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Justice and Critical Mineral Development in Indonesia and across ASEAN

Abstract

Critical minerals will play a vital role in the energy transition. In South East Asia like in other regions across the world, there will be an additional advantage in that critical mineral development can contribute to an economic recovery and in time a green economic recovery. This article explores the role of justice in critical mineral development in the South East Asian region with a specific focus on Indonesia. The recent literature on critical minerals has a very limited focus on the role of justice in critical mineral development and this is even more so the case for South East Asian countries. This article provides a first account, utilising the JUST framework to explore, assess and quantitatively examine justice in the critical minerals industry in South East Asia and in particular, Indonesia. If the South East Asian region is to have a green economic recovery, there has to be a focus on achieving justice and reducing unjust outcomes. Indonesia provides strong examples for the potential of the industry and the development of policy to ensure justice, yet, it presents lessons for other South East Asian countries of the pitfalls in such ambition.

***Keywords:* critical minerals; low-carbon economy; Indonesia; ASEAN; just transition; energy justice**

Section 1. Introduction

Critical minerals are crucial to society today as the challenge of climate change is addressed through the energy transition. The Paris COP21 Agreement (2015) has provided a legal basis for action for countries to develop a low-carbon economy. The demands on society for resources to contribute to this development are set to rise and continue to do so with timelines for action such as 2030, 2040 and 2050. Hence critical minerals which are already in demand will only continue to be so.

The number and definition of critical minerals has changed over time however this article will examine those classified as critical today in the context of the energy transition. There is limited literature on issues around the continued extraction and/or development of critical minerals in many countries to-date. It seems that countries are of the view that these minerals will be extracted in accordance with existing legislation on mining. The question arises should that be the case?

That question seems set to be answered by the literature over the coming years and will also be a focus and contribution of this article. Certainly, the non-science issues around critical minerals have been raised very recently in prominent journals such as *Nature* (Ali *et al.*, 2017) and *Science* (Sovacool *et al.*, 2020). And there are reasons to suggest that these minerals do have a special status due to their ‘critical’ status. In effect, this represents a new era for the mining sector in that there is new business to develop, revenue growth to be achieved and a series of socio-economic and environmental considerations to consider.

This article will have a major focus on critical minerals and the issue of ‘justice’ broadly defined – i.e. including fairness, equality and equity. There is very limited literature on this issue and only recently Heffron (2020) has noted this and provided the first study on this important issue of justice in the development of critical minerals. This research will make an additional contribution in adding to this emerging literature on critical minerals and justice. In addition and significantly it also develops a quantitative metric for analysing the level of justice in critical mineral development utilising open-access data which has the potential therefore to grow research in the area alongside ensuring that the results of the research are replicable.

Further, as highlighted by Heffron (2020) it is of vital importance to see research that focuses on countries specifically so that over time different countries can learn ‘best-practice’ laws and policies to ensure the operationally ‘just’ development of critical mineral industries. Hence this research delivers an analysis of critical minerals in Indonesia, one of the largest nations worldwide in terms of population size (274 million and 4th in the world in terms of population size and also one of the key members of the ASEAN region (Association of Southeast Asian Nations); where it represents *circa* 44% of the population.

This paper will focus at first at looking at the critical industry in Indonesia in the provision of a literature (section 2). Then the conceptual framework, the JUST framework will be presented and examined as the theory and method for conducting the research (Section 3). Then the core analysis that utilises the *JUST* framework (Heffron and McCauley, 2018; Heffron 2020) will analyse the case of Indonesia (Section 4). Finally, the conclusion will present pathways for future research alongside key lessons for other ASEAN countries.

Section 2. Literature Review: Justice and Critical Minerals in Indonesia

2.1: Literature Classifications

Critical Minerals (CMs) are witnessing a rise in importance globally. The World Bank in a recent 2020 report – *Minerals for Climate Action: The Mineral Intensity of the Clean Energy Transition* - has even highlighted that in the context of COVID-19 that CMs will be a major part of the economic recovery. Indeed, the report in the context of the future role of CMs in global society quotes Matshona Dhliwayo’s quote: “stars are born out of dark moments.” Hence to any economy CMs are going to play a vital role and therefore this will be the case in Indonesia, the 4th most populous country in the world. Further the benefits of analyzing Indonesia is a nation of the ASEAN region and can provide leadership to the other 9 members of ASEAN – Vietnam, Philippines, Myanmar, Singapore, Malaysia, Thailand, Cambodia, Laos and Brunei.

In terms of literature on CMs on Indonesia and across ASEAN in general, there is limited literature. Indeed, Heffron (2020) identifies three main categories of literature in the non-sciences that focus on critical minerals. According to Heffron’s (2020) seminal article these include (1) developing the critical minerals business (2) rising demand and (3) raising finance (Lee *et al.*, 2020; Sovacool *et al.*, 2020; He, Y., 2018; Coulomb *et al.*, 2015; Viebahn *et al.*, 2015). In considering these three areas all are vital areas for research for Indonesia and ASEAN countries due to the much-needed green economic recovery that is needed and also being promoted by such organisations as the aforementioned World Bank and also the International Energy Agency and others.

In addition, it should be noted that this green economic recovery needs to happen in a just way in terms of critical minerals development (Heffron, 2020). The United Nations has noted the importance of CMs also (UN, 2016) and in terms of its UN Sustainable Development Goals (UN SDGs) a key focus of them is on justice and ensuring that a just society is delivered. In terms of critical minerals this paper utilizes the CMs identified in Heffron (2020) article and see below in **Table 1**.

Table 1 – Summary of Critical Minerals 2020

Summary of Critical Minerals 2020			
Aluminum	Fluorspar	Manganese	Tellurium
Antimony	Gallium	Niobium	Tin
Arsenic	Germanium	PGMs	Titanium
Baryte	Natural graphite	Potash	Tungsten
Beryllium	Hafnium	REE	Uranium
Bismuth	Helium	Rhenium	Vanadium
Cesium and Rubidium	Indium	Scandium	Zirconium & hafnium
Chromium	Lithium	Strontium	
Cobalt	Magnesium	Tantalum	

*REEs=heavy rare earth elements, PGMs=platinum group metals
Source: Heffron (2020)

2.2: CMs across the ASEAN region

It is of value to take a regional focus in examining the literature on CMs in ASEAN. The member countries in ASEAN do cooperate together and there are policy reports that aim for frameworks across the ASEAN region. As stated earlier there is very limited literature that

focuses on justice implications of CMs development. Indeed, across ASEAN there has been a priority focus on economic development and as was highlighted in a recent Asian Development Bank (ADB, 2020) report recently, the region has had a policy to focus on development first and impacts (i.e. socio-economic and environmental) would be an issue that is explored later.

As stated earlier, literature on critical minerals can be divided into several key themes - (1) developing the critical minerals business (2) rising demand and (3) raising finance. This is the case for literature on CMs in ASEAN. The literature generally focuses on one or more of these issues however there is no focus on justice, and this is where this article makes a direct contribution to knowledge. An example of the literature is Humphreys (2018) which highlights the development of the industry alongside growing demand but acknowledges issues around finance due to the different economic trajectories of some of these nations. This article is also an example of how issues of justice are not considered and there is no mention or consideration of justice at all. However, this article is not alone. The earlier mentioned and most recent World Bank (2020) report on CMs is a comprehensive 112-page report, nevertheless, it does not mention justice throughout. Moreover, the focus is on CM development and demand.

In literature specific to ASEAN there has been some reference to problems around justice. In a very early analysis (Clark, 1990) of mineral development (broadly conceived of back then and included coal, oil and gas) the environmental impacts and legacy effects of that damage were noted as a potential concern for the ASEAN region. More recently, there has been a focus on governance structures for CMs and more broadly for the extractive sector generally. For example, in 2014, the Institute for Essential Services Reform (IESR) which is Jakarta (Indonesia) based produced a report (IESR, 2014) calling for more reform of the extractives industry across the ASEAN region. The reform IESR called for was directly related to the unjust outcomes that result from the extractives industry such as human rights violations, social problems, environmental damage and corruption. Rising demand and the development of the industry is also noted but the authors infer that the unjust outcomes inhibit future growth and also economic growth for the entire region. In addition, the newly formed ASEAN Economic Community (in essence which is set to operate in time like the European Union) created a specific action plan (2016) for mineral development over the years 2016-2025. They specifically noted the benefits from mineral resource extraction to the ASEAN region from a socio-economic perspective. Hence, through the focus on socio-economic contributions there a realization that there is a role for justice in the CM development across ASEAN.

It is important to note that ASEAN has tried to develop additional laws and policies – which would as a result then increase justice – however, it is not always aided by foreign interests in the ASEAN region. Humphreys (2018) noted for example, the future reliance on China. While more interesting is a report (2018) from the Minerals Council of Australia, the national (and international) business association for Australian mining companies. In their report specific to the ASEAN region (though includes India) they focus on future opportunities for development within the ASEAN region. Opportunity and revenue growth is at the essence of the report with no mention of justice implications.

2.3 Practical Governance of CMs in Indonesia

The governance of CMs in Indonesia follows similar governance of other types of energy resources. In Indonesia and like many other ASEAN countries, resources extracted belong to the Indonesian people as is highlighted in the Indonesian Constitutional Law 1945: ‘... *Article 33 Paragraph (3) determines, the land and water and natural resources contained therein shall*

be controlled by the state and used for the greatest prosperity of the people.' Hence, the goal in Indonesia is for the maximum welfare of the people in terms of managing its national natural resources. This is important because, through being in the constitution it therefore becomes a responsibility of the state.

This is an ambitious aim within the Indonesian Constitution and even reflects the current societal push for more justice in the energy sector. One of the key aims of having more justice is for a more inclusive society, i.e. not leaving anyone behind. Hence, in aiming to develop the mining sector and therefore the nascent CM sector, there is this goal to ensure all benefit. This is a form of distributive and recognition justice – as will be discussed in more detail in the next section. The development of the Indonesian CM industry has to be taken into account with this ambitious goal declared within the Constitution. However, there has been a mixed approach and progress in terms of developing the industry.

Indonesia has tried to develop the CM industry in a faster way with successive legislative reform of the the 2009 legislation - Law No. 4/2009 on Mining and Coal Mining Activities (State Gazette of the Republic of Indonesia of 2009 Number 4, Supplement to the State Gazette of the Republic of Indonesia Number 4959). This legislation was introduced to incentivize new investment in the minerals (and coal) sector. However, there remained a lack of interest in entering the Indonesian market perhaps due to the level of state control and also on the anticipated action needed to satisfy the ambitious aim of the Constitution, i.e. the requirement to ensure prosperity for all from mineral production.

With the onset of COVID-19 and the continued expectation of further economic decline, the Indonesian Government has taken action and just recently introduced further legislation through the adoption of Law No. 3/2020, Amendment on Law No. 4/2009 on Mining and Coal Mining Activities. There are a number of important aspects regulated to this revision. These include the development of issues on: the management and licensing authority, extension of operating permits, regulation of Community Mining Permits (IPR), environmental aspects (reclamation and post-mining), increased value added (downstream), divestment, and arrangements intended to strengthen state-owned enterprises (BUMN). Amendment to Law Number 4 of 2009 is necessary considering that there has been some difficulties in that access to finance in Indonesia to develop the industry has been difficult. These changes are discussed in more detail later in the context of the theoretical analysis.

3. Theoretical Framework and Research Methods & Theoretical Research

3.1 Research Methods

This research is focused on the role of justice and hence utilizes legal research methodology. As part of legal methodology there is an opportunity to engage in interdisciplinary research and which the research engages in. There are three core legal areas of research employed in this paper. Firstly, the research explores from a conceptual doctrinal perspective (i.e. the study of the written law itself) and comparative legal perspective the core justice aspects of critical mineral development and extraction in Indonesia. Second it examines 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. In essence the research here looks at the 'rules of the game' created by the legal structures in Indonesia. Third, 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 hence the 'Just

Framework' will be utilized which is an interdisciplinary method (legal geography). Therefore for that to be achieved all the elements of justice need to be addressed such as distributive, procedural, recognition, restorative and cosmopolitanism. In particular, distributive, procedural and restorative are vital in importance of critical mineral development and these will be a focus of this part of the research for Indonesia.

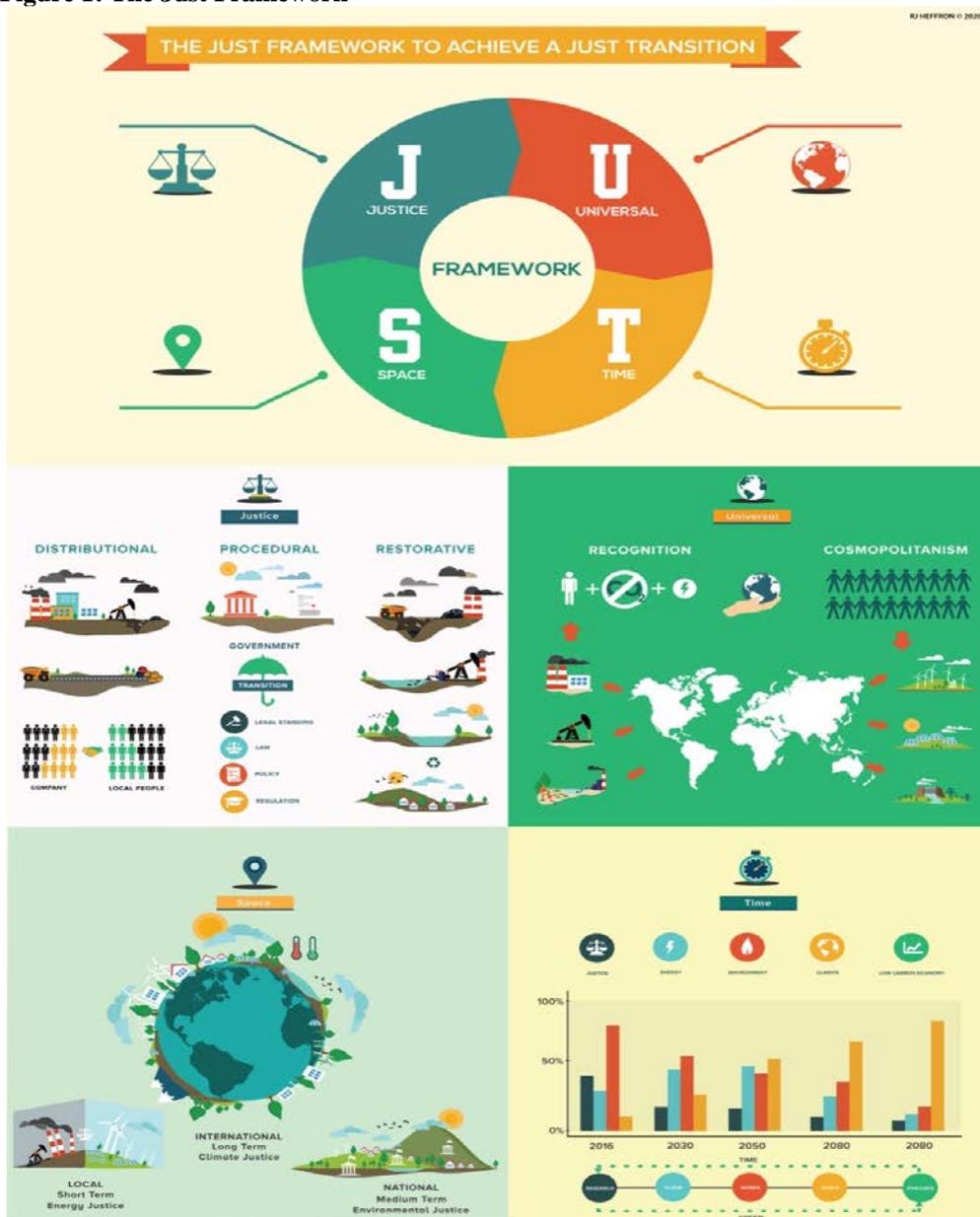
3.2 Theoretical Framework

The theoretical framework utilized here is the 'Just Framework'. This framework is demonstrated below in **Figure 1** below has been advanced previously by scholars in the area who state it combines an interdisciplinary legal geography perspective (Heffron and McCauley, 2018). More recently, it has been used directly to research justice and critical minerals (Heffron, 2020). The aim of the Just Framework is to unite climate, environmental and energy (CEE) justice scholarship and as a result try to reduce inequality and injustice within society. The benefit of utilising the *JUST Framework* is to ensure a practical research perspective to a problem. In this context, for example, there is a focus on considering a number of issues such as the impact of the business supply chains that critical minerals are involved in, and then 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 & McCauley, 2017) and these include briefly:

- *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).

Figure 1 explains with an infographic created for this article that explains the Just Framework. This framework has four key elements: justice, universal, space and time. The essence of the framework is to enable the researcher to identify problems and provide research and policy-led conclusions. In the first part of the framework they consider distributive, procedural and restorative justice. In the second part two more holistic forms of justice are employed in recognition and cosmopolitan justice. The third part analyses the issue from a (geographical) space perspective, i.e. where is/are the event(s) happening and at what level, local, national and/or international?). The fourth and final part concerns *Time*, and this brings the particular research issue into analysis with transition timelines such 2030, 2050, 2080 etc. and also 'speed' of the energy transition (i.e. is it happening fast enough?).

Figure 1: The Just Framework



Source: Created by Authors and JTI (2020) – adapted for this infographic from Heffron (2020).

4. Applying the 'JUST' Framework' for Critical Mineral Development in Indonesia

4.1: Introduction

In this section utilising the *JUST* framework from Section 3 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 for Indonesia and to a certain degree within the ASEAN region need to ensure as their critical mineral sector develops. 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 is three-fold:

- first it uses the JUST framework which has the aim for assessing whether the role of justice is evident in Indonesia's development of critical minerals;

- Second it aims to move from academic debates to practice in terms of realising and achieving justice in the critical mineral development.
- Third the aim to achieve this is by analysing metrics on each part of the JUST Framework and assessing Indonesia’s performance in comparison to the ASEAN region.

4.2 Justice & Its Elements – Distributive, Procedural and Restorative Justice

These three forms of justice have been explained in brief in Section 3. The important aspects of these forms of justice in terms of critical minerals are as follows:

- **Distributive Justice** is one of the three cornerstones of researching and practically realising justice. In examining distributive justice from a Just Framework perspective (following the Heffron & McCauley, 2018; Heffron, 2020) there is a need to look at a number of core issues which are taxation, revenue management and transparency issues (including the Extractive Industries Transparency Initiative (EITI)).
- **Procedural Justice** focuses specifically on the legal process of taking a project through from start to finish of a project, i.e. from planning to construction to operation and to end-use or decommissioning. A key issue for the development of critical mineral industry in procedural justice is the application of the Environmental Impact Assessment (EIA) process at a national level. In addition, a project needs to take into account different influences at local, national and international level.
- **Restorative Justice** at its most basic concerns the restoration of energy site to its original use (Heffron & McCauley, 2017). This can often be referred to as the decommissioning process or the waste management process. It is a vital step in terms of a project and increasingly there is a realisation that too often there is not sufficient action on this issue.

In terms of these justice issues and in order to develop a metric for ensuring that there is justice in critical minerals development there are two international databases that can be utilised – and it should be noted that the aim here is to utilise open-access databases so that future researchers can build on these issues. The two that best represent these three forms of justice are the World Bank Cost of Doing Business and the World Development Indicators. The Cost of Doing Business metric represents issues in procedural and restorative justice, while distributive justice can be represented by the World Development Indicator. The data results are presented below in Table 1 for Indonesia and a comparative score with ASEAN, and then the final metric is calculated for Justice in Indonesia’s as part of the JUST framework.

Table 1: Justice – Metric Score

Justice Score	Indonesia	ASEAN Average	Indonesian Overall Total	Just Framework Metric for ‘Justice’
Cost of Doing Business & World Development Indicator	69.6	67.15	69.6	17.4

Source: World Bank 2020b.

In terms of the metric calculated for Indonesia, it is a positive in the context of ASEAN countries. Further, there have been very recent changes in Indonesia that may result in a reduction in the costs of doing business in Indonesia and hence enable the development of the critical mineral industry. These changes were introduced very recently in 10 June 2020 (this

was achieved through the Law No. 3/2020, Amendment on Law No. 4/2009 on Mining and Coal Mining Activities) and a short summary is included below in Table 2.

Table 2: Recent 2020 Changes to Key Mining Law affecting Critical Minerals in Indonesia

No.	Area of Change	Change
1	Management and licensing authority	This amendment is related to the authority who grants mining rights to investors. Previously the Local Government was the authorized institution and this was admitted to hamper the mining activities (Pardede, 2020). In the Law No.3/2020, the Central Government becomes the authorized institution to grant mining rights, and this has eliminated the role of the Local Government
2	Licensing type	In the previous Law No. 4/2009, investors/mining companies have two licenses for the same mining field, i.e. an exploration license and a production license. Companies could not start production before acquiring the production license. This has been amended and in the Law No. 3/2020, these two licenses are eliminated and replaced by one production license.
3	Extension of operating permits	The exploration period for mineral mining is 8 years and this can be extended now if certain requirements are fulfilled. The production period for minerals is 20 years and can be extended maximum of 2 times by 10 years.
4	Regulation of Community Mining Permits (IPR)	Artisanal mining rights were granted by the Local Government, and now the Central Government (MoEMR) grants right for artisanal mining activities. In addition to that, the Amendment eliminated rights on coal artisanal mining activities.
5	Environmental aspects	The Amendment, Law No. 3/2020 regulates the authorization of the MoEMR in formulating the Plan for National Mining and Coal Mining Activities and it must now include concern for environment sustainability in the relevant mining activities. This plan must be aligned with the local development plan, meaning it is important to establish technical regulation to maintain its alignment – i.e. because the Local Government is no longer the authorized institution to grant mining rights.
6	Strengthening state-owned enterprises (BUMN):	Article 112 of Law no. 3 of 2020 regulates divestment by the foreign business entities (Companies/Investors) that hold mining licenses. These companies are required to divest shares of 51% (fifty one percent) gradually to the central government, local governments, State-Owned Enterprise (BUMN), Regional-Owned Enterprise (BUMD) and / or National Private Business Entities. Through the MoEMR, the Central Government together with the Local Government, BUMN, and/or BUMD coordinate and determine divestment scheme and composition (weight) of the amount of divestment shares to be purchased. If this does not occur, the divestment offer will be made through the Indonesian stock exchange. Previously in Law no. 4 of 2009, the provisions concerning divestment of shares by foreigners after 5 (five) years of production.

Source: Created & redrafted by authors (2020) - Pardede, G., 2020. *8 Poin Penting Dalam Revisi UU Minerba - Kliklegal*. [online] KlikLegal. Available at: <<https://kliklegal.com/8-poin-penting-dalam-revisi-uu-minerba/>> [Accessed 9 October 2020].

The above recent changes are an acknowledgement by the Indonesian Government that policy needed to be introduced so as to enable critical mineral development, and that this policy needed the introduction of new law to ensure that the policy was delivered. One of the key developments is more of a focus on justice through the focus on the environmental aspects, proposals on the fairer distribution of financial revenue generated and an overall simplification of legislation. It may take several years before CMs are developed and benefits materialise but this marks a significant step in Indonesia.

4.3 Universal

There are two forms of justice involved in the second part (Universal) of the JUST Framework, and these are recognition and procedural justice. They are both what can be described as more

holistic forms of justice in that they are broader in nature and are generally considered from an international and national perspective though there should be a local perspective to them too. Their relevance to critical mineral development is best expressed below:

- **Recognition Justice** is concerned with the recognition of rights of different groups as the mineral project development happens. It is an important issue and often in the literature the focus is on recognising the rights of indigenous communities (McCauley et al., 2013). Every country does not have indigenous communities but for some countries it is very important and that is particularly the case in Indonesia.
- **Cosmopolitanism Justice** is based on the premise that we are all citizens of the world. In this context we think of the world as one global industry and therefore there will be cross-border effects from our activities. In terms of CMs this means that there will be impacts from their use in global business supply chains across the world. A classic example of this recently is related more broadly to the extractives industry and concerns coal mining. In 2019 in Australia a Judge held 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 once that coal was transported and burnt outside of Australia – *Gloucester Resources Limited v Minister for Planning [2019] NSWLEC 7*.

It is difficult to account for cosmopolitan justice within Indonesia but as is detailed later Indonesia has signed up international energy and climate commitments through the 2015 Paris Agreement – alongside the other ASEAN nations. However, in terms of recognition justice there are significant issues due to Indonesia having many indigenous communities. Indeed, local and indigenous people are considered to be indistinct in Indonesia despite having more than 700 tribes (<https://indonesia.go.id/profil/suku-bangsa> - accessed on 9 Oct 2020). The legislation treats local communities the same irrespective if they could be classified as indigenous. Recent amendments ensure a need to engage with local communities but as the following statements on recent legal changes state it seems that there could be a significant role for the Government should there be a dispute:

- according to Article 67, of the Amendment Law (No.3/2020) of the Mineral and Coal Mining Law, the Artisanal Mining Permits is granted by the Ministry of Energy and Mineral Resources to (a) local person (individual) of the mining area, or (b) with cooperation with local community as its members; and
- Article 135 of Law Number 4 of 2009 concerning Mineral and Coal Mining regulates that holders of Exploration Mining Business Permits or Special Exploration Mining Business Permits can only carry out their activities after obtaining approval from the holders of land rights. This is further regulated in Article 137A of Law Number 3 of 2020 (the Amendment), that if there is a land rights issue for mining business activities, the solution to the problem is the Central Government (and this does not need to comply to the agreement between project developer with local communities).

In terms of calculating the ‘Universal’ metric, data again is utilised from open access data sources on social protection and electricity access which best represent the two forms of justice, recognition and cosmopolitanism. In terms of social protection, data is used from the International Labour Organisation and for Electricity Access it is from the World Development Indicators. The data results are presented below in Table 2 for Indonesia and a comparative score with ASEAN, and then the final metric is calculated for the Universal part of the Just Framework for Indonesia. The results demonstrate that while in Indonesia there still is some progress to be achieved socio-economically (i.e. in terms of social protection). While access to

electricity is there, Indonesia lags behind in other areas of recognition justice and this could have implications in particular as the critical minerals industry is developed.

Table 2: Universal – Metric Score

Justice Score	Indonesia	ASEAN Average	Indonesian Overall Total	Just Framework Metric for ‘Universal’
Social Protection (% GDP)	1.1	2.7	49.8	12.45
Electricity Access (% of Population)	98.51	94.9		

Source: ILO, 2017 & World Bank, 2020b.

4.4 Space

The third part of the JUST framework is ‘Space’ which is a core area of research within geography (Agnew, 2011; Gorter and Nijkamp, 2001) and they identify a number of areas of examination which are analysed in turn here (and also identified in Heffron, 2020):

- 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.

Indonesia is an unique country in that it consists of many islands. CM development could happen all over the country however, there is a development issue in that in general the west-side of Indonesia is developed while the east is underdeveloped. In addition, indigenous communities as were discussed in the previous section are numerous and these tend to be located in the east of the country also. Nevertheless, to meet the demands of energy transition, all options for CM development will have to be examined in Indonesia, and it seems certain that the new legislative developments have that as an aim. Importantly, in this context the recent legislation, Amendment, Law No. 3/2020, aims to ensure that environmental sustainability is a key part of progress.

In devising a metric for this third part of the Justice Framework, there are two indicators that can be utilised. These have their merits in thinking of action across the nation, i.e. across the entire population of Indonesia, and hence, a social progress indicator is utilised here from the Social Progress Indicator series. A second issue explored is the what is affecting people currently in terms of energy and hence we use energy mix data and in particular the prevalence of fossil fuels as this provides perspective as to overall need to move to be low-carbon from a national perspective; with data from the World Development Indicator. The data results are presented below in Table 4 for Indonesia and a comparative score with ASEAN, and then the final metric is calculated for Space in Indonesia’s overall JUST framework.

Table 4: Space – Metric Score

Justice Score	Indonesia	ASEAN Average	Indonesian Overall Total	Just Framework Metric for ‘Space’
Social Progress	69.5	66.9	53.2	13.3
Energy Mix Development	36.9	31.4		

Source: World Bank 2020b & Social Progress, 2020.

The results here demonstrate in terms of this part of the JUST framework that while Indonesia just outperforms the ASEAN average there is still great potential. The energy mix of Indonesia is low due to a heavy reliance on fossil fuels and there is a great need to shift to and also to exploit the vast potential in renewable energy. Maximising renewable energy may aid in igniting the CM industry and enable the Government to realise the importance of the developing the CM industry.

4.5 Time

Time is a key consideration in the world today and this is the case clearly in terms of energy and climate change issues. Every country who has signed the Paris COP21 Agreement has committed to developing energy and climate change plans in the context of transition timelines for 2030. Many countries have gone far further and have integrated these 2030 plans into later 2040, 2050, 2060 and 2080 objects. A recent and potentially influential issue is the recent China 2060 announcement to be low-carbon. A second issue explored here is whether the transition is happening fast enough as many state it is not and the speed of the transition is critical (Figueres *et al.*, 2017).

There is however too many factors to determine whether a country is meeting its goals and in particular, when countries seem to be focusing on different years such as 2030, 2040, 2050 and 2060. However, perhaps in late 2021 more research can be delivered as countries worldwide provide firm commitments that build upon the obligations of the 2015 Paris Agreement to submit energy and climate plans for 2030 (it should have taken place this November and December but due to COVID-19 the annual climate summit was postponed. In terms of devising a metric for Time, the best open access data source here is the World Energy Forum's energy transition data where they compile data to demonstrate whether a country is ready for the energy transition. This is what is utilised in Table 5 below and aggregated accordingly with ASEAN data to provide a metric for Time as the fourth and final part of the Just Framework.

Table 5: Time – Metric Score

Justice Score	Indonesia	ASEAN Average	Indonesian Overall Total	Just Framework Metric for 'Time'
Readiness	52.4	55.95	52.4	13.1

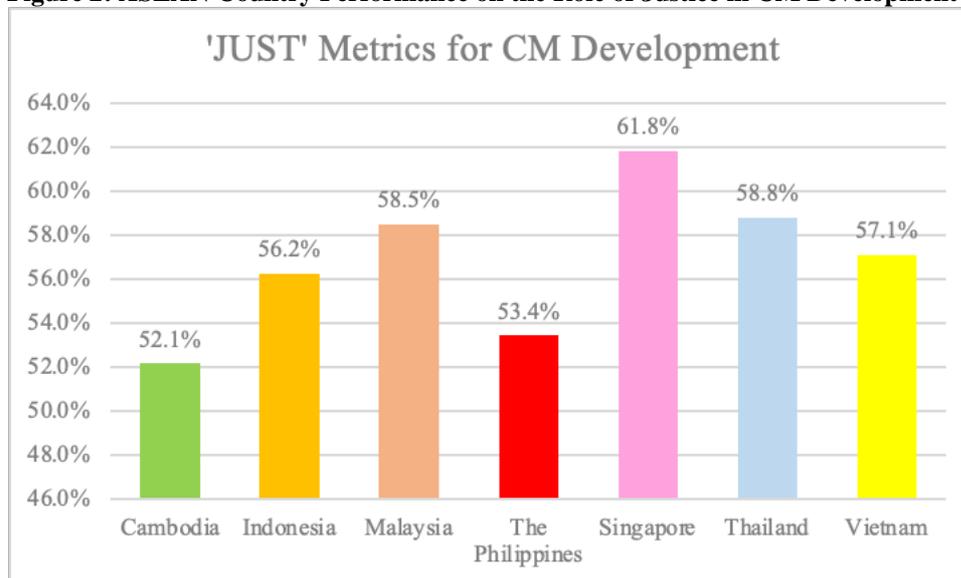
Source: World Economic Forum, 2020. Note: Brunei is not included in the metric calculation here as there is no Data. The Average of ASEAN is only for 9 countries.

The data results confirm the earlier analysis and results in that Indonesia has to begin reforms to ensure it can capture the positive impacts of an energy transition. Until this happens developing a CM industry will be difficult as the energy sector would remain dominated by existing energy sector activities, such as on coal and oil. With the nearly half the population of ASEAN residing in Indonesia it is very important that the country begins to show more leadership.

4.6 Overall Indonesian and ASEAN perspective

Figure 2 below utilises all the data together and provides an overview of Indonesia's overall performance to ensuring justice in the development of CMs. Indonesia like the other ASEAN countries still has further work to achieve to ensure justice is applied and enforced and not just written. Its overall score of 56.2 demonstrates that it just over half-way there in meeting the necessary societal requirements of justice if it is to develop its critical minerals industry. The obligation is ensuring justice in CM development is on Indonesia and overall this will ensure a just transition to a low-carbon economy. It should be acknowledged that Indonesia has just introduced legislation recently (in June) and this may increase its performance in future years. However, considering the different elements of the JUST framework the legislative reform does not go far enough to ensure the role of justice in CM development. The June reforms do not apply to all the elements within the JUST framework and hence, success will be limited in improving justice.

Figure 2: ASEAN Country Performance on the Role of Justice in CM Development



Source: Authors (2020).

5 Conclusion & Recommendations

The critical minerals (CMs) industry is growing and already at a fast pace. From the evidence it is developing and there is opportunity in Indonesia. This paper examines the underexplored role of justice in the development of this crucial industry in Indonesia. 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 the JUST framework, an approach from the interdisciplinary area of legal geography (see section 3). A major contribution of this paper is to provide a quantification of a score for the role of justice in the CM industry. In this context, there is a comparative analysis provided between Indonesia and other ASEAN countries.

There are four main recommendations that we arrive at for Indonesia. Firstly, and in aligning with the Constitutional Court (via an interpretation of Article 33 paragraph (3) of the 1945 Constitution) natural resources which are nationally of strategic potential in social and

economic life, such as CMs, of the nation must be used to contribute to the greatest prosperity of the people. Secondly, Indonesia can consider enacting a Critical Minerals Mining Act to ensure the development of this industry and to achieve it in a prosperous and sustainable way with a key role for justice for the people of Indonesia. As a result, the third and fourth recommendations, are that a wider perspective on justice is needed for the CM sector and other legislative options could be considered to increase the role of justice such as an enactment of an Indigenous People Protection Act (recognition justice) and the development of a Sovereign Wealth Fund (distributive justice).

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