "secure and sustainable supply" of CRMs is needed for the EU's "long-term competitiveness" and "to maintain its open strategic autonomy in a fast changing and increasingly challenging geopolitical environment" (COM(2023) 165 final, 2023: p. 19). In the EU, the dependence on imports of CRMs and 'green' technologies from China

is viewed as a geopolitical threat. Which value-led practices are decisive in the context of geopolitics?

7.1.3.1. A geopolitical Union

In her thesis, Sztancovics (2021) explores the geopolitical reasoning on CRMs of the European Union. The author outlines that since the introduction of the EUs Global Strategy in 2016, the EU is becoming more "geopolitical", meaning that "a geopolitically strategic narrative is replacing its former "transformative" one" (Sztancovics, 2021, 2). "The overarching ambition of becoming a stronger Europe in the ["polarized" and "fragile"] world", is now pledged to serve as the foundation for all future EC projects going forward (ibid.). Sztancovics observes, that:

> "By becoming geopolitical, the EU is not merely protecting its own prosperity and pursuing its interests, but its geopolitical "actorness", power and influence are seen as a 'moral obligation' to the changing condition of the world. Its geopolitical turn and reasoning on CRMs is essentially also based upon a presentation of itself as a 'benign ally' to the rest of the world's countries" (ibid., 23).

In 2020 - 2023, the geo-politicization of the EU further increased and took new dimensions. Firstly, the COVID-19 pandemic induced the 'Team Europe' approach (JOIN (2020)11) which "has sought to mobilize rapid development assistance to support partners in addressing the impacts of the crisis, while promoting joined-up approaches among European actors to assert itself in a changing and competitive geopolitical context" (Burni et.al., 2021, 524). Secondly, Russia's war in Ukraine amplified EU's wishes for an open strategic autonomy and strengthened Europe's ambition for increased defence capabilities and a new European security architecture (see chapter 7.1.4.).

7.1.3.2. Strategic security

The EU strategic autonomy (EU-SA) "refers to the capacity of the EU to act autonomously – that is, without being dependent on other countries – in strategically important policy areas" (Damen 2022, 1). These areas range from economy to defence policy to the capacity to uphold democratic values (ibid.). From 2013 to 2023, the EU-SA has gone through several phases, each targeted differently (see ibid.). "Since 2021, the scope of the EU-SA has been widened virtually to all EU policy areas, while the expression 'strategic autonomy' was paradoxically used less and was often replaces by similar concepts such as 'open strategic autonomy', 'strategic sovereignty', 'capacity to act' and 'resilience'" (ibid.).

The "2021 Strategic Foresight Report" (COM(2021) 750 final) lists "Securing and diversifying supply of critical raw materials" as one of the 10 pillars of Europe's open strategic autonomy. Moreover, "access to resources" is seen as "a strategic security question for Europe's ambition to deliver the Green Deal" (COM(2020)474 final, 1). Further, the new industrial strategy "proposes to reinforce Europe's open strategic autonomy, warning that Europe's transition to climate neutrality could replace today's reliance on fossil fuels with one on raw materials"; "The EUs open strategic autonomy is these sectors will therefore need to continue to be anchored in diversified and undistorted access to global markets for raw materials" (ibid.). "Open strategic autonomy" in this regard is defined as a model "shaping the new system of global economic governance and developing mutually beneficial bilateral relations, while protecting ourselves from unfair and abusive practice" (ibid.).

The EU is seeking strategic security especially with regards to global value chains. The documents analysis indicates that "especially in the minerals sector, a shift away from a narrow focus on securing raw materials to a broader geopolitical perspective on supply chains is already apparent,

with the aim of reducing dependencies on potentially risky partners" (Müller, 2023, 2). With regards to China, the EU is following the moderate strategy of "de-risking", which is reflected in the measures of the CRMA (ibid., 10) and in practices such as the so-called "friend-shoring".

Friend-shoring

The Minerals Security Partnership (MSP) and the Critical Raw Materials Club (CRMC) act as mechanisms of "the spatial reordering of supply chains under the criterion of political convergence", or "friend-shoring" (Vivoda 2023, 2). According to Vivoda (2023), "friend-shoring is part of a broader reorganisation of global supply chains due to worsening relations between China and the West, the impact of the COVID-19 pandemic, and Russia's invasion of Ukraine" (ibid.). It is a strategy wherein a "group of countries with shared values that encourage companies to establish and maintain supply chains within the group" with the aim "to prevent autocratic strategic rivals form leveraging a market advantage in a strategic industry to disrupt the economies of the West and its allies and friends" (ibid., 3).

Criticism of friend-shoring argues that this strategy "could foster protectionism and create geopolitical and economic rifts" as well as "exacerbate global inflationary pressures" and "less efficient value chains" (ibid., 4). Moreover, "the concept is very vague and not backed up with clear criteria, e.g. democratic orientation or regime stability" (Müller 2023, 6).

7.1.3.3. The Global Gateway Initiative and CRMs

A closer look at the practice of the Global Gateway Initiative is necessary to study the underlying geopolitical and geoeconomic interests of the EU. The Global Gateway Initiative is a geopolitical and geoeconomic strategy, which is inextricably connected to the promotion of European interests

in emerging markets and developing economies (European Commission, 2022). It is supposed to close the investment gaps in global infrastructure and aims for the target of mobilising 300 billion Euros of investments by 2027 (ibid.), where half of this sum should go towards Africa (European Commission, 2023). The key values and principles are a) democratic values and high standards; b) good governance and transparency; c) equal partnerships; d) green and clean; e) security-focused (Global Gateway, 2021, 3). The outlined investment priorities are the spheres digital, climate and energy, transport, health, education and research (Ibid.).

According to the CRMA, the EU aims "to support investments in infrastructure projects relevant for our CRM supply chains" in emerging markets and developing economies, where most CRMs are found (COM(2023) 165 final, 12). Projects related to CRMs are going to be prioritized under the Global Gateway Strategy (ibid.). These projects shall "enhance in-country value addition", "boost competitiveness, sustainability and security" as well as "reinforce the good governance capacity and transparent business practices in this sector" (meaning attention to ESG standards) (ibid.)

The Global Gateway is often presented as a counterproposal to China's "Belt and Road Initiative" (which is pushing major Chinese investment projects in African infrastructure). The Chinese involvement is criticised as promoting non-transparent practices and the indebtedness of many African states (Bohne, 2023). Yet even though "the EU primarily advertises that its financing offers differ from other donors because they minimize the risk of over-indebtedness […] the credit terms of individual projects within the framework of the Global Gateway have not yet been made clear and have not been communicated publicly" (ibid.).

Bohne points out that most of the projects under the Global Gateway are situated in the Climate and Energy, as well as Infrastructure spheres, meaning that the other spheres don't get the promised

attention. One reason for that is the European interest to establish EU-Africa Strategic Corridors. In their study, Baranzelli et.al. (2022) conclude that "at least five EU-Africa Strategic Corridors can also be considered as minerals resource corridors"; "Corridors, in fact, facilitate access to current and potential future mines by providing transport and energy infrastructures, among others, and, in turn, put the related mineral industries in the context of a stronger and more strategic territorial organisation focused on economic and social development at regional or higher scale (Branzelli et.al., 2022, pp. 621-622). The Democratic Republic of Congo (DRC) builds a special point of interest, where the competition with China regarding CRMs builds the central motive.

The infrastructural focus on resource corridors and areas indicates EUs underlying interest in Africa - namely, its European resource-security realised in the form of supply chain security and access to raw materials. As Bohne calls it, the Global Gateway "is serving the Green New Deal" (Bohne, 2023). Bohne claims, that even though the financing of relevant infrastructural projects is absolutely necessary, without further measures - such as the cancellation of debt/ debt relief and coherent strategies to fight poverty – "these attempts remain trapped in the logic of a neoliberal-oriented policy" (ibid.).

Interim Conclusion

Strategic security refers to the EUs attempt to establish itself as a geopolitical and geoeconomic power. Regarding CRMs, this means the reduction of dependencies from China and other potentially risky partners, as well as gaining control over global value chains, most notably through the Global Gateway Initiative. The project, which "aims to forge links and not create dependencies" serves the establishment of European resource security through minerals resource corridors. According to Christman's analysis, "despite all its efforts for exerting influence is

limited; future developments will heavily on China's actions" (Christmann in Reisch, 2022, 3). The current policies are not sufficient to achieve the goal of strategic autonomy in the CRM sector (ibid.).

7.1.4. European Security and Defence

As stated in the Critical Raw Materials Act, resource security is seen as a necessary prerequisite for European security and defence (COM(2023) 165 final, 1). According to the JRC, the "aerospace and defence" sector provides the EU with essential capacities for its open strategic autonomy (JRC Foresight Report 2023, 173). After the renewable energy sector, the aerospace and defence sector requires the second-biggest share of SRMs - more than the sectors electric mobility, the industry and the ICT (information & communications technology). CRMs/ SRMs in defence applications as a topic are under-researched and get less attention than CRMs for the energy transition and digitalisation (Reisch 2022, 7; Girardi et.al. 2023, 1).

7.1.4.1. Climate and Security Nexus

"Ensuring a climate resilient and sustainable European security and defence" is outlined as one of the main aims of EU's resilience against external conflicts crises in its new outlook on the climate and security nexus (JOIN(2023) 19 final, 14). The introduction to the document states that "Climate change and environmental degradation pose increasing risks to international peace and security" and "[…] can create the potential for greater migratory movements and displacement, pandemics, social unrest, instability and insecurity" (ibid., 1). Moreover, it acknowledges that the EU crisis management is linked to European defence since 2020 (ibid.). The term "climate and security nexus" is defined as "the impacts of both climate change and environmental degradation including biodiversity loss and pollution, on peace, security and defence" (ibid.).

The following paragraph provides important notices of the positionality of the EU within the climate-security nexus, mainly, that instability, insecurity and conflict are happening elsewhere, and that the EU will be an object of "spill over effects":

> "Nevertheless, and while a lot is being done to advance the green transition and manage its challenges, there is an increased risk of instability, insecurity and even conflict. We should prepare ourselves for increased spill over effects on the European Union. These can arise through increased demand for aid, the disruption of supply chains or with people fleeing from uninhabitable areas or severe adverse conditions at home, with the potential internal displacement and increased irregular migration but also through organised crime, terrorist organisation and the proliferation of weapons" (ibid., 3).

A reference to CRMs is made directly and indirectly mainly in two instances. Firstly, it is acknowledged that "[r]esources and technologies that are essential for the energy transition and the phase out of fossil fuels have become subject of growing strategic competition, which has further escalated since Russia's unprovoked and unjustified military aggression against Ukraine" (ibid., 2). Secondly, the necessity of the decarbonisation of security and defence forces is highlighted: "[m]ember States' security and defence forces are confronted with a changing and increasingly challenging security environment in Europe and beyond, including more severe climatic operational conditions. At the same time, they need to reduce their greenhouse gas emissions and fossil fuel dependency, without affecting their operational effectiveness" (ibid., 2).

7.1.4.2. New European Security Architecture

The war in Ukraine is seen as a "tectonic shift in European history", "a new reality" (Versailles Declaration 2022, 1) which contributed to the accelerated building of a new European security

architecture. The Versailles Declaration, issued in March 2022 shortly after the beginning of Russia's war, is a good starting point to examine the new security architecture.

Russia's war "undermines European and global security and stability" (ibid.) and is considered a threat to the values of the European model such as freedom and democracy (ibid., 2). In order to face "the growing instability, strategic competition and security threats" (ibid., 3) the EU plans on designing a "new growth and investment model for 2030" (ibid.), which should consist of three key dimensions: a) "Bolstering our defence capabilities" b) "Reducing our energy dependencies" c) "Building a more robust economic base" (ibid.). Critical raw materials are listed under the last dimension as an area where strategic dependencies need to be reduced (ibid., 7).

Overall, the EU decided to "take more responsibility for its own security and, in the field of defence, pursue a strategic course of action and increase its capacity to act autonomously" (ibid., 3). As already mentioned, that means the investment in more and better defence capabilities, as well as the reduction of energy dependencies. The main strategic document designed to specify these aims is the "Strategic Compass for Security and Defence", issued in March 2022 by the European Council. In his foreword to the document, HR/VP Josep Borell points to the necessity of "Europe's geopolitical awakening" (Strategic Compass, 2022, 4) in "a new world of threats" "shaped by war power politics, where everything is weaponised and where we face a fierce battle of narratives" (ibid.). Concrete goals are set out in four work strands (ibid., 7): 1) "Act more quickly and decisively when facing crises" 2) "Secure our citizens against fast-challenging threats" 3) "invest in the capabilities and technologies we need" 4) "Partner with others to achieve common goals".

7.1.4.3. CRMs for Security and Defence

Surprisingly, the Strategic Compass mentions critical raw materials only once[14] and coins the access to CRMs "a specific security challenge" (ibid., 23). It is acknowledged that "climate change, environmental degradation and natural disasters […] are proven drivers for instability and conflict around the globe", and the competition for natural resources is named as a concrete example (ibid., 22-23).

Complementary documents, however, point to the importance of CRMs for European security and defence. The "steady, sustainable and stable supply of critical raw materials" is considered as "vital for Europe's defence sector" (2022/2079(INI), 4). Overall, "a strong, sustainable, technologically advanced and competitive defence industry" necessitates in "a rapid increase in production capacities" of defence equipment (ibid., 3). It is further noted that the defence sector also underlies "the danger of overdependence on non-EU raw materials" (2022/2079(INI), 6). Therefore, "resource efficiency, the development of new materials and the promotion of secondary raw materials" are are encouraged (ibid., 7).

7.1.4.4. Green Security, EUs Militarization and CRMs

Since 2016, an increased militarization of the EU can be observed. The Global Strategy (2016) gave "the military- and security industrial complex a role it did not have previously" and called for "a European hard power" (Ruiz et.al, 2021, 24). A mainstreaming of militarisation across EU

[14] There are national defence strategies of European countries which are much heavier acknowledging the role of CRMs for security and defence. For example, the German National Security Strategy is based on a broad concept of security and points to the central role of CRMs for its "Robust. Resilient. Sustainable" integrated security. Raw materials are mentioned to be foundational for the German economy (German Federal Government 2023, 53). Raw materials are mentioned 30 times throughout the document.

policies took place (ibid., 25), which is especially evident in the Climate and Security Nexus described above. The EU strives for its "green security" – meaning the protection from the instability, insecurity and conflict triggered by the climate crisis - through the increase of its security and defence forces. In 2016, European environmental programs have been tasked "to look out for ways to support the military-industrial complex within their own field of action" (Ruiz et.al., ibid., 40). This militarisation of environmental issues, however, is quite ambiguous, as already pointed out in the theoretical part. On the one hand, the military can help with peacebuilding and stabilisation, humanitarian action and crisis management. On the other hand, additional funds are streamed to military bodies instead of non-military environmental agencies and initiatives (Shepherd 2022, 46). Furthermore, "[f]ocusing on the connection between the military and the environment may distort the analysis of the situation. In this way, defining environmental problems could contribute to the militarization of environmental politics than to a demilitarization of traditional security thinking" (ibid.). Ruiz et.al. point out how the EUs militarization is actually threatening peace and people's safety worldwide (Ruiz et.al. 2021, 60-67)

Overall, it can be stated that the EU's security and defence sphere is underpinned by a specific security culture itself. It strives for its "comprehensive" European security (Strategic Compass for Security and defence) amidst Russia's war and the "new world of threats" (ibid.) including the climate crisis. It also attempts the preservation of the "European way of life" (Ruiz et. al. 2021, 29). Militarization is one of its components. Another component is "the preservation of Europe's technological superiority […]. It is also about access to and control of space, a growing "enabler of security and defence" (ibid). Ruiz et.al. suggest that "[i]n the long term, it is about the global

race for raw materials, which is a prerequisite for staying competitive in the technological arena and in controlling space" (ibid.).

How can the parallel increase in demand in CRMs in the military sector be justified, when a decrease in their demand is actually necessary? This thesis cannot fully address this complex question and since it would include a debate of militarization per se. However, it becomes clear that behind the increased demand for CRMs for EUs security and defence stands a specific security culture with its convictions, values and practices. It further underlines the point that the "criticality" and "strategy" behind CRMs "are neither universal, timeless, not binary" and depends on the political (security and defence) interests of a state (Hache et.al., 2021, 11).

7.1.3. CRMs for twin energy and digital transition

The access to CRMs is coined "a strategic security question for Europe's ambition to deliver the Green Deal" (COM(2019) 640 final, 8). The JRC Foresight study expects "an unprecedented increase in demand for key materials necessary to a successful twin transition" (COM(2023) 165 final, 1). "For onshore and offshore wind turbines, for example, demand for rare earth minerals is expected to increase 4.5 by 2030 and 5.5 times by 2050, respectively, while the batteries powering our electric vehicles is forecasted to drive up demand for lithium 11 times by 2030 and 17 times by 2050, respectively" (ibid.).

7.1.3.1. Energy Transition – material requirements and the role of e-mobility

In a study by the German NGO Powershift, Reckordt et.al. (2023) look at the actual material requirements for renewable energy technologies. They show that renewables have not been the driving factor for the high forecasts of future raw material consumption, when measured against

the global material consumption of wind power and solar energy (Reckordt et.al. 2023, 9). A study by the Öko-Institute which looks solely at the EU leads to the same conclusions (ibid., 10). Moreover, Reckordt et. al. outline that "the material requirements for renewable energies are not significantly higher than those for fossil fuel production" (ibid., 18).

Studying widespread scenarios and forecasts, "the high consumption of lithium, cobalt and nickel can be attributed to (electric) mobility and, above all, to individual, electrified automobiles" (ibid., 21). The replacement of combustion engines with electric cars on a 1:1 basis, as currently pursued by the auto industry, will be in competition with the energy industry for CRMs (ibid.). The EU Sustainable and Smart Mobility Strategy does not question increasing e-mobility rates (Bolger et.al. 2021, 31). Against this background, Powershift calls for a raw material transition, meaning the absolute reduction of material requirements.

7.1.3.2. Energy security and CRMs

CRMs are increasingly recognized as being essential for the European and global energy security (JOIN(2022) 23 final). According to Vivoda (2023), minerals are "gradually taking on the pivotal role previously held by fossil fuels" (Vivoda 2023, 5). Whilst this statement is debatable – fossil fuels are still playing a central role both worldwide and in the EU, – the share of renewables in the EU energy mix is increasing (Eurostat, 2023). One parallel between the traditional energy sector and renewable energy sector is obvious: the necessity of reliable supply chains to ensure an undisrupted energy (ibid.). Thus, "concern traditionally associated with energy security, such as unexpected supply disruptions or sudden price fluctuations, are becoming increasingly relevant within the context of minerals and their role in the modern energy system" (ibid.). In the context of renewable energy, resource security is an essential prerequisite for energy security. Many

researchers claim that "the energy transition will merely shift dependence from fossil fuels towards mineral resources (Arian et.al. 2021 in Reisch 2022, 2).

Taking the definitions by the IEA and Cherp & Jewell introduced in chapter 4.3.1., energy security is the "uninterrupted availability of energy sources" which should enable "the low vulnerability of vital energy systems" (Cherp & Jewell 2014, 418). How are "vital" energy systems and their energy demand defined in the European context? I contend that the consideration of energy systems as "vital" is majorly influenced by the socio-economic system of the respective society. Ciuta (2010) extends this point: "The need for energy is not driven by the imperative to survive, but by the functional demands of various sectors of activity, which means that its absence does not lead to extinction, but to dysfunction" (Ciuta, 2010, 132). The following arguments shall underline these claims.

Firstly, the current global energy consumption is highly unequal. The average person in the Global North consumes in some cases as much as 100 times more energy than the average person in the global South[15] (Ritchie et.al. 2020). Meanwhile, around 600 million people in Africa do not have access to electricity, completely lacking affordable, reliable, sustainable and modern energy (Kuhudzai, 2022). Moreover, energy consumption is unequal within European society. Energy inequality exists across EU Member States' and well as their socio-economic divide (Kashour, 2023). **For whom** (Cherp & Jewell, 2014) **is European energy security?**

Secondly, As the previous chapters have shown, CRMs are needed for a wide range of uses. According to the JRC, E-mobility, ICT (information, communication and digital technologies) and the aerospace and defence sectors together have a forecasted demand which is twice higher than

[15] Without accounting for CO2 emissions embodied in international trade.

for renewables. The question of "vital" energy systems is inextricably connected to the values underlying European energy security (**European energy security for which values?** (Cherp & Jewell, 2014)).

The questions provided by Cherp & Jewell allow to shift the focus from the supply side of energy security onto the demand side. Why this shift is necessary will become even more clear in the next chapter. What needs to be, finally, said with regards to energy security is, that: "In the context of the global transition to decarbonization and digitalization of energy systems, existing energy security paradigms need to be reviewed, reconsidered and redefined" (Umbach, 2023, 116). For example, "resource security issues are still largely discussed in isolation from energy security, without having entered the broader political and public consciousness" (ibid., 118). This is also necessary since with the digitalization of the energy sector, new threats to energy security such as cyber-attacks are emerging (ibid., 122). Moreover, some of the fundamental assumptions of the European energy policy need to be overthrown, especially the argument that geopolitical risks exist only with regards to fossil energy (ibid., 130).

7.1.3.3. European Environmentalism and Green Growth

The European Green Deal is "a growth strategy that aims to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use" (COM(2019) 640 final, 2). In her State of the Union Address (2023), President of the EC Ursula von der Leyen stated that the European growth strategy is delivering in the short-term (2023).

Indeed, in the first quartal of 2023, out of the 21 EU countries, 15 countries managed to decrease emissions while growing their GDP (Eurostat, 2023). However, the pace of decarbonization matters. In their recent study Vogel & Hickel show, that "the decoupling rates achieved in high-income countries[16] are inadequate for meeting the climate and equity commitments of the Paris Agreements and cannot be legitimately considered green" and "[i]f green is to be consistent with the Paris agreement, then high-income countries have not achieved green growth (Vogel & Hickel, 2023, 759). Moreover, Hickel & Kallis claim, that green growth "is not feasible on a global scale, even under best-case scenario policy conditions" and "is physically impossible to maintain in the longer term" (Hickel & Kallis, 2019, 483).

According to Mastini et. al. (2021), "to be effective […] the GND must place at its centre the reduction of throughput to facilitate a rapid decarbonisation of the economy and to avoid problem-shifting and further extractivism in the Global South" (Mastini et.al. 2021, 8). Here, the authors refer specifically to the material throughput of raw materials necessary for the renewable energy production (ibid., 5). What can be pointed out as a major flaw of the CRMA is the fact that is does not address the necessity of the decrease of CRM throughput in the EU (in other words, the reduction of the EUs material footprint in absolute terms (Gonzalez 2023, 5). Even though the circularity targets are important and helpful, they are not enough to cover the demand side and "have not led to sufficiently large reductions in material footprint or overall environmental impacts from consumption" (Bolger et.al. 2021, 30).

[16] Amongst others, the authors analysed several countries in the EU.

7.2. Picturing the security culture

Underlying the EU critical raw materials strategy is a complex security culture, which main objective is resource security in order to ensure 1) the functioning of the European socio-economic system (green and digital transition, energy security) 2) the European geopolitical leverage and 3) the European security and defence; all against the backdrop of the climate crisis. The dependence on CRM imports and single suppliers is perceived as the main threat, which should be countered through the means of the development of an EU CRM value chain, the diversification of supply and circularity. Decisive are the values (e.g.) sustainability, high environmental and social standards, value addition in resource-rich partner countries, the promotion of human rights, conflict resolution and regional stability, sustainable growth. "Sustainability" is regarded the central value, which warrants the extraction and operation of the EU. Value-led practices such as the making of criticality, CRM onshoring, the establishment of "win-win" partnerships and circularity translate the means to achieve resource security into action.

The objects of resource security have specific underlying security cultures themselves. First, "strategic security" refers to the EUs attempt to establish itself as a geopolitical and geoeconomic power. Regarding CRMs, this means the reduction of dependencies from China and other potentially risky partners, as well as gaining control over global value chains, most notably through the Global Gateway Initiative. Second, the EU strives for its "comprehensive" European security and defence amidst Russia's and the "new world of threats", including the climate crisis. What can be observed is the mainstreaming of militarization across EU policies, which necessitates in an increase of CRM demand. Third, the security of CRM supply is needed for the European twin energy and digital transition, including its energy security. These transitions are backed by the

European Green Deal and its imperative of green growth. Overall, the EU is preserving and securing the functioning of its socio-economic system.

8. Ambiguities and alternative narrative(s)

8.1. Ambiguities

The divergence between the EUs CRM strategy and practice points out the ambiguities of the security culture of the EU and its goal of uninterrupted access to CRMs and green growth. As already outlined in the discussion chapter, there are several issues with how the EU is planning/ achieving its resource security. A few shall be highlighted in this chapter.

First, there is "a lack of coherence between the EU's critical raw materials policy and its other goals […] especially in the area of sustainability" (Reisch, 2022, 6). Even though EUs CRM strategy is underpinned by a necessary value-driven agenda e.g., the focus on human and labour rights, the examination of recent policy such as EUs raw materials agreements and industry schemes exposes their weaknesses and inefficiencies. Whether the CRMA will deliver on its promises of "sustainability" is yet to be seen.

Second, the EU acknowledges, that it "[…] will never be self-sufficient in supply of CRMs and will continue to rely on imports for a majority of its consumption" (COM(2023) 165 final, 2). It becomes obvious, that "[g]lobal North onshoring is in no way replacing extraction in the Global South" (Riofrancos, 2022). Moreover, "[g]lobal North onshoring does not repair the forms of environmental harm disproportionally meted out in the Global South. It allows those harms to continue, alongside new ones that primarily affect oppressed populations within more affluent countries" (ibid.).

Third, the objects of resource security – or, in other words, what are CRMs being used for - need to be carefully scrutinized. During the research for this thesis, it became clear, that the link of CRMs to the military is seldomly made and – for now – not studied enough. Moreover, the logic of green growth, such as the expansion of individual e-mobility, is not viable.

8.2. Alternative narrative(s)

Coming back to the theoretical underpinnings of this thesis is useful to pinpoint the necessity and possibility of an alternative narrative on the security understandings with regards to CRMs for the EU. According to Daase, "as society changes, so does the understanding of security and, vice versa, […] a changed approach to security has an impact on society" (Daase et.al. 2012, 30). The contingency perspective of the cultural studies claims that:

> "The decisive insight is that all of the complexes of practices from past to present […] are only possible, "normal" and "rational" or seen as necessary against the background of the respective, very specific horizons and codes of meaning. Practices are normal, rational, necessary of natural only in relation to their specific, contingent systems of meaning – regardless of where one may conceptualize these systems of meaning as sign systems, discourses, horizons of meaning, or language games" (Reckwitz 2008, 27).

Resource security is the backbone of the European extractivist mode of being and living. The switch from fossil fuels to renewable energy does not challenge extractivism at large. **To be successful, an alternative narrative on CRMs needs to semantically, conceptually, and practically break with the security cultures which are upholding the extractivist mode of being and living.**

There are numerous visions challenging the extractivist system of the Global North. These visions range from regenerative economics and circular economy to degrowth and ecosocialist approaches[17]. An important role plays activism from below and transnational networks, for example Yes to Life and No to Mining, which connect frontline communities and anti-extractive activists from the Global North and the Global South and advance "life-sustaining, post-extractive alternatives to mining" (https://yestolifenotomining.org/who-we-are/). These groups demand, amongst other things, "mandatory recycling and materials recovery, mass transit and car-free cities, moratoriums on sensitive ecosystems, and enforced rights to community consent" (Riofrancos, 2022). Moreover, the militarisation of the climate crisis and its connection to CRMs is challenged by several organisations promoting feminist approaches to peace, security and foreign policy, such as Women's International League for Peace and Freedom (https://www.wilpf.org/) and the Centre for Feminist Foreign Policy (https://centreforfeministforeignpolicy.org/); these organisations strive for a shift from military security to peace and human-centric security. Further, numerous NGOs and organizations, such as Powershift (https://power-shift.de/), call for a climate- and resource-friendly mobility transition, which shall include "a significant decrease in motorized individual transport" and "an an absolute reduction in the consumption of primary raw materials through a drastic downsizing in the number and size of cars" (Groneweg et.al 2021, 39-40). Finally, the Environmental Justice and anti-colonial/decolonial movements call for a just (energy) transition, which "must fundamentally transform and decolonize our global economic system" (Hamouchene, 2021). The huge global resource inequalities in both consumption and production need to be challenged, specifically the

[17] A brief examination revealed, however, that not all these approaches have clear proposals with regard to the question of CRMs.

unequal ecological exchange which is "systemic and pervasive in the current structure of the global economy" (Dorninger et.al. 2021, 10).

A shared objective of the majority of these visions with regards to CRMs is the **necessity in CRM demand reduction** in the Global North. This is required to mitigate the ecological, social and climate consequences of the raw material consumption. As already pointed out, the CRMA has no language on mitigating the demand for materials. The incremental gains which are possible to achieve with the legislation will not fulfil an "absolute reduction of environmental pressures and impacts" (Bolger et.al. 2021, 29). A truly fundamental socio-ecological transformation (or even "revolution" (König, 2021)) is indispensable.

9. Conclusion

This thesis explored the security culture(s) underlying the CRM strategy of the EU. The "security culture" approach turned out to be productive for the exploration of the different security understandings. The approach avoided "reifying security as an objective quantity or relegating it to the arbitrariness of linguistic construction" (Daase et.al. 2012, 40) and enabled "to specifically name and analyse empirically observable practices" (ibid., 7). Only the combination of the various security understandings – e.g. resource security, energy security, "strategic" security, "comprehensive" security - made it possible to identify the causes "that give the guiding semantics of "security" its social interpretative power in the most diverse local and international situations", in this case with regards to CRMs and their strategy (ibid., 8). It also became apparent, that "[w]however acts or debates politically in the name of security not only always presupposes a certain insecurity, which becomes a social reality through this presupposition, but also creates new insecurities that always accompany the production of security" (ibid.). For example, this showed

when examining CRMs for security and defence and EUs militarisation. “How is the EU preparing itself for the challenges that lie ahead? How will it deal with the climate, economic and social crises we are facing? What steps is it taking to tackle the root causes of these crises?” (Ruiz et.al. 2021, 6) – all these questions need to be carefully scrutinized, and the EUs security culture(s) give a partial answer.

The initial question that inspired this thesis was about the justice of the global energy transition, specifically, “[h]ow to advocate for new forms of energy that do not reproduce the same economic and political inequalities inherent to carbon-fuelled capitalism?” (Rignall, 2021). This analysis concludes that, to be successful, an alternative narrative on CRMs needs to semantically, conceptually, and practically break with the security cultures which are upholding the extractivist mode of being and living - apart from calling for the necessity in CRM demand reduction in the Global North and the equality of CRM distribution.

Appendix

Table 2: Material Corpus Analysis

Discussion Cluster	Practices	Values
Security-Sustainability Nexus	Domestic exploration, extraction, refining, processing and recycling of CRMs	"High environmental and social standards" (COM(2023) 165 final, 2) "creating quality jobs and boosting growth" (ibid.) "increasing open strategic autonomy" (ibid.) Creation of public awareness and acceptance (ibid., 4)
	The definition of critical and strategic raw materials	-
	Diversification of supply and mutually beneficial partnerships	"win-win partnerships" (COM(2023) 165 final, 2) Enhancement of sustainability and value addition in the production of resource rich developing and emerging countries (ibid.). "investor friendly, predictable and stable" business environmental and sustainable investment" (ibid., 9) "sustainable growth" (ibid.,10)
	Sustainable sourcing and circularity	Respect to labour rights, human rights and environmental protection (COM(2023) 165 final, 15)

			(Support of) partners' conflict resolution, regional stability and sustainable transitions (ibid.)
Geopolitics		Strategic security Global Gateway Initiative	EU's "long-term competitiveness" (COM(2023) 165 final, 19) Open strategic autonomy Global Gateway as "positive offer"
Objects of resource security	European Security and Defence	Strengthening of EU's security and defence sector Militarization	"Ensuring a climate resilient and sustainable European security and defence" (JOIN(2023) 19 final, 14) "Climate change and environmental degradation pose increasing risks to international peace and security" (ibid., 1) "more responsibility for its own security and, in the field of defence, pursue a strategic course of action and increase its capacity to act autonomously" (ibid., 3)
	Energy and digital transitions	E-mobility Energy security Green New Deal	"a growth strategy that aims to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use" (COM(2019) 640 final, 2).

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