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The role of justice in developing critical minerals

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ABSTRACT

It is a fundamental objective to transition towards a low-carbon economy worldwide which is supported by an international legal agreement – the 2015 Paris Agreement. In order to achieve this ambition, there is a need for new and more mineral extraction which is necessary for the technology for this low-carbon transition. These minerals are known as critical minerals and this article examines the role of justice needed in their development. The literature to-date lacks any holistic yet focused examination of the key elements of justice in the development of this industry. This conceptual article makes an original contribution that utilises an interdisciplinary perspective, legal geography, and explores key issues of justice that include distributive, procedural, restorative, recognition and cosmopolitan. The research identifies the key questions that need to be resolved under each element of justice and the unfortunate limited timeframes for action. Critical justice areas include taxation, environmental impact assessments, waste management, social license to operate, and cross-border actions. Resolving these issues will directly address societal issues of inequality and ensure a just transition to a low-carbon economy. Already there is a global race for critical minerals, and justice needs a stronger role in its development based on evidence to-date.

1. Introduction

Critical minerals have long been crucial for society, but they are now super-critical. Society has always had resource problems and that is why economics remains so important as at its simplest it concerns the management of resources in the most efficient way. Today, however, society is faced with the accepted consequences of climate change and through international legal agreements (for example, the Paris COP21 Agreement (2015)) has agreed to developing a low-carbon economy. Indeed, some countries have gone further and are planning to commit to zero-carbon economics; or they aspire to this goal (such as the European Union’s 2050 goal) (EU, 2020). These low-carbon aspirations however come with new demands on resources and hence critical minerals are now heavily in demand.

The number and definition of critical minerals has changed over time and this will probably remain the case as technological development increases for the demands of a low-carbon society. There is little literature in the area of critical minerals from a non-science perspective but the non-science issues have been raised very recently in prominent journals such as Nature (Ali et al., 2017) and Science (Sovacool et al., 2020). However, what is missing from this analysis is a perspective of justice as more and more of these critical minerals are extracted and used in society. This follows some recent research in terms of the extractive industry that has begun already to highlight justice issues (in particular distributive justice) from a taxation perspective on critical mineral extraction in Africa (Heffron, 2018).

This article aims to explore from a conceptual perspective and comparative perspective the core justice aspects of critical mineral development and extraction. It will examine the issue from an interdisciplinary perspective utilising legal, economic and business taxation perspectives to deliver on what the key challenges for achieving justice in terms of critical minerals are. This is of vital importance considering their increased use for the development of a low-carbon economies. The underlying focus here is to ensure that the transition to a low-carbon economy happens in a ‘just’ way (Heffron and McCauley, 2018), and for that to be achieved all the elements of justice need to be addressed such as distributive, procedural, recognition, restorative and cosmopolitanism.

In order to ascertain what are the key justice challenges for critical mineral development and extraction this paper first looks briefly at the critical minerals industry (Section 2). Then a literature review on critical minerals and justice is analysed (Section 3) and the need for justice in this sector is explored in Section 4. Following that, a conceptual review of what justice issues there are is presented in Section 5 that utilises the JUST framework from law and geography (Heffron and McCauley, 2018). Section 6 then advances conclusions on justice and critical minerals and identifies the pathways for future research. The aforementioned legal geography analysis contributes an original
contribution to this new and growing area of research on critical minerals where as stated earlier, much of the research lies in science.

2. Overview of the critical minerals industry

2.1. What is ‘critical’?

As stated earlier the critical minerals industry has been around for some time but it is really that the increased demand for them which has arisen due to the low-carbon energy transition which is responsible for their return to prominence once again. The US already had commissioned a first report on their strategy for critical minerals due to the clean energy technology back in 2010 (US DOE, 2010), however, this did follow an even earlier report back in 1973 (US GS, 1973) and this built on the Strategic and Critical Minerals Stock Piling Act of 1939 (P.L. 96–41, 1939).

The 1973 report discussed the importance of minerals and stated there were three questions to ask: "(1) How important is it to our present industrial civilization and standard of living? (2) how much of it do we have and to what extent is it economically and technologically available? and (3) how and where can we find more?" (Robst and Pratt, USGS, 1973: 1). There are different definitions of what ‘critical’ is. The Strategic and Critical Minerals Stock Piling Act of 2005 (50 U. S. C. 98 et seq.) states that strategic and critical minerals are those that are needed for military, industry and civilian use. While the legislation does not differentiate between strategic and critical, the latter would be broader in that strategic is more military related (NRC, 2008), i.e., a mineral would be more often critical than strategic (Robinson, 1986). Today, in the context of the energy transition, one of the most clear and distinct definitions for critical minerals is that ‘critical’ refers to their ‘importance to the clean energy economy and risk of supply disruption’ (US DOE, 2010: 6). Here in the rest of this section, what is involved in the critical industry is explored before the value of the critical minerals industry is detailed.

2.2. What is included in the critical minerals industry?

The second part of what critical minerals are is what is included in this critical minerals industry (CRM). This paper does not intend to go into depth on what is included within the critical minerals industry but more aims to present an overview and then consequently discuss how and if justice has been considered as a part of this. Nevertheless, in terms of the CRM, this paper takes a broad definition and includes elements and metals, energy mineral resources, and supply chain products – by utilising the term CRM, it is recognised the industry involves the raw material product, i.e. the modified mineral or element. The number of minerals that are classed as critical (according to the definition provided earlier – i.e. that critical refers to the importance to the clean energy economy and at risk of supply disruption) is increasing and a clear example of this is in the EU which classifies them as critical raw materials (CRMs). The EU stated in 2011 that there were 14 CRMs (EC, 2011), then in 2014 updated it to 20 (EC, 2014), and then in 2017 increased it to 27 CRMs (EC, 2017). The European Commission classified CRMs according to economic importance and supply risk (EC, 2011), similar to the earlier mentioned US definition above.

A review research study that analysed the number of critical minerals identified by reports from across the world held that the following were the most critical minerals: Rare earth elements (REE), Platinum Group Metals (PGMs), Indium, Tungsten, Germanium, Cobalt, Niobium, Tantalum, Gallium, Antimony, Bismuth, Thallium, and Magnesium (Hayes and McCullough, 2018). The latter review however recognised that this list would grow and in that context this paper captures that key research article (Hayes and McCullough, 2018) and also follows the EU and US perspective that the number of critical minerals is higher as demand and technological development will happen faster. Hence, the US perspective below is that the following are critical minerals is the perspective taken forward here in this paper, and these are identified in Table 1 below (Fortier et al., 2018); and this will be expected to grow as the energy transition gathers pace.

2.3. The value of the critical minerals industry

It is no surprise that there are a range of different values places on the Critical Minerals Industry. Indeed few reports seem willing to place a value on this growing industry and they all agree it is growing and will grow near exponentially (Sovacool et al., 2020). In addition, it is a global industry as the EU have highlighted in their report, and this can be seen in Fig. 1 below and the distribution of large shares of CRMS across the world.

The mining sector declined over the period 2011–2015 however it has rebounded since then (BGS, 2020). However, there remain expected issues according to many of the commercial practitioner reports and in particular they are environmental social governance (ESG) issues and also a need to invest circa $240bn according to some reports (FT, 2020). These mineral resources play a dominant role in 81 countries that collectively account for a quarter of world GDP, half of the world’s population and near 70 percent of those in extreme poverty (World Bank, 2017). Recent British Geological Survey (BGS) (2020) data highlights the acute demand for some resources in particular, between 2017 and 2018 they highlight the growth in lithium (an increase of 25%), cobalt (up 18%), graphite and nickel (both increased by about 13%). Lithium in particular has risen, rising 235 percent from 2014 to 18 (BGS, 2020). Indeed, the OECD (2019) states that the use of extracted key metals will double by 2060 irrespective of technology change or efficiency improvements.

3. Justice within the critical minerals sector: a literature review

It is important to remember that the critical minerals sector is part of the mining sector which the UN has stated clearly is crucial to meet the UN Sustainable Development Goals (UN, 2016) – the mining sector includes mineral exploration, extraction, milling/concentrating, smelting, refining, processing, transport and sale. Nevertheless there is little literature either research or practitioner that focuses on issues of justice in critical mineral development and extraction. Predominantly, practitioner and policy literature focuses in essence (1) developing the critical minerals business (2) rising demand (3) raising finance and (4) political issues (Akon, 2020; Andersson, 2020; Lee et al., 2020; Sovacool et al., 2020; Bazilian, 2018; He, 2018; Coulomb et al., 2015; Viebahn et al., 2015). There is one policy report however from the EU that does highlight ‘fairness’ however it in effect is stating that the EU should have access to these critical raw materials at fair prices (EC, 2008). This is a very limited form of justice that seems to favour big business and industry in general.

There is other literature that has aimed to review some considerations of justice but actual references to justice within the text are rare

| Table 1 Summary of What is Included in the Critical Minerals Industry 2020. Source: Created by the Author (2020). |
|---------------------------------------------|
| **Aluminium** | **Fluorspar** | **Manganese** | **Tellurium** |
| **Antimony** | **Gallium** | **Niobium** | **Tin** |
| **Arsenic** | **Germanium** | **PGMs** | **Titanium** |
| **Beryllium** | **Hafnium** | **REE** | **Uranium** |
| **Bismuth** | **Helium** | **Rhenium** | **Vanadium** |
| **Cesium and rubidium** | **Indium** | **Scandium** | **Zirconium & hafnium** |
| **Chromium** | **Lithium** | **Strontium** | |
| **Cobalt** | **Magnesium** | **Tantalum** | |

*REEs = Rare earth elements, PGMs = platinum group metals.
(McLellan et al., 2013) while other researchers have assessed justice issues in the context of a single metal such as cobalt and a focus on a single justice issue, for example, distributive justice (Heffron, 2018). Further, while a very recent UN (2019) report does focus in a limited way on the role of law, it is mainly in the context of procedural justice and is just a general focus on the mining sector (UN, 2019). That UN report was preceded by another general mining report in 2018 that focused on access to justice which again touches on procedural and to a certain degree recognition justice (UN, 2018). In contrast, this article aims to be far more comprehensive in its focus on justice recognising the development of critical minerals is a global issue, they are part of global business value and supply chains and they play a significant role in ensuring there is a just transition to a low-carbon economy across the world.

There has however been a growth in literature on critical minerals over the last few years and this will increase. But to-date this increase in the literature has not assessed issues of justice for this sector. The justice that needs research is for critical minerals development and this needs to reflect their role in the transition to a low-carbon economy. As stated by Ali et al. (2017:367) in Nature in 2017, "... a transition to a low carbon society, [is] a change that will require vast amounts of metals and minerals. Mineral resourcing and climate change are inextricably linked, not only because mining requires a large amount of energy, but also because ‘the world cannot tackle climate change without adequate supply of raw materials to manufacture clean technologies’. There are other past and more recent key literature on the topic in key journals of note such as Nature Geoscience (Vidal et al., 2013), Science (Sovacool et al., 2020) and Renewable Energy Strategy Reviews (Lee et al., 2020) but again none of this focuses directly on justice issues. Environmental and social issues are identified but limited in coverage and this is where this article aims to develop the literature and identify how issues of justice (or fairness, equity etc.) will be examined and resolved.

4. Why is justice needed in critical mineral development?

It seems strange to ask such a question of why justice is needed. However, it is clear that in the context of the development of critical minerals that question needs to be asked. An example of why, is the significantly documented issue is the child labour issues surrounding cobalt extraction in the Democratic Republic of Congo (Heffron 2018). One of the reasons that law developed in terms of the extractive industries was on repeated issues of safety failure back in the early 1800s when coal began to be mined commercially across the industrial world (Heffron and Talus, 2016). Yet nearly 200 years later, there remains the same issue in different parts of the world. Justice in reality has only touched some parts of the mining sector.

A key reason for justice is to ensure fairness and equality in society, in essence resolve inequalities. Economics since the 2007–2009 financial crisis has started to engage on this issue in a significant way (Stiglitz, 2012; Piketty, 2015; Scheidel, 2017; and Atkinson, 2015). Indeed Piketty (2020: 670) decries the issue and states that despite living in a world of big data, public data on inequality is inadequate. Piketty (2020) notes the key issue of inequality and climate change emissions, and from this perspective he highlights how this will cost economies (and more likely developing ones) 5 to 20 per cent of Global GDP if not more (he cites the Stern Review (2007) and the IPCC (2018)) report demonstrates these effects maybe accelerated as a result of pollution and environmental damage since 2007.

Considering the broad role that critical minerals play in the development of the low-carbon economy that the majority of countries have signed up to achieve via the Paris COP21 Agreement it is necessary to have a broad view of justice that can encapsulate this global industry that has global impacts. In this context there is a need to incorporate elements of climate, environmental and energy justice and these can be united together in terms of having a just transition to a low-carbon economy. This can be best expressed through the JUST Framework below that applies for a Just Transition (Heffron and McCauley, 2018) – see Fig. 2 below. This framework unites climate, environmental and energy (CEE) justice scholarship and can increase the potential for reducing inequality and injustice within society.

The benefit of utilising the JUST Framework is that it enables a more practical and interdisciplinary perspective and ensures the researcher assesses the justices issues specific to the problem, wider societal justice issues in terms of universal justice, the geography issues such as where
(i.e. need to consider global supply chains) and then finally to consider energy, climate and transition timelines (such as 2030, 2040, 2050 and beyond. The JUST Framework covers five key elements of justice that are needed to ensure the application of human rights across the energy life-cycle (Heffron and McCauley, 2017) and these are identified briefly below:

- **Distributive justice** – this concerns the distribution of benefits from the energy sector and also the negatives (i.e., are oil and gas revenues shared sufficiently?; who suffers the environmental damage?);
- **Procedural justice** – the focus here is on legal process and the necessary full legal steps (i.e., are all the steps for an environmental impact statement observed?);
- **Recognition justice** – are rights recognized for different groups in society? (i.e., in particular are we recognizing the rights of indigenous communities?);
- **Cosmopolitanism justice** – this stems from the belief we are all citizens of the world and so have we considered the effects beyond our borders and from a global context?;
- **Restorative justice** – any injustice caused by the energy sector should be rectified and it focuses on the need for enforcement of particular laws (i.e., energy sites should be returned to former use, hence waste management policy and decommissioning should be properly done).

There is motivation to utilise the energy justice framework as this will ensure that policy-making moves a country towards a just transition to a low-carbon economy.

5. Applying the ‘JUST’ Framework: theoretical assumptions for the critical minerals industry

In this section utilising the JUST framework from Section 4 there are key theoretical assumptions which can be advanced for ensuring and measuring the level of justice for critical minerals development. Each of the four core parts of the JUST framework are examined – justice, universal, space and time - and analysed in turn. The focus here concerns what are the key issues that society needs to ensure are happening as the critical mineral sector develops across the world. In some cases, there are already actions happening which the critical minerals industry can adopt. The aim is not to explore every single type of issue but rather focus on one and/or several key issues under each of the four parts of the JUST framework. Finally, the contribution here lies in how to move from theory to practice in terms of achieving justice as the critical mineral industry develops.

5.1. Justice & its elements – distributive, procedural and restorative justice

5.1.1. Distributive justice

Distributive justice is one of the three cornerstones of justice. There is a need to ensure there is a fair distribution of resources in society. As stated earlier in Section 4, many of the leading economists have been working directly on this issue where there is not a fair distribution of resources in society and there are then resulting effects of inequality. This issue is crucial as the critical minerals industry develops. There is a need to ensure that the same issues that have arisen in the extractives industry do not arise again.

The core issue for distributive justice is taxation. There is a need to know where the revenue from the critical minerals is going and how is it distributed. Recent scholarship has concluded that distributive justice should be recognized as the cornerstone of tax law, i.e. as the “first or sovereign virtue of a society's tax system” (Duff, 2017: 167). It has even been advanced that Adam Smith has argued that distributive justice was a key tax policy goal and that legal certainty was needed in order for distributive justice not to be just an illusory goal and that this still applies to this day (Gribnau and Vording, 2017). And this is certainly an issue for many developing countries when establishing their taxation policy around critical minerals.

The reality however of revenue distribution from a resource that is extracted is difficult to calculate because it is a complex operation and then there is a global market for the price of the resource, hence and too often the revenue sharing arrangements for a project are completed in the majority of projects in a case-by-case basis, despite the existence of taxation legislation. There are however, actions on this issue, through the initiative the Extractive Industries Transparency Initiative (EITI, 2020) which requires a state and an investor to disclose the details of their taxation relationship. It is having an impact though there remain significant problems with only 53 countries have signed up and not all cooperating to the same extent.

There is further global action also from an OECD led initiative which seeks to reform issues around taxation of energy and resource extraction (IISD-OECD, 2018a, 2018b, 2018c). In addition, this OECD initiative representing circa 60 countries noted that energy and mineral resource extraction represents a significant opportunity to raise revenue for many Governments. Post COVID-19 the need for more revenue will be even more pronounced and hence it is vital that tax reform occurs at international and national level. More transparency in taxation issues is needed at international level while at national tax reforms are needed to increase revenue.

5.1.2. Procedural justice

Procedural justice focuses specifically on the legal process of taking a project through from start to finish of planning and construction to operation and to end-use, and do all stakeholders have a legitimate opportunity to be involved (or represented) at these different stages. There are of course many issues here in terms of finance and taxation which are mentioned in the elements of justice here. The key issue for the development of critical mineral industry in procedural justice is the Environmental Impact Assessment (EIA) process each country has at a national level.

This is the legal process a project developer has to go through in
three phases and at an international, national and local level:

1) **International**: in securing finance for the project this will require an EIA to be produced for the financing institution under international banking standards – the Equator principles (this may be different for a company who will finance the project in-house or a national company who avails of financing options within the country but the likelihood is there would remain some environmental impact statement produced);

2) **National**: Has to adhere to national EIA legislation and submit an Environmental Impact Statement (EIS) which has to be approved before the project receives permission to start; and

3) **Local**: The EIA process has to include several elements of public participation and involve these local stakeholders in the plans for the development of the project.

There have been two recent cases where energy projects, coal, have failed to pass the EIA process and these were in Australia and Kenya. A key reason for the failure in both countries was that the EIAs lacked completeness in terms of data provision, the poor assessment of the social and environmental impacts from the existing data and the projects’ positive economic contributions were overestimated (Nogrady-Nature, 2019; Herblin-Bloomberg, 2019).

Of significance, is that the legislation around EIAs is changing periodicaly and this is for two main reasons, the first is that once it changes, i.e. is improved in one country, other countries follow. The reason why this happens is that increased requirements in the EIA process reduce the risk profile of the project for all stakeholders. The second reason for change is that data capture methods are increasing so different types of environmental impact as well as socio-economic impact of a project can now be measured. EIAs are becoming more and more stringent and this is documented in the literature, it will be increasingly hard for energy projects, including critical minerals, to pass this process.

There is additional support for EIA legislation through international law through an international agreement the (Aarhus Convention, 1998) – known as the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters. This agreement allows for public participation in energy projects, and access to environmental data, and is an agreement signed by 39 countries but with 47 parties to it. The result is that there is added enforcement to national EIA legislation but this was a convention advanced by the UN ECE so is limited mostly to EU and neighbouring countries. However, perhaps a more significant development has been in international finance standards, known as, the Equator Principles. These Equator Principles will play a significant role in the critical minerals industry as they cover the majority of international project finance debt within developed and emerging markets, and notably they in essence require the project to have passed the EIA before releasing the project finance (Equator Principles, 2020).

5.1.3. **Restorative justice**

Restorative justice concerns how if there is an injustice in the energy sector it should be rectified (Heffron and McCauley, 2017). This could be in the form of revenue distribution from the project (but that is covered principally under distributive justice). The key issue for the critical mineral industry would be that these energy sites should be returned to their former use. Hence waste management policy and decommissioning should be properly completed and costed within a project and the rules set out in legislation. In addition, restorative justice can aid in pinpointing where prevention needs to occur.

Of importance across the world as critical minerals are developed is that these sites of extraction are not abandoned. The energy sector already has a well-documented history of abandoned energy sites which then become environmental problems (Gallucci, 2016; Robertson, 2016; Miller, 2005). In ensuring that this does not happen in the development of the critical minerals industry and that justice has a role, a ‘restorative cost’ needs to be built into the projects costs and that needs to be factored in during the three phases of the relevant critical mining project as outlined below:

5.1.3.1 **Project Development and Construction**. The EIA process needs to include the ‘restorative cost’ and plans in the EIS that is prepared and which involves multiple stakeholder consultations.

5.1.3.2 **Project Operation**. As was previously the case, just satisfying the local community at the outset of the project is not sufficient, and the project operator needs to work with the local community for the duration of the project operation. This has been formalised into a Social-License-to-Operate (SLO) agreement and in some countries is recognised in legislation (Heffron et al., 2018a). Again part of the cost here would be restorative as gradually the project operations reduce over time, and these should be factored into project costs.

5.1.3.3 **Project Closure & End-of-Life Process**. This is a clear restorative cost and is in essence the decommissioning or waste management operational cost. This is a major area of weakness and needs to be rectified in national and international law and policy (Heffron, 2018c).

One tool that is already in use in some countries are forms of an Energy Financial Reserve Obligation (EFRO) which can be referred to as a clean-up obligations and/or environmental bonds. In the US, under the Federal Surface Mining Control and Reclamation Act (SMCRA) 1997 (and in Australia it’s the Financial Assurance under the Environmental Protection Act 1994.), energy companies are required to remediate the lands where mining activity has occurred. However, many companies were allowed to self-bond and therefore when they went bankrupt there was still no finance available for meeting reclamation obligations (Bloomberg, 2015; ABC Australia, 2015) and the EFRO counters this corporate behaviour.

The EFRO now has become legislation in more than several countries and it is already causing an impact on the value of an energy asset as it requires an operator to place an estimated amount of money that will pay for the decommissioning of the energy infrastructure and site into a neutral bank account; this is to avoid the scenario where the State has to pay should the operator go bankrupt or sell on the asset to a company without the financial capacity to pay for a clean-up.

5.2. **Universal**

5.2.1. **Recognition justice**

Recognition justice is about whether rights of different groups are recognised as development happens. In particular, recognition justice in the energy sector has focused on the effect of energy developments and activities on indigenous communities (McCauley et al., 2013). There is international law that supports the rights of indigenous communities in the United Nations Declaration of the Rights of Indigenous Peoples (UNDRIP) 2007 where a key part of that treaty is Article 10 - Indigenous peoples shall not be forcibly removed from their lands or territory. No relocation shall take place without the free, prior and informed consent of the indigenous people, and after agreement on just and fair compensation and, where possible, with the option of return (UNDRIP: 11). Indeed, it is considered international law due to the reliance on it and the American Declaration of the Rights and Duties of Man (1948) by international and state tribunals (Phillips, 2015).

These issues arise repeatedly as a result of energy projects and most recently, one legal case concerned directly this issue where the foreign company abused its position, polluted sacred places and committed other serious crimes - South American Silver Limited (Bermuda) v. the Plurinational State of Bolivia, PCA Case No. 2013–15. The final result was in 2018 where the project had to be expropriated from the investor with only sunk costs paid which was $18.7 million instead of the $385 million claimed by investor – the case was heard under the rules of the
United Nations Commission on International Trade Law. Indeed, the UN have long since recognised this issue and had a report conducted in 2012 on An Analysis on the Duty of the State to Protect Indigenous Peoples Affected by Transnational Corporations and Other Business Enterprises which called for significant action by Governments to protect the rights of indigenous communities from resource extraction companies (UN Economic and Social Council, 2012).

In recognising the rights of indigenous communities it is important that new legal structures strengthen their voice and in that context it is welcome that legal agreements around a Social-License-to-Operate (SLO) are on the rise. An SLO can be defined as a legal instrument for achieving justice and ensuring long-term sustainability in energy investments and a just transition to a low-carbon economy (Heffron et al., 2018a). It is an issue rising to prominence and a case finally concluded in 2017 recognised the SLO has a key challenge and it was in part why there was the expropriation of a silver mine in Peru because the investor and local population had significant mistrust of the investor – consequently only sunk costs paid which was $18.2 million instead of the $522.2 million claimed by investor - Bear Creek v. Peru Bear Creek Mining Corporation v. Republic of Peru, ICSID Case No. ARB/14/2. It is clear from the judgement in the aforementioned case that the SLO had been broken by the investor and project operator and that led to the necessary expropriation of the asset.

In addition, in there is a broadening of the term recognition justice, as many advocate it is not only indigenous communities that deserve recognition for their rights but many disadvantaged communities do, as in essence this is where the issue of societal inequality rises. For example, Heffron et al. (2018a) analyse mining projects in Colombia – which were critical mineral projects – and highlight how the communities worst affected are communities who are in ‘extreme’ poverty according to the UN standards. The question that needs to be asked is whether there is enough action to ensure these local mining communities share in the benefits of these critical minerals, are their socioeconomic rights being respected?

The issue of human rights and business is a fast-growing area of research and practice in law (IBA, 2016) and particularly so in terms of the distribution of tax revenue and its relationship to human rights. This study by the IBA followed a previous study which examined in detail the effects of tax abuse and had a major finding that tax abuses have a significant impact on the enjoyment of human rights (IBA, 2013). In addition, the recent UN Committee on Economic and Social and Cultural Rights report highlights the role of states and also businesses in determining the realisation of economic, social and cultural rights (UNESC, 2017).

5.2.2. Cosmopolitanism justice

In the context of critical minerals development, the link to cosmopolitan justice where it is based on the core premise that we are all citizens of the world is clear. There is a global effect to our actions, and as identified in Section 2 earlier, the critical minerals industry is a global industry, and these minerals are utilised in products all in use on a daily basis. There is a need to recognise therefore the multiple cross-border effects of our activities as a result of global supply and business value chains.

There is a growing recognition of this issue and as will be outlined below, this has to be realised and accounted for as the critical minerals extractive industry develops. There are several recent clear examples where there is a growing interest in taking legal action as a result of cross border or overseas effects. A first clear example, though not related to critical minerals is in coal where in 2019 in Australia a Judge stated in a decision that a coal mine should not receive permission to open due to the effects of the carbon dioxide that would be produced in other places in the world – Gloucester Resources Limited v Minister for Planning [2019] NSWLEC 7.

Indeed, disputes are on the rise in the mining sector and increasingly it concerns some issue that is international in nature (Heffron, 2018b). A second example that does reflect the parts of the critical mineral extractive industry specifically is the actions by the Canadian Government, where they have created and appointed in 2019 an Ombudsperson for Responsible Enterprise that will assess and investigate the actions of Canadian overseas companies focusing on human rights abuses in mining, oil and gas and garments (CORE, 2020). Independent of that is that there are already three cases being taken by foreign entities against Canadian companies in Canada itself, for human rights abuses in their foreign sites in Eritrea and two in Guatemala (Volterra Fietta, 2018).

There are other examples of cross border actions which can affect the critical minerals industry and these relate to the aforementioned EIAs, Equator Principles and Tax initiatives mentioned under the justice, first part of the JUST framework. And in addition, the 2015 Paris Agreement has already been noted, and it is worth recalling that 189 countries have signed and ratified it (197 have signed overall) (UNFCC, 2020). That is a short space of time for so many countries to sign up but emphasises the international cooperation in the world on achieving low-carbon economies. This international cooperation is also evident in another convention, the Convention on Environmental Impact Assessment in a Transboundary Context, and known as the Espoo (EIA) Convention (1991). In brief, this convention concerns the obligation on States to report to each other the effects of activities within their boundaries that may have cross border impacts. Although finalised in 1991, it was only in 1997 six years later before there were enough countries to enter it into force and there remain only 45 signatories to it (UN, 2020). The majority of signatories of the Espoo Convention are European because it was the UN Economic Commission for Europe that advanced it. Nevertheless, it shows the success of the Paris Agreement in terms of the number of countries signing up and in such a short space of time. If the Espoo Convention were more international there perhaps would be a rise in issues that this convention could resolve, but it is an area that threatens to grow over the coming decades, and the precedence of this convention will grow in importance. A final area of further research will concern access to critical minerals and how can this be just and fair given their location and ownership – early research has been completed on this in the form of advancing a Fair Trade mineral supply (Van Bockstael, 2018).

5.3 Space

The third part of the JUST framework is ‘Space’ which covers a range of issues listed below which follow key literature in geography around space (Agnew, 2011; Gorter and Nijkamp, 2001):

- the location, i.e. where the ‘events’ are happening;
- whether the action is happening at a local, national and international level;
- the interlinks, i.e. is it part of a global supply chain, and what are the characteristics of this; and
- the stakeholders involved and their activities, i.e. a multinational company utilising tax services for example.

It is of vital importance that the critical minerals industry is considered as a global industry. Actions that happen at a local level in terms of mining operations are all influenced by what happens at a national and international level. International taxation practice for example guides the taxation of the critical mineral been extracted which in turn influences how the scale, length and operational design of the extraction project. In essence actions in one part of the world influence another.

This can be demonstrated clearly in Fig. 3 below which looks at the issue of a cobalt business value and supply chain where cobalt is used for battery technology (Amnesty International, 2017). The figure identifies three phases where the cobalt is extracted (1), then exported to Asia where it is utilised in battery production (2), and then...
eventually consumed by Western and Asian markets (3). In this context the critical minerals industry has multiple locations of ‘activity’.

As a result of this there are multiple issues that get raised at local, national and international level. One of these is to explore the flow of finance around that global supply chain. The Amnesty Report (2017) highlighted the issue of labour and in essence they state there are human rights abuses occurring in the extraction phase so hence it could be determined that the DRC is not receiving its due share of revenue from cobalt. Heffron (2018a) identifies the clear injustice in terms of the tax rate which was 6% (between 2011 and 14) when the recommendation by the World Bank for such minerals was 46%.

Further, it is important to consider then where the profits from the mining sector and as a result where profits from the critical minerals sector will end up. This will generally be in bank accounts offshore that belong to a collection of technology companies and mining companies via the services of professional firms who assist in this process. Indeed, the IGF-OECD initiative representing circa 60 countries released three reports on the aggressive tax avoidance by multi-national firms in the mining sector (IISD-OECD 2018a; 2018b; 2018c). There is no doubt that the international community is thinking about how the critical minerals industry may evolve here and that confirms why it is so necessary to ensure justice within the development of the critical minerals industry.

5.4 Time

Time brings into transition timelines such 2030, 2040, 2050, 2080 etc. and also speed of the energy transition, i.e. is it happening fast enough?; which many say it is not (Figueres et al., 2017), and hence the need for a focus on an area such as critical minerals which has a crucial role to play (Ali et al., 2017). Transition timelines and/or energy and climate timelines have become a feature of the energy system and for the development of a low-carbon economy. Therefore, they have an immediate and significant effect on the critical minerals industry as they indicate which minerals will be in demand for the transition. A key influence on future timelines has been the success of the Paris COP21 climate change negotiations and subsequent agreement, the Paris Agreement (2015).

The Paris Agreement while it does not specifically bind a country to meeting a goal in 2030, it does require them to produce a clear pathway of how it will achieve these goals. Some countries have been taking progressive action in meeting 2030 goals – such as the UK phasing out the use of coal by 2025 (UK Government, 2016) - but many others have 2030 goals than align with 2040 and 2050 goals and the Paris Agreement is the first stage of this transition to 2050 (with an estimated 77 countries aiming for net zero-carbon emissions by 2050 (IISD, 2019).

In thinking of how to achieve for example, 2030 climate and energy goals, a country has to establish new law on how to achieve this energy transition. There is no common solution as countries have control over their own energy resources (a right of a nation in international law (Heffron et al., 2018b)) and they have different geographies, culture and socio-economic characteristics. However, there is a common demand over the critical minerals needed for this transition to a low-carbon economy.

Timelines are of vital importance to the transition to a low-carbon economy and in particular from a legal perspective. Law needs to be in place that can deliver on climate and energy goals for 2030, 2040 and 2050. In different countries the formulation of law can take different lengths of time for example, from one to five years, and that is not even to question whether that law is effective. The essence of the issue here is that in order to achieve a 2030 energy or policy goal that will deliver a transition to a low-carbon economy the law needs to be changed, reformed etc. at least a reasonable length of time before that – one would need to think before 2022 at the latest to achieve 2030 goals. A key reason why this is necessary is to ensure that there is a stable legal
structure around the activity, in this case critical mineral development. This legal stability (or what can be referred to as legal certainty) provides confidence to investors who can then make an investment decision knowing that they will be able to secure a return on their investment and that their investment is protected (to some degree).

Therefore, for critical minerals to be developed in a just way, there is a need for legislative development that (1) covers all issues around extraction, production and export and (2) ensures that the latter legislative development complies with and adapts to (such as adapting to the demand for critical minerals as a result of these international agreements) goals of the Paris Agreement at national levels and international energy and climate targets.

6. Conclusion: resolving justice for the critical minerals industry

The critical minerals industry is growing and already at a fast pace. This paper examines the underexplored role of justice in the development of this industry. As societies move towards being low-carbon it is necessary that the societal problem of inequality is addressed and that there is a 'just' transition to a low-carbon economy. This research here addresses these issues and from a conceptual basis using key elements of justice – distributive, procedural, restorative, recognition and cosmopolitan – utilising a JUST framework approach from the interdisciplinary area of legal geography. Future research can utilise this framework in forthcoming projects such as, for example, the planned uranium mine project (Greenland Mineral Ltd.’s Kuannersuit/Kvanejfeld Rare Earth-Uranium Project, Greenland).

The aim of this interdisciplinary approach is to facilitate a more practical focus from the conceptual analysis and hence the paper explores from a practical perspective what are the key issues under each element of justice that need to be addressed for the critical minerals industry. In order to ensure a role for justice in the development of the critical minerals industry there is a need at international, national and local level to address problems on taxation, environmental impact assessments, waste management, social license to operate, and cross-border actions and cooperation. And these issues are time-sensitive, as in order to achieve energy and climate goals that will deliver a low-carbon economy by 2030 or even 2040 or 2050, legal action needs to happen now.

Given the current state of the world due to COVID-19 and the resulting economic crisis, there is a need for society to ensure a more equal distribution of resources. This should in particular happen in terms of critical minerals, and the revenue should be more equally shared across the business value and supply chains for these resources. Technology companies from the developed world should not be making what economists refer to as super-normal profits when vital components for their technology are being sourced with minimal cost and limited transaction costs, i.e. taxes, for acquiring the resource. Indeed, as recent scholarship on taxation by two leading international economists states, research should identify multiplicity of options for a fairer future and they advocate for tax justice so as to reduce inequality (Saez and Zucman, 2019). In a similar way this research has aimed to provide a multiplicity of options on how justice can be increased in the development of the critical minerals industry. And a final conclusion is that at the core of these options is the need (and as these aforementioned economists have referred to) to ensure that tax justice is applied to the critical minerals industry and that there is a fair distribution of the benefits of these critical mineral resources.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.euxs.2020.06.018.

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