Just Transitions within Sectors and Industries Globally

The Justice Dimensions of Extracting Energy Transition Metals from the Pacific

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About Just Transitions within Sectors and Industries Globally
The programme examines how just transitions whilst tackling climate change and biodiversity is key to supporting inclusive economies and societies in the future. Through the programme, the Academy awarded funding to nine research projects exploring the actions required in sectors and industries globally across supply and value chains, with a focus on key economic emitters or areas of society that will help reduce and/or eliminate greenhouse gas emissions. The programme was funded by the UK's Department for Business, Energy and Industrial Strategy.

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Introduction

Climate change presents the greatest challenge humanity has ever faced: we must rapidly transition to a low-carbon economy and ensure the process does not increase global inequality or injustice as a result. The United Nations calls this a 'just transition': a transition process that addresses climate change while respecting the rights of workers and communities and protecting the environment.[1] An often-overlooked fact, however, is that decarbonisation will be very mineral intensive because clean energy technologies need more materials than fossil-fuel-based electricity generation technologies.[2] Building low-carbon energy systems to power a low-carbon economy will require vast amounts of 'energy transition metals' (ETMs) – like cobalt, copper, and nickel among many others – for new technologies and energy infrastructure.[3]

Meeting global demand for ETMs will be a critical pinch point in the transition to new energy futures. Many new mines will be required to meet this demand. These mines are likely to be deeper, lower grade, more energy and water-intensive and built on Indigenous peoples' lands. They will produce more mine waste and more hazardous tailings, and put great pressure on local environmental, social, political and economic systems. Many of these mines will be in regions with significant environmental, social and governance risks, characterised by high levels of energy poverty, where people lack access to enough energy to meet their basic needs.[4] Supplying metals for the energy transition will therefore mean more large-scale mining globally, which can devastate landscapes and lives, exacerbate inequalities, and contribute to climate change through carbon- and energy-intensive forms of extraction and metal processing.

The question of demand for ETMs for low-carbon energy systems is increasingly attracting international attention, focused largely around geological, geopolitical, and economic constraints (or the availability, accessibility, and affordability) of these materials. Nation states are formulating strategies to ensure future access to ETMs as demand grows. Similarly, many fossil fuel-dependent nations have begun devising plans to achieve a just transition away from carbon-intensive sectors and energy systems. However, there have been few attempts to link debates about demand for ETMs with debates about the need for a just transition.[5]

The socio-environmental costs of supplying ETMs represent a major problem in current energy transition pathways. This dilemma has often been ignored in the name of an urgent green transition towards low-carbon energy systems, undermining the original social equity goals of a just transition. But a failure to address the social and environmental costs of extraction will severely impact just transition outcomes and may even jeopardise energy transitions.

1 UNFCCC (2016) Paris Agreement.
2 Hund et al. (2020) Minerals for Climate Action: The Mineral Intensity of the Clean Energy Transition.
3 In this report we use the term ETMs as a more encompassing term. As we explain in the next section, ETMs include critical metals, rare earth elements, and bulk commodities - all of which are needed for energy transitions.
4 Lèbre et al. (2020) The social and environmental complexities of extracting energy transition metals.
5 Bainton & Kemp (2021) More clean energy means more mines.

To achieve a new (global) energy future that is just and fair there must be a focus on justice issues associated with the increased supply of ETMs. This report uses results from the Just Transitions and the Pacific project to address the central dilemmas of the 'energy transition-extractives nexus',[6] namely: as energy transitions drive global demand for ETMs, how do we account for and mitigate justice issues that arise from intensified pressure to extract in specific regions, like the Pacific for example?

6 Bainton et al. (2021) The energy-extractives nexus and the just transition.

Policy implications and recommendations

Our approach demonstrates that, in order for the concept of a just transition to provide a new framework for responsible extraction of ETMs, we must attend to the way justice dimensions converge in the energy-extractives nexus.

This approach has analytical and political value. Analytically, it forces us to contend with the relationship and interconnection between different justice dimensions, and the effects this creates over temporal and spatial scales. We can see how justice dimensions mutually reinforce each other to produce novel and perverse injustices. Politically, we begin to see how certain injustices are justified, how asymmetries are amplified and reproduced, and who benefits and who suffers. These analytical and political insights indicate that single-axis policies and preventative actions will be insufficient to the task at hand: to address the interlinked justice issues associated with global energy transitions.

With this in mind, we provide six policy recommendations that emerged from our research:

1. Policy makers must embrace a wider concept of a just transition that can encompass justice considerations tied to the shift *away* from fossil fuels and the supply, development and transition *into* low-carbon technologies. This is especially critical for the Pacific, where there are greater justice considerations concerning the supply of ETMs (and fewer instances where communities and workers will confront the closure of carbon intensive industries).
2. To avoid policy blind spots, justice issues must be understood and analysed in terms of their capacity to converge and transform.
3. Cost-benefit analysis for ETM extractive projects must pay far greater attention to the range of costs (monetary and non-monetary) that communities incur to access the benefit streams created by extractive-led development. Current methods prioritise the costs incurred by developers and fail to account for the full set of costs incurred by other parties.
4. Remedy pathways need to be available for people impacted by activities associated with ETM extraction. There is a need to consider how remedy pathways can be established to deal with injustices across different scales (from the local project level to the regional level) and across temporal horizons (past, present, and future injustices of extraction).
5. Future legacies of increased extraction in the Pacific are a major policy and legislative blind spot throughout the Pacific. Addressing the social and environmental aspects of mine closure – or post extractive legacies – is fundamental to a just transition.
6. Enhanced supply chain due diligence will be needed to fully assess justice dimensions associated with supply of ETMs from the Pacific (and other parts of the world) and ensure that impacts on source location along the supply chain are aligned with objectives of the wider conceptualisation of a just transition.

Just transitions and the Pacific

Key points:

- Supplying metals for the energy transition will mean more large-scale mining globally. This poses a serious issue for current energy transition pathways.
- To account for the justice dimensions of extracting ETMs, we must consider 'just transitions' a multidirectional process and attend to impacts and consequences of transitioning out of fossil fuels as well as the impacts of transitioning into low carbon energy futures.

Over the past decade, the concept of a just transition has come to dominate conversations about global energy futures, gaining international traction and widespread endorsement. Since it was first introduced in the context of US trade union movements in the 1970s, the concept has spread across a range of domains – including governments, private sector, international organisations, and environmental justice movements. Today it is commonly used as a shorthand to demonstrate compatibility of environmental goals, labour rights, and regional economic development in energy-producing areas. For some groups, it represents a way of managing the disruptions that arise when fossil fuel-based energy regimes decline or cease. For others, it provides a normative basis to pursue radical socio-political change and holistic human development goals.

Although there is growing commitment to a just transition, there is limited international consensus on what justice issues should be prioritised, the scope and scale of this process, and who should be responsible for prioritising, resourcing, and coordinating this change. This amidst a growing acknowledgement that a transition to low carbon energy systems 'will inevitably produce and, in many cases, perpetuate pre-existing sets of winners and losers' and that 'without specific efforts made to ensure an equitable transition, not everyone will benefit equally'.[7]

The meaning of the term has evolved in recent years, but it has remained rooted in the justice issues tied to the move away from fossil fuels (like the closure of coal mines and coal-fired power stations, for example). This focus dominates policy and industry practice. We regard the idea of a just transition as a plural, multidirectional and multifaceted process that links global actions and aspirations with local realities and impacts: so that attention is directed at both the consequences of transitioning *out* of fossil fuels and the impacts of transitioning *into* 'cleaner' low carbon energy futures – the latter often associated with ideas of sustainable development, fairer economies and flourishing communities.

7 Carley & Kinsky (2020:569) The justice and equity implications of the clean energy transition.

But to develop low-carbon energy technologies at the rate that is required to meet emissions reduction targets set out in the Paris Agreement we will need an increased supply of ETMs. The World Bank's 2020 report on minerals for climate action shows that we can expect increased global demand for more than 20 metal commodities that underpin the global economy and are critical for a clean-energy transition.[8] These include specialty metals like cobalt, lithium and rare earths used in batteries, solar panels and other technologies, and bulk commodities like bauxite, copper, iron, and nickel used in energy generation, transmission and storage infrastructure (e.g., windfarms, power lines and turbines). The International Energy Agency estimates that, in modelling a scenario that meets the Paris Agreement Goals, renewable energy technologies' share of total demand for ETMs would rise rapidly over the next twenty years 'to over 40% for copper and rare earth elements, 60-70% for nickel and cobalt, and almost 90% for lithium.'[9] Therefore, anything less than a sustained program of degrowth will require more mining – in places like the Pacific, and elsewhere. Recycling and circular economy strategies will not be enough to meet the additional demand in the short time frame available.

Increased demand for these ETMs to build low-carbon energy systems, expected to grow dramatically over the next twenty years, is both a consequence and a driver of climate change and economic globalisation – exacerbating the social, economic, political, territorial, and ecological pressures of extraction. Evidence shows that the extraction of natural resources (including 'old economy' extractives like gold, oil and gas) creates environmental degradation, human rights abuses, displacement and violent conflict in places like the Pacific.[10] There is a critical need to understand if increased pressure to extract ETMs in the region (to meet global demand) will result in similar justice issues or new perverse patterns of injustice.

Double exposure

Key points:

- The Pacific is at the frontline of a 'double exposure' to climate change and the consequences of economic globalisation.
- The region contains vast amounts of ETMs such as copper, nickel and cobalt.
- To achieve a (global) just transition to low-carbon future, it is crucial we consider how increased pressure to extract under conditions of climate change will intensify conflicts over scarce natural resources (water, land, forests, seas) in regions such as the Pacific. It is critical to analyse how it will exacerbate and transform the social and geographic distribution of injustice, including gendered, generational, and racialised inequalities.

Over the past fifty years, the geography of the world's supply and demand for metals, including ETMs, has shifted.[11] Historically, the biggest consumers of metals were also the major producers. Today, the biggest consumers source most of their metals from other parts of the world, such as the Pacific, creating an elaborate web of supply chains spanning the globe in what has been termed the 'planetary mine'.[12] As we

8 Hund et al. (2020) Minerals for Climate Action: The Mineral Intensity of the Clean Energy Transition.
9 IEA (2021) The Role of Critical Minerals in Clean Energy Transitions.
10 Allen (2018) Resource Extraction and Contentious States; Kirsch (2014) Mining Capitalism.
11 Humphreys (2013) New mercantilism: A perspective on how politics is shaping world metal supply.
12 Arboleda (2020) Planetary mine: Territories of extraction under late capitalism.

consider the impacts of increased demand for ETMs on source locations with the need for a just transition to low-carbon energy systems, we are reminded that global pressures and trends have local- and regionally- specific consequences.

A focus on the Pacific region is amply justified. The Pacific is at the frontline of a 'double exposure' to climate change and the consequences of economic globalisation. The region is exposed to rising sea levels and catastrophic cyclones and droughts. It has a long history of large-scale mining and contains enormous deposits of ETMs but remains energy poor and struggles to convert its mineral wealth into human development. For example, New Caledonia contains 25% of the global supply of nickel, there is more than 44 million tonnes of undeveloped copper between Papua New Guinea (PNG) and Fiji, and it is estimated that deep sea cobalt reserves in the Pacific are five times larger than global terrestrial reserves.

To achieve a (global) just transition to low-carbon future, it is crucial we consider how increased pressure to extract under conditions of climate change will intensify conflicts over scarce natural resources (water, land, forests, seas) and how it will exacerbate and transform the social and geographic distribution of injustice, including gendered, generational, and racialized inequalities. Increased need for ETMs means that where some extractive projects were previously justified in terms of national-level benefits (that supposedly outweigh local-level harms), it can be expected that some new projects and expansions will be justified in terms of global necessity. It also means that projects previously considered too risky or costly for development (often referred to as stranded assets) may have their viability reassessed. This is especially the case where ETMs co-occur with other commodities, like gold for example.

We are already witnessing an emerging 'extractive justification' discourse, where mining and exploration companies present themselves as essential enablers of the energy transition. Critics of this discourse refer to it as 'green extractivism'.[13] This discourse presupposes that the solutions to climate change are based on increased extraction, foreclosing discussions on alternative policy avenues and models, like degrowth. So as extractive companies contribute to the consensus on transitioning, projects that might otherwise be difficult to justify (in terms of environmental and social costs) may become acceptable. This will place an even greater level of pressure on resource rich nations, such as those in the Pacific, with high development needs and fewer alternative economic development opportunities.

Energy-extractives nexus

Key points:

Comparing Environmental, Social and Governance (ESG) risk dimensions at ETM extraction projects in the Pacific, to ETM extraction projects in the rest of the world clearly demonstrates that:

- In the Pacific region, the conditions around ETM mining projects are among the most complex and volatile in the world.
- ETM mining projects in the Pacific are on average more exposed to situated ESG risks than ETM projects in the rest of the world.

13 Voskoboynik & Andreucci (2021) Greening extractivism: Environmental discourses and resource governance in the 'Lithium Triangle'.

The global demand for ETMs encompasses the Pacific in multiple ways. The region is highly vulnerable to the effects of climate change – and faces a perilous future unless global economies can dramatically cut their carbon emissions and mitigate the effects of anthropogenic climate change. It also contains large undeveloped terrestrial and seabed deposits of ETMs, and numerous Pacific nations are highly dependent on resource extraction as a source of national revenue.

We know that growing demand for ETMs, linked to development of renewable energy technologies and infrastructures, translates into increased stress on people and places at and near sites of extraction. To quantify this stress, Eléonore Lèbre and co-researchers developed a methodology based on a set of global composite environmental, social and governance (ESG) factors and examined 5,097 ETM mining projects to identify and assess ESG risk factors in ETM locations.[14] Applied in the regional context of the Pacific[15] this methodology provides us with critical insights into situated ESG risks and vulnerabilities across 161 ETM extraction projects in the region.[16]

This spatial analysis of ESG factors in the Pacific (see Table 1) paints a complex and volatile picture across all seven risk categories used in the methodology (extreme events, water, conservation, land uses, communities, social vulnerability, and governance). Compared to global-level data, ESG risks around the ETM projects in the Pacific are higher in all but 3 of the 23 assessed indicators across the seven risk categories, the three being: projected changes in temperatures by 2040, and maximum population density in the 10km and 100 km radius of the project.[17]

Although this methodology considers ESG risks across these distinct categories, it is important to note that situated ESG risks interact with each other, often generating complex, multi-dimensional risks that are greater than the sum of their parts.[18] For example, a remote Indigenous community with low access to potable water, in a jurisdiction where a corrupted government does not recognise their land rights, experiences multiple dimensions of vulnerability simultaneously.

14 Lèbre et al. (2020) The social and environmental complexities of extracting energy transition metals.

15 This analysis was conducted by the authors as part of the Just Transitions and the Pacific project. The dataset (https://doi.org/10.17630/11add599-28df-4575-87b9-22e540be4342), together with an accompanying methodology and briefing note (Lèbre et al 2021a & 2021b) can be accessed here: https://jtpac.wp.st-andrews.ac.uk/outputs/

16 These projects are at various stages of development and are located in seven Pacific countries: Fiji, Indonesia (Papua and West Papua only), New Caledonia, Papua New Guinea, Solomon Islands, Vanuatu and Tonga. Cook Islands has now approved permits for seabed exploration within its Exclusive Economic Zone.

17 On average, Pacific ETM projects are in more densely populated regions than ETM projects in the rest of the world. On a global scale, densely populated regions generally correspond to a more diversified and resilient economy that may not entirely depend on mining revenues. However, in the Pacific context many of these communities rely on subsistence livelihoods, and levels of economic diversification tend to be low (which in many instances has translated into higher levels of dependency upon mining revenues).

18 Valenta et al. (2019) Re-thinking complex orebodies: Consequences for the future world supply of copper.

Table 1: Aggregate risk profile of the Pacific ETM projects

	Risk Category	Risk profile of the Pacific ETM projects
Environmental	**Extreme events**	Pacific ETM projects are exposed to several types of risks when it comes to extreme events – such as seismic events, tropical cyclones, and sea level rise. This cumulative exposure has wide-ranging implications in terms of planning for the long-term stability of infrastructure, mining voids (open pits and underground workings) and waste storage facilities. Failure to ensure stability of these features results in health and safety risks for both workers and local communities, as well as environmental risk.
	Water	90% of Pacific ETM projects are above the medium water risk threshold. This means 9 out of 10 projects face difficult freshwater conditions, and mine developers may struggle with: 1) getting fresh water supply for mining operations, 2) controlling water flows on site and keeping reactive minerals away from water, 3) securing fresh water supply to nearby communities, and 4) avoiding acid and metalliferous drainage into local aquifers.
	Conservation	59% of Pacific ETM projects fall in a key conservation or biodiversity area. Of the three biodiversity measures used for the analysis, Biodiversity Hotspots is the prevailing type in the Pacific region. Biodiversity Hotspots are defined as areas meeting two criteria: 1) contain at least 1,500 species of vascular plants found nowhere else on Earth; 2) have lost at least 70 percent of its primary native vegetation. This means biodiversity in the proximity of ETM projects is particularly high, and already at risk.
Social	**Land uses**	The average percentage of forest land around Pacific ETM projects is 60%. 67% of Pacific ETM projects intersect with croplands. This means Pacific ETM projects experience more competition with existing land uses. As mining developers undertake land clearing at the exploration and construction stages, and then progressively acquire land when operations expand, the area of land available to the local communities decreases and local land uses – including gardening, farming and hunting grounds, are threatened.
	Communities	On average, Pacific ETM projects are in more densely populated regions than ETM projects in the rest of the world. Densely populated regions generally correspond to a more diversified and resilient economy that may not entirely depend on mining revenues. However, in the Pacific context many of these communities rely on subsistence livelihoods, and there are often lower levels of economic diversification – and higher levels of dependency on mining revenues. 94% of Pacific ETM projects are located on or near Indigenous Peoples Land, where people have cultural and spiritual ties to the land in addition to relying on the land for livelihoods.
	Social vulnerability	Three quarters of Pacific ETM projects are in jurisdictions with low levels of human development and high levels of age dependency, and 87% of Pacific ETM projects are in jurisdictions with high income inequalities, compared to 59% of global ETM projects. Together, these measures signal poverty, insecurity, demographic pressures, and low levels of education and health. Mining developments generate socio-economic changes at all stages of the mine life cycle that can accentuate these vulnerabilities.
Governance	**Governance**	Poor governance in some Pacific Islands countries means that mining revenues have more often than not been captured by political elites and private interests without benefiting local populations. Weak regulatory capacity has meant that populations have not been protected from the negative impacts of mining activities. In highly resource-dependent regions, national administrative services (including justice sector, cultural heritage protection, health and education) rarely keep up with demand around large mining projects, because of slow responses to post public officials to remote areas where mining takes place. Of particular relevance is an inadequate capacity to protect property rights including land rights.

Multi-disciplinary expertise is needed to comprehend these risks and their interactions. It is also important to note that when several situated ESG risks are present around a mining project, as is nearly always the case in the Pacific, impact avoidance and mitigation strategies are paramount to prevent further harm to vulnerable people and ecosystems. At the same time, the high ESG complexity surrounding Pacific ETM projects makes these strategies harder to define and implement.

The results we can draw from a comparison of global and regional ESG risk profiles are unequivocal.

- In the Pacific region, the conditions around ETM mining projects are among the most complex and volatile in the world.
- ETM mining projects in the Pacific are on average more exposed to situated ESG risks than ETM projects in the rest of the world.

These findings have implications for a range of actors involved in and/or affected by ETM mining activities in the Pacific. These actors include industry and regional governance bodies, local communities, and mining corporations and ETM consumers (i.e., renewable energy industries). The latter stand to benefit from understanding the situated ESG risks around their operations and managing their ESG performance accordingly for two key reasons.

First, investors increasingly require mining companies to demonstrate good performance on ESG metrics and can divest when breaches on these metrics become obvious.[19] Second, poor management of mining-induced risks and impacts can trigger conflict, which translates environmental and social risk into business costs.[20] Egregious misconduct (e.g., catastrophic tailings dam failure) may have far reaching implications including fatalities, damage to property, loss of license, premature mine closure, and legal action against the mining company.[21] Significantly, ETM mining projects operating within this complex risk landscape are very likely to unleash and/or amplify injustices across three core forms of justice – procedural, distributive and restorative – undermining the goals of a just transition.

These findings highlight the importance of the Pacific in conversations about justice dimensions of extracting ETMs for global energy transition technologies. They also form a strong basis from which we can identify and understand the broader justice issues that co-occur with specific energy transition ore bodies, and to map potential justice risks that will accompany future extractive activities in the Pacific.

The JUST framework

Key points:

- The notion of 'justice as fairness' is necessary for developing policies that aim to facilitate and support a just energy transition.

19 e.g. Biesheuvel (2019) Norway's $1 Trillion Fund Builds Rio Stake After Dirty Mine Sold.
20 e.g. Kemp et al. (2016) Differentiated social risk: Rebound dynamics and sustainability performance in mining.
21 Kirsch (2014) Mining Capitalism.

- The energy justice literature generally accepts three foundational justice elements: procedural, distributive and restorative.
- Heffron's JUST framework considers, alongside procedural, distributive and restorative justice elements, issues of cosmopolitanism and recognition, across space and time.
- We can apply this framework to identify and organise specific issues, impacts, activities, and considerations where injustices can arise through the business of extracting ETMs in the Pacific.

How we conceptualise justice makes a massive difference to the idea of a just transition. In our view, John Rawls' notion of 'justice as fairness' is indispensable for developing policies to enable a just and fair global energy transition.[22] Rawls reminds us that utilitarian concepts of justice, based on the greatest amount of good for the greatest amount of people, fail to account for the distinction between persons or groups. He pushes us to examine who bears the burden and shares the benefits of a global energy transition. In other words, what injustices are justified in the name of an urgent energy transition? What 'out-of-the-way' places and communities might be sacrificed to maximise the benefits of others?

If a primary reason for justice is to 'ensure fairness and equality in society' (in essence to resolve inequalities), then it is important to attend to key justice elements to understand how and where injustices can arise.[23] The energy justice literature generally accepts three foundational justice elements, or what Raphael Heffron and Darren McCauley have termed a 'triumvirate of tenets': procedural, distributive and restorative justice.[24] Expanding on this, Heffron has developed a 'JUST framework' to consider 'the role of justice in developing critical minerals'.[25]

In summary, this framework stresses the following elements:

- three core forms of **justice**: procedural, distributive, and restorative justice
- two **universal** forms of justice: cosmopolitanism and recognition
- attention to the **spatial** dimensions of developing critical metals
- attention to the **temporal** dimensions of developing critical metals and climate change initiatives

The JUST framework unites climate, environmental, and energy justice considerations with the view towards reducing inequality and injustice within society. It helps us to emphasise past, present, and future injustices of extracting ETMs – and the restorations or reparations that are also required – and to consider how justice issues arise over different time and spatial scales. We can apply this framework to identify and organise specific issues, impacts, activities, and considerations where injustices can arise through the business of extracting ETMs in the Pacific – as demonstrated in Table 2.[26]

22 Rawls (1999) A Theory of Justice.
23 Heffron (2020:857) The role of justice in developing critical minerals.
24 Heffron and McCauley (2018) The concept of energy justice across the disciplines.
25 Heffron (2020) The role of justice in developing critical minerals.
26 The table was produced by the authors in consultation with members of the Pacific Advisory Group for the Just Transitions in the Pacific project, on the basis of their long-standing research on resource extraction in the Pacific, knowledge of national contexts and understanding of industry governance mechanisms, supplemented by literature and policy review.

Table 2: Justice considerations of ETM extraction in the Pacific

Justice dimension	Key justice considerations
Procedural	• *Legislation and policy:* enabling and constraining aspects regarding the interests of specific groups, and specific issues and impacts of extraction. • *Resource governance:* systems, mechanisms and resources for governing (and regulating) the permitting and approval of extractive projects, the operation of extractive projects, and the flow, use and monitoring of wealth generated from these projects; transparency of decision making, payments, planning etc. • *Consultation and consent processes:* who is consulted and in what ways; how is consent defined, sought, and provided; is the principle of Free Prior and Informed Consent (FPIC) upheld, and how; do impacted groups have veto rights. • *Negotiation processes:* what are the processes and timeframes for negotiating agreements or conditions for extraction; how are negotiation processes supported and resourced; who is included/excluded from these processes; how are asymmetries between companies, governments and communities addressed. • *Representation:* processes for defining stakeholder representation; how are these processes decided and by whom. • *Stakeholder / affected group mapping:* processes for identifying and mapping key stakeholders, including affected communities and traditional landowners (especially important in the Pacific); resources and expertise to support these processes; oversight and responsibility for this process. • *Agreement making, management and monitoring:* processes, resourcing and support for developing agreements for extractive projects (i.e., benefit sharing agreements); who is involved; what principles guide the process; responsibility and resources for implementation and management of agreements; responsibility and resources for monitoring agreement outcomes; processes for review and renegotiation of agreements; options for recourse when agreements falter or fail. • *Impact assessment:* processes, resources, expertise and methods, and regulation of social and environmental impact assessment; community participation in impact assessments, and access to results; use of results to inform decision making. • *Cost-benefit analysis for new projects:* the basis upon which cost-benefit analysis is conducted, and the extent to which the social costs of extraction are adequately calculated. • *Resettlement and livelihood restoration:* processes and resources for planning, engagement/ participation, assigning responsibilities, implementation, and monitoring outcomes. • *Grievance handling mechanisms:* design and functionality; resourcing, support, and responsibilities; accessibility; legal compatibility; options for further redress and remedy. • *Access to authorities:* uneven access among stakeholders to authorities to promote their interests (inc. access to politicians, regulators, power brokers, decision makers); how are these asymmetries addressed or exacerbated. • *Access to resources:* uneven access among stakeholders to resources to promote their interests (i.e., financial, legal, and technical expertise; lobbying power etc.); how are these imbalances addressed or exacerbated. • *Access to information:* uneven access among stakeholders to knowledge/data; uneven capability to interpret and use specific knowledge/data; how are these imbalances addressed or exacerbated. • *Access to opportunities:* uneven access among stakeholders to opportunities (e.g., training, employment, business opportunities); how are these imbalances addressed or exacerbated.

Distributive	• *Costs and burdens:* social, spatial, temporal, racial, generational and gendered distribution of impacts, across social, cultural, economic, political, environmental domains; includes qualitative shifts to the type of impacts experienced across time and space. • *Benefits:* social, spatial, temporal, racial, generational and gendered distribution of benefits and opportunities, across social, cultural, economic, political, environmental domains; includes the type of benefits that are available / not available. • *Extractive and/or colonial legacies:* unequal distribution of legacy effects. • *Resilience:* unequal capabilities between regions, communities, social groups and households to cope with change and/or maximise new opportunities. • *Cost of accessing benefits:* the 'entry price' for nations, regions, communities, social groups and households to access benefits related to extracting ETMs; unequal access to the means for maximising these benefits or for gaining inclusion in agreements. • *Embedded vulnerability:* pre-existing and differentiated vulnerabilities and social risk profiles among different regions, communities, social groups and households (including vulnerability to climate change and the effects of extraction). • *Specific impacts unequally distributed:* For example, in-migration / demographic changes and pressures; resettlement; displacement; dispossession; environmental degradation; health effects; conflict.
Restorative	• *Remedy frameworks:* what remedy frameworks are in place, how effective and accessible are they, and for whom. • *Pre-existing justice impacts:* mechanisms for recognising pre-existing justice impacts, legacy issues, and assigning responsibility; how is remedy provided or achieved? • *Future justice impacts:* how are these recognised and defined; how is remedy provided and achieved, and who is responsible (i.e. dealing with post-extraction impacts and justice issues). • *Restoration of extractive landscapes:* how are ETM extraction sites restored and returned to former use, or re-developed, when extractive activities cease? Abandonment of extractive sites remains a critical justice issue for the sector. • *Scale:* the remedy options that exist at the local, regional, national and international scales; differential access to remedy at various scales. • *Legal settlements:* how are the terms settled, and who benefits or is excluded. • *Legislated settlements:* how are the terms settled, and who benefits or is excluded. • *Politically negotiated settlements:* how are the terms settled, and who benefits or is excluded. • *Livelihoods and social and ecological wellbeing:* how are these restored when negatively impacted by extraction; who is responsible for restoration.
Cosmopolitanism	• *Sacrifice zones:* the potential for some groups and places to be sacrificed so that other groups and places can benefit (i.e., extracting ETMs at the expense of one place to benefit another). • *Common heritage of humanity:* the deep seas and the ETMs found in these locations, and metals and minerals found in the Earth's crust more broadly, are the common heritage of humanity. Decisions to explore and exploit the deep seas to meet demand for ETMs has consequences for all of humanity (including current and future generations). • *Cross-border impacts:* where justice issues arising from ETM extraction 'leak' or 'jump' across national boundaries. For example, deep sea mining impacts may not be confined to the permitted zone of extraction. • *Climate change:* climate change is a global challenge. States have a 'common but differentiated' responsibility to reduce carbon emissions and mitigate effects of anthropogenic climate change.
Recognition	• *Recognition:* procedures that enable recognition, misrecognition or erasure of particular identities including: Indigenous, land connected people, non-Indigenous populations; racial and gendered identities; vulnerable and marginal peoples; class-based recognition (i.e. precarious labour); micro-level recognition and misrecognition.

The justice dimensions of extracting energy transition metals in the Pacific

Key points:

- The different elements of the JUST model do not simply co-occur. Where two or more justice dimensions meet they converge and transform one another.
- Unpicking a 'single' justice issue around the extraction of ETMs in the Pacific necessitates an approach than can penetrate multiple dimensions, and that is sensitive to historical contexts (past, present and future), political processes across a scale of individual and collective aspirations.
- There is a need for a wider view of just transition in relation to ETM extraction – as a plural, multidirectional and multifaceted process that links global actions and aspirations with local realities and impacts, and that fully appreciates how all justice dimensions converge in the energy-extractives nexus.

Our spatial analysis of the energy-extractives nexus in the Pacific provides broad insight into the ESG risks that may be *unleashed* or *amplified* through the extraction and supply of specific ETMs. These ESG risks point to various justice issues that demand attention as part of the transition *out* of fossil fuels and *into* low carbon energy systems. The JUST framework allows us to map some of those justice considerations against specific issues, impacts, activities and considerations to identify where and how injustices are likely to emerge as pressure mounts to extract ETMs.

We examined three core (procedural, distributive and restorative) and two universal (cosmopolitan and recognition) forms of justice, along with spatial and time dimensions. Similar analysis can be replicated in other project and country contexts.

Based on qualitative case studies of copper in Papua New Guinea (PNG), nickel in New Caledonia and seabed minerals in Cook Islands,[27] we found that unpicking a 'single' justice issue around the extraction of ETMs in the Pacific (regardless of how it is initially categorised) necessitates an approach than can penetrate multiple dimensions, and that is sensitive to historical contexts (past, present, future) and political processes across a scale of individual and collective aspirations.

The Ok Tedi mine, the first copper project that opened in PNG after the country gained independence from Australia, offers a good case in point (Case study 1).

27 Skrzypek (2022) Case Study 1: Copper in Papua New Guinea; Burton (2022a) Case Study 2: Nickel in New Caledonia; Bainton (2002) Case Study 3: Seabed Minerals in Cook Islands. All three case studies can be found on the project website: https://jtpac.wp.st-andrews.ac.uk/outputs/

Case study 1: The Ok Tedi Mine, PNG

The Ok Tedi Mine mine is located in the Western Province of PNG, in an area of high seismicity and rainfall and on lands belonging to Indigenous groups for whom land is an important cultural resource and source of livelihood. Operated by an Australian company, Broken Hill Proprietary (BHP), it began production in 1984 and was seen politically as an ideal opportunity to bring security to the border area with Indonesia and revenues to the PNG economy. It was also viewed as a vehicle for developing a part of the country which was described as 'so underdeveloped as to be effectively outside the control of Papua New Guinea'.[28] What began as a symbol of national optimism soon became a symbol of extractive excess after a tailings dam, meant to keep toxic mining tailings away from the surrounding environment, collapsed before construction could be finalised. It discharged huge volumes of toxic waste and sediment into the Ok Tedi and Fly River systems.[29] Given the importance of Ok Tedi to the budget of the newly independent nation, the principal agreement, the *Mining (Ok Tedi Agreement) Act* 1976, ruled that subsequent legislation could not override its conditions. This meant that Ok Tedi was exempted from PNG's subsequent environmental legislation and allowed to continue operating without a tailings storage facility. In 1999 BHP reported that over a period of more ten years 90 million tons of mine waste was annually discharged into the river, destroying downstream villages, agriculture and fisheries, changing local landscapes – and significantly reducing riverine resources and services available to local communities.

After a protracted battle brought to court in Australia by Indigenous landowners on the grounds of environmental damage,[30] in 1996 BHP agreed to pay USD 117 million in compensation to the affected communities. The majority of this sum was designated for landowners closest to the mining operations, with a smaller amount distributed to communities living downstream, further away from the mine – a distribution of benefits that did not match either the spread or the severity of environmental and social burdens of extraction. In 2001 BHP stepped away from the mine and agreed to transfer its 52% stake in the venture to a newly established 'PNG Sustainable Development Program' fund in exchange for indefinite legal indemnity against future liability – an arrangement formalized in the Mining (Ok Tedi Mine Continuation Ninth Supplemental Agreement) Act 2001. The Act also formalized a series of Community Mine Continuation Agreements (CMCAs) signed with groups recognised by the government and the developer as 'affected communities'. The agreements offered enhanced compensation payments and access to additional benefits for communities in exchange for them not pursuing legal action against the mine – a de facto permission for the mine to continue operating as a 'slow-motion environmental disaster'.[31] By then, the extent of environmental damage was significant and irreversible. In 2013, the PNG government seized 100% ownership of the mine and it continues to operate without a tailings' storage facility.

When considering justice issues at Ok Tedi, the JUST framework provides a convenient organising structure. It serves as a practical point of entry to identify certain justice issues and helps to shed light on some of the factors that inform and reinforce these issues. But very few justice issues fall neatly within a single category – and most cut across two or more justice dimensions. Further, the different justice dimensions and issues do not simply co-occur. They converge and transform one another creating novel, complex justice issues.

For example, the unequal distribution of wealth from the Ok Tedi mine is both a distributive justice issue and a procedural justice issue insofar as the uneven spread

28 King (1997:97) The Big Polluter and the Constructing of Ok Tedi.
29 Mudd et al. (2020) Mining in Papua New Guinea: A complex story of trends, impacts and governance.
30 Kirsch (2007) Indigenous movements and the risks of counterglobalization; Filer and Jenkins (2017) Negotiating Community Support for Closure or Continuation of the Ok Tedi Mine in Papua New Guinea.
31 Kirsch (2014:133) Mining Capitalism.

of benefits is enshrined in legislation and reflected in the agreements negotiated between affected communities and the mining company. A lack of remedy (or the extreme difficulty of accessing remedy pathways to address issues related to this inequality) adds another level of complication and injustice to this situation, reinforcing inequalities over time. With few options for pursuing restorative justice, whilst being locked in compromised community agreements sanctioned by legislation, the unequal distribution of wealth is structurally entrenched and experienced in numerous forms: as a procedural, distributive, and restorative justice issue. The fact that downstream environments cannot be restored means that people are prevented from achieving a form of restorative justice fundamental to resource extraction: the rehabilitation of extractive landscapes.

This irreparable damage is also the source of the inequality that is written into the CMCAs. Only some people in Western Province are recognised in these agreements, meaning that only some people can access compensation payments. As procedural instruments, these agreements work to legitimise inequality throughout region. At the core of these agreements is the issue of recognition: which communities are recognised as affected, and who is recognised as a member of these communities. This inequality is historical. It emerged within a specific set of circumstances, and it has been maintained over the life of the mining operation through various decisions and mechanisms, that in turn have enlarged the social and geographical scale of this inequality. As such, it has become a (regional and a national) mining legacy that will persist into the future.

The past injustices inflicted by BHP as the former operator of the mine implicates actors beyond the shores of PNG as investment decisions made in other places created dire consequences for communities living downstream from the mine. These actors claim a lion share of the benefits yet suffer none of the devastating impacts of extraction. If this represents a failure of due process, where people in powerful places benefit from harms inflicted on people in distant places, it also represents a failure to recognise our common interests in the preservation of our planetary environment or what we might otherwise call cosmopolitanism.

The Ok Tedi example demonstrates that unpicking a 'single' justice issue around the extraction of ETMs in the Pacific (regardless of how it is initially categorised) necessitates an approach than can penetrate multiple dimensions, and that is sensitive to historical contexts (past, present, future), and political processes across a scale of individual and collective aspirations. Following the lead of critical race theorist Mari Matsuda one practical way that we can ensure this occurs is by 'asking the other question':

> *The way I try to understand the interconnection of all forms of subordination is through a method I call 'ask the other question'. When I see something that looks racist, I ask, 'Where is the patriarchy in this?' When I see something that looks sexist, I ask, 'Where is the heterosexism in this?' When I see something that looks homophobic, I ask, 'Where are the class interests in this?'*[32]

This simple strategy has immediate appeal and application. We can ask, how are certain 'distributive' justice issues also a form of 'procedural' injustice? How is the unequal distribution of mining wealth related to poor agreements or decision-making processes? And how is a lack of remedy related to procedural failures? As our example from Ok Tedi shows, we cannot hope to achieve just outcomes by separating out and ranking justice issues for prioritisation when they are so intricately interwoven and

32 Mastuda (1991:1189) Beside my Sister, Facing the Enemy: Legal Theory out of Coalition.

mutually reinforcing.

Commodity supply chains

Key points:

- ETM supply chains are instrumental in shaping ways in which costs and benefits of ETM extraction are distributed and how justice issues converge in the global ETM markets.
- Existing knowledge barriers make it difficult to track an ETM (in this case nickel from New Caledonia) – and assess the implications this may have for a just transition.
- This constitutes a form of injustice where producers can treat the negative impacts of extraction on supply locations as externalities.
- Dominant narratives driving increased extraction (to supply ETMs to combat climate change) may mask other drivers and interests.
- Enhanced supply chain due diligence is necessary to fully assess justice dimensions associated with supplying ETMs from the Pacific (and other parts of the world) and ensure that impacts that emerge in source location and along the supply chain are aligned with the values of 'justice' and 'fairness' that underpin the concept of a just transition.

The risk profiles of ETM projects in the Pacific, and analysis of justice issues around the extraction of ETMs in this region, demonstrate two things. First, ETM projects in the Pacific are exposed to a range of situated ESG risks that are both complex and volatile. Second, these risks combine with social and environmental impacts of extraction in ways that exacerbate old and create new patterns of injustice among a wide range of groups. We know that the growing demand for ETMs, driven by the world's need to transition to low-carbon energy systems will put additional pressure on those already volatile environments. Evidence suggests that this may 'unlock previously uneconomic orebodies' and 'unleash an unacceptable suite of environmental and social impacts'[33] – in the name of an urgent energy transition. These impacts are likely to resonate along the ETM supply chains, resulting in risks to source nations and communities, individual mining projects, and security of global supply of ETMs.

Supply chains define the flow of a commodity between producers and consumers. But they are also instrumental in shaping ways in which costs and benefits of extraction are distributed, and how justice issues converge between mining locations and global ETM markets. By looking at global and regional trends in commodity markets, we are able to connect increased demand for ETMs to increased pressures on ETM producing countries, and the impacts this entails. However, it is often difficult to connect individual mines and sites (or even regions) of extraction to specific manufacturers and end products.

Take nickel from New Caledonia as an example (Case study 2).

33 Valenta et al. (2019:817). Re-thinking complex orebodies: Consequences for the future world supply of copper.

Case study 2: Nickel from New Caledonia

Nickel is the most important commodity mined in New Caledonia, which was the world's fifth-largest nickel producer in the world in 2019, with exports totalling 220,000 tonnes of nickel content, or about 8.1% of world production. Three vertically integrated companies are now able to mine, process and export nickel: Société Le Nickel (SLN), founded in 1880 and headquartered in Nouméa; SMSP, owned by the country's North Province, with a refinery at Vavouto in joint venture with Glencore; and Prony Resources New Caledonia, a consortium formed in 2021 to take over operation of a mine and refinery at Goro in the South Province. Twenty or more second-line companies that are only engaged in parts of the process of mining, and do not do their own refining, operate across the territory and are loosely known as *petits mineurs* ('small miners'). Some are well capitalised and export unprocessed nickel ore, while others are restricted to subcontracting to the bigger companies or do mining and use small coastal bulk carriers to ship ore from coastal wharves to one or other of the refineries. Even before the nickel ores leave New Caledonia, they go through a supply chain involving many actors, interests and organisations. What is more, the country's history of colonial and racial tensions, foreign investment, and inequalities in access to mining and other economic opportunities means that by the time the vessels carrying nickel to other parts of the world depart one of the country's docks, the supply of nickel from New Caledonia is already entangled in complex and contested patterns of injustice.

We conducted a commodity flow analysis of nickel from New Caledonia,[34] where we sought to understand the extent to which the trajectory of an individual commodity can be traced – from extraction, along the supply chain, through to final consumption. In two of the three cases we explored (Nickel Mining company, a joint venture between SMSP and the Korean steelmaker POSCO; and SNL) we were able to trace metals from the point of extraction to refineries in Asia and a domestic refinery in Doniambo respectively. In the first case this is where the trail stopped, and we were unable to establish where ore deposits extracted in a particular location are eventually consumed (or for what purposes). In the second case, we were able to identify four principal clients for SNL's nickel product, although this list is incomplete and by now out of date (2016). All four clients are headquartered in Europe. They produce stainless steel and alloys and between them own production facilities in many parts of the world. We were not able to track the metal further.

If this makes it hard to account for the social and environmental costs of extraction at the point of final product sale, it also constitutes a form of injustice because producers can treat the impacts of extraction as mere externalities. It raises questions about the extent to which justice issues that occur at the supply end are accounted for and considered at the demand end of the supply chain. Inability to follow a commodity along the supply chain, or to work backwards from a final product to the source of the raw materials, helps to maintain the dominant narrative driving increased extraction (to supply ETMs to combat climate change). These blind spots make it harder to answer other questions that might challenge this narrative, like what percentage of ETMs are being consumed in other technologies disconnected from the energy transition, such as military hardware for example?

At some point in the near future, we may be able to trace nickel from New Caledonia to an electric car manufacturer, Tesla (the third case explored in our analysis). In 2021 Tesla signed a multi-year deal with Prony Resources, 51%-owned by New Caledonia's provincial authorities and other local interests, to purchase 42,000 tonnes of nickel

34 Burton. 2022b. Commodity Flow Analysis: Nickel from New Caledonia.

from Goro operations in New Caledonia.[35] The deal was one of the many signed by Tesla in the last two years, amid growing concerns about future supplies of nickel – a critical component for lithium-ion cell production. The company has made public its need for expedited extraction of the metal to allow for scaling up of global production of electric cars. At the same time, it has declared its intention to 'take control of its supply chain and ensure that the minerals used for its car batteries are mined in an environmentally friendly and responsible fashion'.[36] With production stipulated under the deal yet to begin, commentators say that 'If done right, the approach by Tesla, which has the capacity to churn out close to a million cars a year, could lead the way in setting global standards for the electric vehicle revolution... If done wrong, Goro will serve as a cautionary tale of how difficult it is to achieve true sustainability'.[37] The deal was struck amid local opposition to the mine, arising from a convergence of political concerns, environmental issues, racial tensions and historical vulnerabilities.

Justice convergences

Key points:

- Scholarship on just transitions is advancing rapidly but there has been much less research on the different justice dimensions associated with the extraction of ETMs for building low-carbon energy-systems.
- This knowledge gap has particular significance for the Pacific which faces disproportionate pressures of extraction combined with the effects of climate change.
- The 'justice convergences' model stresses the need to understand the relationship between justice issues: how they converge and transform one another, and the effect of time and scale on these convergences and their impacts.

Building on the foregoing discussion of justice issues related to the extraction of ETMs in the Pacific, and based on our research findings, we stress the need to understand the relationship between justice issues: how they converge and transform one another, and the effect of time and scale on these convergences and their impacts.

In meteorology, a convergence zone is a region where two prevailing flows meet and intersect, usually resulting in a mass accumulation that in turn causes distinctive weather conditions. The Oxford English Dictionary defines a convergence as the 'coming or drawing together' of disparate lines and a 'concurrence of effects'. These definitions suggest a way of thinking about the justice dimensions of global energy transitions, especially as they occur within the Pacific.

To be sure, convergences are a physical feature of extraction. Terrestrial extractive activities create and contend with ground convergences, just as seabed mining will encounter ocean convergences – and from a meteorological perspective many Pacific states lie within the so-called South Pacific Convergence Zone. There is also an element of social convergence in the emergence of new groups that form around resource extraction. But convergences can also occur between immaterial forces,

35 Burton and Trompiz. 2021. New Caledonia's Prony to sully nickel to Tesla in a multi-year deal.
36 Beech. 2021. Can a Tiny Territory in the South Pacific Power Tesla's Ambitions?
37 Ibid.

like justice elements for example. Adopting more Oceanic imagery, we can think in terms of a flow of justice currents converging around a sea of 'large ocean island states', what we call justice convergences. This image calls to mind a person or group of persons caught in vortex of justice currents, where churning crosscurrents and surging undercurrents combine to create novel, indeed perverse, justice outcomes.

Foundational to our notion of justice convergences is the concept of intersectionality. Drawing inspiration from critical race studies and intersectional feminism,[38] we stress that injustices do not occur or act alone but are co-constituted. We emphasise the engagement and connection between individual justice elements: the need to think beyond the additive terms of layered, multiple justice issues to analyse how injustices interact and mutually shape one another. Justice convergences create obstacles and impediments in peoples' lives that are not always easily recognisable through single-axis frameworks (i.e., 'procedural' or 'distributive' justice dimensions). Attending to these connections helps us to see multiple institutions and forces overlapping in their co-determination of injustices from the start, rather than extra interactive processes added to their main effects.

Central to this analytic is the notion of 'simultaneity' where multiple forms of oppression and injustice work concurrently to produce multiple interlocking forms of injustice. If this draws our attention to specific moments in time, it also points to transformations that occur over time – the past, present and future justice dimensions of global energy transitions – and across different spatial scales, from local lived realities to global forces and processes. Justice convergences thus comprise temporal and spatial dimensions, whereby injustices intersect, transform, and mutually reinforce each other across multiple scales and moments.

For example, the distributive inequalities and injustices associated with the extraction of ETMs highlight the legacies of colonialism and indigenous dispossession that form part of the global processes of resource extraction and capital accumulation. Transitioning out of fossils fuels and into low-carbon energy systems will require restorative solutions for a much wider set of issues and injustices than the loss of jobs in sunset industries. Attention will need to be directed at the harms inflicted in the past and the continuing perpetration of damages against individuals, communities, as well the environment and the climate from extractive projects that supply ETMs (especially when these projects operate under conditions of climate change).

Our notion of justice convergences is not only analytical, but political. As the business of extracting ETMs looks set encompass the deep oceans, we must account for the interaction between justice elements across the Pacific land-sea continuum. This idea deliberately inverts the image of small island developing states – of remote, small-scale island communities subject to large, powerful global forces – to foreground Epeli Hau'ofa's famous vision of a 'sea of islands'.[39] This is not just about reversing centres and peripheries or promoting a Pacific scale-making project, but a positioning of Pacific peoples in an expansive ever-flowing ocean that laps the shores of PNG and North America – a way to render the idea of cosmopolitanism meaningful.

In this way, justice convergences accentuate unity and agency: the power of Pacific people to determine their own future (not merely suffer from decisions made in other places) and the justice issues that may accompany these actions, and the fact we are all citizens of the planet. Connected via its 'common heritage' in the

38 Crenshaw. 1991. Demarginalising the intersection of race and sex; Yuval-Davis. 2006. Intersectionality and Feminist Politics.
39 Hau'ofa. 1994. Our sea of islands.

deep oceans, humanity must collectively attend to the justice convergences in the ‘terraqueous’ forms that link us all. To put it another way, and to move from theory to praxis, we need a just transition that ensures the actions to address the justice issues surrounding the shift from fossil fuels converges with the justice concerns that reside in those places that will supply the raw materials for this transition.

Conclusions: towards a framework for a just transition in the Pacific

Analysis across spatial data, country-level case studies and commodity flows, reveals how justice issues interact and transform – what we have termed justice convergences. Extractive projects in the Pacific are generally situated in locations that rank very high in terms of environmental, social and governance risks. In other words, the vulnerabilities that are already present in the region are likely to exacerbate the justice issues associated with increased pressure to extract ETMs.

These convergences are evident at the micro or project level, but also at a regional scale. The Pacific is highly vulnerable to the effects of climate change, and many Pacific nations will feel the worst effects if a global energy transition (and other initiatives to combat climate change) are not achieved within the necessary timeframes. This places the Pacific in a double bind. The future of the region is dependent upon the actions of other powerful (polluting) nations and corporations. This same situation, and the vulnerabilities situated within the Pacific, provides the pretext to increase the pressure to extract ETMs: mining will provide the materials to ensure a global energy transition and provide the economic base to sustain Pacific nations. The Pacific faces a perilous future if the energy transition is not achieved quick enough; but the Pacific may potentially become a sacrifice zone in the pursuit of raw materials to enable the transition.

The approach presented in this report has analytical and political value. Analytically, it forces us to contend with the relationship and interconnection between different justice dimensions, and the effects this creates over temporal and spatial scales. We are able to see how justice dimensions mutually reinforce each other to produce novel and perverse injustices. Politically, we begin to see how certain injustices are justified, how asymmetries are amplified and reproduced, and who benefits and who suffers.

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