FROM MINES TO MARKETS: BECOMING COMMODITIES A CONVERSATION WITH ALEKSANDRA WOJEWSKA

EURO—VISION is an art-led enquiry that explores the extractivist gaze of European institutions and its policies. The relationship between international relations, trade, economic policy and military operations come into focus through the lens of Critical Raw Materials. In 2008, the European Commission adopted the Critical Raw Materials Initiative, which defined a strategy for accessing resources viewed as imperative to the EU's subsistence. The criticality of resources is measured according to supply risk and economic importance. Policies are drawn up to ensure the continued availability of materials deemed critical. Such policies have led to agreements guiding the biological and geological exhaustion of the Global South. The current list, revised in 2024, includes 30 materials, including Silica, Cobalt Natural Rubber, Phosphate rock, and the newly added Lithium and Titanium.

HOW CAN WE UNDERSTAND EXTRACTION BEYOND THE REMOVAL AND DISPLACEMENT OF MINERALS—TO ENCOMPASS POLICIES, INTERNATIONAL TREATIES AND REGULATIONS THAT IMPOSE CONTROVERSIAL FORMS OF STEWARDSHIP OF NATURAL RESOURCES ON COMMUNITIES?

EURO—VISION focuses on the inscriptive operations of initiatives such as the establishment of Free Trade Zones (FTZs), fisheries partnerships agreements (FPAs), and de-risking investment tools like public-private partnerships (PPPs). In doing so, FRAUD proposes to consider these agreements through the lens of Critical Raw Materials, as well as to incorporate a wider set of 'materials', such as labour and fish(eries). We argue that the latter are managed as resources to be extracted, and that understanding them as critical raw materials as defined by governmental bodies helps to understand how their plunder is mobilised and institutionalised. More importantly, this framework enables us to look beyond these practices to the possibility of thinking and doing otherwise.

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The following is based on a conversation between Aleksandra Wojewska and FRAUD which took place at the Somerset House Studios on May 1, 2024.

In the previous episode, we spoke to Pierre Josso at the British Geological Survey, the institution that is tasked with calculating the criticality of materials for the UK's Critical Mineral Strategy, but also formerly for the EU's Critical Raw Material Initiative.[1] Our interest was to gain an understanding of what criticality means in this context, how it is calculated, and why it is relevant in the management of resources. We also considered which factors are important in determining the minerals that become the focus of governance and extraction, such as supply risk. Another crucial element in this discussion is price setting, or how the price of minerals on the commodity markets is a significant driver of extraction, from mine prospecting to the creation of markets and speculative drives, as well as the uneven distribution of value, costs and risk, or what Aleksandra Wojewska and her colleagues have called, how commodity prices are *made*, and how they are invariably related to institutions and infrastructures.[2] Wojewska is a doctoral researcher at the Department of Development Studies of the University of Vienna, and her research focuses on price making processes in cobalt and lithium global production networks, and the associated outcomes for mineral producing countries.

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FRAUD During our discussions, you pointed us to a text by Gavin Bridge, in which he discusses how resources are necessarily "cultural appraisals about utility and value," and that "resources 'become' only through the triumph of one imaginary over others."[3] Our question would be, what happens when a mineral is deemed critical by a nation, like the US or the UK, or a group of nations, like the EU? And what imaginary might you posit is triumphing here?

ALEKSANDRA WOJEWSKA [AW] I believe the underlying thought behind this look at resources, materials, and commodities, this whole constellation, is really an old adage that "resources are not: they become," and this means that certain materials are more relevant or less relevant in specific socio-technological moments.[4] And what we really mean by that is that, the type of material properties which are needed or demanded by society is motivated by certain reasonings or societal values. Greenness could be one such value. At the same time, what can actually be utilised and done with the materials is delineated by the existing technologies, the trajectories of technological change, and the political, social and economic imaginaries behind these specific types of technologies. For example, in the auto industry, electric vehicles that reduce the reliance of fossil fuels have been put at the centre stage of specific types of policies.

That obviously brings about a particular type of sustainability contradiction because we still see a high reliance on extractivism to support a specific type of so-called green policymaking. At the same time, this is really highlighting the importance of specific ideas of the future over another, as you mentioned. One question could be: why do we focus on individualised forms of transportation rather than public transport in green policymaking? That doesn't mean that this is a binary conversation—different types of transportation mixes are possible. But what we put on centre stage and what becomes incentivised has a very big influence on what kind of values are represented in the policies. Therefore, the imaginary that we see, especially with the EU policies, is that there is not only the idea of reducing emissions and that "we are doing our share to deal with the climate disaster," but also, and very crucially, the idea of maintaining a certain standard of living. And this is very much in the sense of preserving the independence of individuals with respect to the forms of transport they can use over another type, more specifically, over more communal or public forms of transportation. Of course, this choice is in line with economic growth factors as well supporting strong European auto industries. This is also a geopolitical element; one of economic

[1] At the time that the British Geological Survey was responsible for calculating criticality for the EU's Critical Raw Material Initiative, Pierre Josso was not heading the team. Since Brexit, the EU no longer tasks the British Geological Survey with these calculations.

[2] See Aleksandra Wojewska, Cornelia Staritz, and Bernhard Tröster, *Price Determination of Metals in the Global Markets: A Historical Perspective and Distortions through Financialization*, ÖFSE Working Paper No. 75 (Vienna: Austrian Foundation for Development Research, 2022); online at: oefse.at/fileadmin/content/Downloads/Publikationen/Workingpaper/WP75-price-determination-metals.pdf.

[3] Gavin Bridge, "Material worlds: Natural Resources, Resource Geography and the Material Economy," *Geography Compass* 3/3 (2009): 1219, 1221; online at: doi.org/10.1111/j.1749-8198.2009.00233.x.

[4] This phrase is quoted in a text by Gavin Bridge in which he outlines the context of Erich Zimmerman's aphorism. That is: coal became a resource for industrialisation not because of its chemical or physical qualities, but rather due to its alignment with the socio-technical arrangements of the time. See Gavin Bridge, "Material Worlds": 1220.

security, both within the EU and the US, seeing China's ascent and Chinese technologies becoming much more pronounced on the global markets. In this way, this current imaginary around green capitalism or green socio-ecological transformation also puts forward specific minerals, such as lithium or cobalt. As such, this is not apolitical, because it comes from specific types of policies that are pursued, and what kind of technologies are supported, which direction the private companies and the research and development efforts are steered. There is also the degree of criticality that is, of course, dependent on geological factors, as you discussed with the British Geological Survey. However, just like the materials are becoming resources in a specific socio-technological moment, in parallel, they also are becoming more critical, or not, within specific imaginaries in specific moments.

At the policy level, there are multiple channels through which this happens. We can think about the Critical Raw Materials Act that you have already mentioned, but also sustainable mobility policies, industrial policies, and sustainable finance policies. All these policies have a very specific effect as well, that as a material is deemed increasingly critical, specific incentives will also follow. So, we will see ways to incentivise mining, for example, via some kind of de-risking, or speeding up of permitting processes to encourage increases in production.

And in my research, specifically, what I found interesting is, how does this criticality intersect with financial interests?[5] And I see that it goes two ways. On one hand, the criticality is associated, as mentioned, with steering investment into specific industries. And that creates a space for the involvement of financial actors as a very important part of the socio-ecological transformation. They become actors who need to close the so-called green financing gap. At the same time, that creates a big opportunity for the financial markets, because our financial actors can now leverage this criticality, and thereby develop green investment stories. In other words, they can create new types of green financial products and new types of investment channels that are also related to critical minerals, as we see in some empirical discussions,[6] which essentially, are new modes of financial accumulation. All of those relations are strongly intertwined, and there isn't one actor or one point where it all begins.

Thus, technology development, finance and policy are intertwined. Venture capital, for example, can encourage development of specific policy and specific technologies to which policymakers can respond to by regulating or creating conditions for adoption of those technologies. Of course, we have to be a little careful to not suggest causality too readily. But in my view, rather than to think about "who started it," it's much more important to consider what constellations of power enable specific policies, and what outcomes are selected as desired within those policies. For example, more cars versus less cars—who is benefiting?

FRAUD We really appreciate this example of public transport versus the individual car, and how this helps us to understand how some imaginaries are mobilised over others, and what sets of priorities they are embedded in. We also value your thorough explanation of how criticality is leveraged, rather than a simple geological fact. Leveraging criticality for the purpose of finance, or for the purpose of speculation, specifically for investment under the umbrella of the green economy, is often a form of greenwashing. As a potent tool for finance capital, leveraging criticality has also enabled further accumulation and extraction of capital. Following from that, recent events such as the war in Ukraine has renewed attention to the impact of commodity price volatility. Such geopolitical unrest has recalibrated the Critical Raw Material Act's extractive focus on sites within the EU, partially to avoid dependency on commodities subjected to volatility outside its control (i.e. outside its border).

This is a major legislative redirection for the EU. In one sense, it might seem obvious how recent wars relate to the price of commodities, as we've seen the impact in supermarket prices very directly, because of supply disruption of minerals like phosphate, which is key in fertiliser. That said, this may lead to some simplistic conclusions as to the invisible hand of the market self-regulating according to supply and demand, or what you have termed, price "discovery." Price discovery infers that the price of commodities on the market

[5] See, for example, Aleksandra, Wojewska, Cornelia Staritz, Bernhard Tröster, and Luisa Leisenheimer, "The Criticality of Lithium and the Finance-Sustainability Nexus: Supply-Demand Perceptions, State Policies, Production Networks, and Financial Actors," *The Extractive Industries and Society* 17 (2024): 1-13; online at: doi.org/10.1016/j.exis.2023.101393.

[6] See, for example, Sarah Bracking, "Performativity in the Green Economy: how far does climate finance create a fictive economy?" (continued on next page)

Third World Quarterly 36/12 (2015): 2337–2357; Michael H. Grote, and Matthew Zook, "The Role of Capital Markets in Saving the Planet and Changing Capitalism - Just Kidding," SSRN 3 (January 2022):1-36, online at: doi.org/10.2139/ssrn.4023071, and Tobias Franz, and Angus McNelly, The *"Finance-Extraction-Transitions Nexus": Towards A Critical Research Agenda Exploring the Scramble for Transition Minerals, Working Paper n. 257.* (London: SOAS University of London, 2023). For a discussion on the role of bond, equity, and derivative markets in the case of lithium see Wojewska et al., 2024.

is not intervened upon, or influenced by any institution or regulatory body. In fact, somewhat surprisingly, market price is largely unrelated to scarcity. Could you demystify this price setting process? Firstly, perhaps what it is, and most importantly, which institutions or infrastructures construct or set these values, and how do they go about doing this, based on what parameters?

AW To do this question justice, I think we have to go back into this Econ 101 classroom, where, for those who have not attended those kinds of classes, the fundamentals, really, are that the prices are outcomes of demand and supply meeting in the market, that is via interactions between buyers and sellers.[7] But like you mentioned, what is termed price discovery is something that now many scholars see as a rather problematic conception, because it creates this sense that a "right" or a "true" price exists, "somewhere out there." And that it just has to be discovered by the two parties that are involved in this process of trade. But this language really obscures a host of important factors that come into play in this price setting process, as I prefer to call it, or price making process.

There are, of course, factors such as power asymmetry; structurally and between the individuals, also between regions. There are also colonial histories to consider when it comes to mineral trade. Specific market strategies might not be only related to how desperately a certain actor wants to sell or buy, but also their ability to access international markets or deal with price risks through access to specific infrastructures for this kind of price risk management. These are just a few of the factors that are shaping the space of price setting.

And definitely a lot of economists would disagree with me because supply and demand frameworks are, in a way, an abstraction, and I wouldn't describe it as a completely useless abstraction; this is not my goal. But I believe it's good to have a type of abstraction that is also political and which doesn't really assume that market efficiency should be the default objective of every market process, but that maybe we can have different goals to propose than that of the market being the most efficient allocator of goods. However, this is fundamentally the assumption that stands behind the demand and supply framework.

What is really proposed when we think about price setting or price making, is going beyond the demand and supply abstraction, but rather seeing pricing as based on specific struggles that differ between actors and institutions. These price struggles, and this is an idea going back to Polanyi, take place at two levels.[8]

There are those struggles that we can intuitively imagine as struggles around direct exchange, so-called struggles over money prices, where buyer and seller are simply negotiating. But then there's also a broader type of struggle, that is about an ability to control and influence how prices are made in the markets and other venues—e.g., using a certain standard, a market device, or an institution of price making over another. And if we come to think about prices like this, as something that is made as an outcome of struggles, then these prices may be more than just a market signal or an "objective" measure of demand and supply, but rather an outcome of a sort of decentralised decision-making process within specific structures, and those structures can be more or less democratic. And if we come to see the prices like this, we understand that none of it is really predetermined, natural or apolitical.

This is very important when we talk about how commodities are traded, because there are certain conceptions of so-called market maturity, that assume that all commodities, as they become increasingly traded, will "naturally" converge to be priced predominantly by financial markets, with the participation of financial actors. But again, this is something that requires effort, coordination and power struggles. And if we think about it in this way, then we can start asking questions like to whom is a specific price-setting mechanism important? What kinds of roles do they serve? And what are the outcomes of those price-making mechanisms? Who are the people in places engaged in those processes? Why do things change? And why do they change at specific moments? And really, what does it tell us about the market?

And so, as soon as we start digging into how prices are set, we will see that this abstraction of buyer and seller meeting in a frictionless space of the market is far from reality, because there are different types of mediating institutions and, most importantly, derivative markets. These derivative markets are in fact private companies, but I choose to call them institutions because they do have a very strong regulatory power over how trade is conducted.

Derivative markets are where both physical and financial market actors meet. Mining companies, traders, purchasers of chemicals or metals, such as car manufacturers, can trade contracts that are based in the physical metal, in order to reduce the risk. On the other side, there are also financial actors who participate in those markets, specifically

[7] Refers to a first year, or entry level course on Economics.

[8] Karl Polanyi, "The Economy as Instituted Process," in The Sociology of Economic Life, ed. Mark Granovetter (Boulder, CO: Westview Press, 1992), 29–51.

banks or hedge funds, that trade on those derivatives, most often with speculative interests. In the simplest way derivatives are contracts, which, as their name implies, derive their value from another underlying asset. This means that if a person purchases a derivative called a "futures contract," they have an obligation to purchase or sell a particular commodity at a specified point in time in the future at a predetermined price, months or even years ahead. Crucially, this allows actors who can access those infrastructures to stabilise the prices that they face in their contracts.

As we can imagine, access to these derivative markets is unevenly distributed among the trade participants. Because it requires specialised technologies to be able to trade on those markets, and it requires significant capital to access them; for example, to do online or phone trading at markets, such as with the London Metal Exchange, or the Chicago Mercantile Exchange. Importantly, those derivative markets are private companies, meaning they also have their interests; they want new products to be traded in their venues, and they want to attract as many investors as they can. To them, more investors is better because they get fees from participation in those markets. What then becomes secondary is who those investors actually are; although there are some rules and differences between markets relating to what different actors can do or cannot do in those markets.

That's actually another important role of derivative markets, which is that despite them being private companies, they become, in a way, rule keepers of the market.[9] It's in their purview to keep an *orderly* market. So, they can put derivative trading limits, or they can relax them. They could be considered a shadow institution that is a for-profit actor that still has the power to influence the "rules" of trade. And in this sense, they are very important for world prices of some commodities. As an example, if one was to type "copper price" in a search engine today, the number that pops up is the number produced by the London Metal Exchange. This is the global benchmark that becomes a reference to virtually all global transactions in copper.

[9] There is not a single, detailed definition of what an orderly market is, but it concerns maintaining stable trading conditions between buyers and sellers without "excessive" volatility or market manipulation. See, for example, a struggle concerning the "orderliness" of the nickel market in Sam Tobin, and Pratima Desai, "LME Triumphs in Lawsuit over Cancelled Nickel Trades," *Reuters*, 29 November 2023; online at: reuters.com/legal/transactional/lme-wins-lawsuit-brought-by-financial-firms-over-cancelled-nickel-trades-2023-11-29.

FRAUD It's quite telling how unequal actors are in this environment. Furthermore, who has access to certain infrastructures, to certain technologies, or to certain capital, really creates inequality of access. Perhaps it is even more compelling to discuss the nature of derivatives markets as private companies. This is completely obfuscated in the name "markets," or the company name "London Metal Exchange." The designation of institution that you mention, starts to describe more accurately what these companies are doing. They are acting on an infrastructural level by creating benchmarks that have global repercussions, and wide-reaching ones. And in your texts, you've also talked about how this creates inequality as well. Because different mining situations, different materials, but also different geological situations, social, political, and environmental ones, are completely different across the world. And so, a price that becomes a benchmark across all of these very distinct situations will benefit certain ones over others, which can have a quite problematic effect.

AW Definitely, I think it's very important to point out that, for example, a derivative market has a power to legitimise, in a way, who "really" is the participant in the market. In this case, we can think about some kind of market members who are allowed to trade in those venues. And that really complicates those ideas of supply and demand. Because this means that not everyone, for example, in the mining space is an equal type of supplier, since they're not privy to those spaces. And at the same time, another whole class of people is privy to those spaces, and these are financial investors, who are basically fundamental to how those markets work, because they are also important in creating liquidity in those markets. Of course, buying or selling metal is not the motivation of those financial investors; they are interested in commodities and metals as an asset class, similarly to bonds or stocks, and they want to benefit from price changes. What they do is therefore speculation, which means that they're taking on price risks for profit.

This is of course, not a new phenomenon. In the derivative market, speculation, as mentioned, has been a fundamental part of the existence of those markets, but the mentality—or what has been driving those investors—has somewhat changed, especially after deregulation policies in the early 2000s. There we saw much shorter-term strategies coming in, and we see that there is much less interest in the commodity itself.

In other words, there is a large degree of abstraction already that is employed to put the commodity in the market like this. However, in the past, a speculator or financial investor would be

fundamentally interested in what is happening in this market, in the physical sense. Now, we see types of speculators that trade more based on algorithms, or that choose to invest in specific commodities. Not because of how their physical production looks like—they are driven by portfolio diversification to create a basket of commodities from different sectors. And so, their positions are more likely to reflect events and conditions in other markets, rather than based on the actual market conditions of the specific commodity.

This exacerbates uncertainty in derivative markets; it can also translate into price volatility, and is conducive to high-risk financial investment strategies, a kind of speculative momentum development. And this is taking place with both financial investors, such as banks or hedge funds, but we also see a growing financial interest from what would traditionally be considered physical actors, such as traders. Trading companies are very present on those derivative markets, and pursue price risk management which is related more to physical trading, as they want to lock in the futures prices, but they also pursue strategies that are solely speculative in nature.

FRAUD What you're outlining is something that we think is a wider trend, not only in the markets but in most aspects of contemporary life: the idea of speculation for speculation's sake. Speculation becomes abstracted from, for example, a geological or socio-political reality, and through this abstraction it becomes a speculative self-fulfilling prophecy. And what you've also pointed out, which we feel is important to outline, is that speculation, though it may be extremely abstracted, almost appearing to have a life of its own, has very concrete repercussions in the physical, environmental, social, and political world.

For example, you've talked about how, if a mineral becomes critical, or put on the CRM list, the criticality can be leveraged for further speculation, it can cause a very unequal distribution of risk. These are very real material consequences of this abstract level of speculation. So, it's very interesting to hear how that works, because for those of us who do not come from your background, to make the link between speculation and how it might actually affect other planetary aspects is not so straightforward. Perhaps following this, we could go through an example based on your research to further understand how abstraction materialises?

AW Absolutely. I think you very rightly pointed out that the pricing that is happening in derivative markets is not the only aspect of trade where prices, and how prices are made, is relevant. Pricing goes beyond derivative markets. For instance, we see that prices that are made in derivative markets, or as an outcome of trading on these derivative markets, are later taken up in trade, and that can lead to various outcomes.

It has something to do with the concept of market maturity that I mentioned earlier, that we see across various commodities with different levels of financialisation, which here I come to understand as inclusion into those derivative markets. So, we can think about some commodities, such as copper, which is easy to standardise, very easy to store, and has been traded as a derivative for well over 100 years. It was the first metal derivative ever established, so it's really the proto-metal derivative. There is a whole spectrum of inclusion in those derivative markets. And I would like to give the example of lithium, because it can show how complex the processes around pricing are, and how many actors come into those processes with their various interests. At the same time, it shows how the materiality of a resource really matters in determining how it can be turned into a tradable commodity.

When we think about lithium, in a sense, it could be considered a type of "super commodity" that has been increasingly demanded. Coming back to what we said earlier about criticality, 2017-18 is really when, basically, everyone became aware of lithium as something that is crucial for policy goals, whether within the US or the UK, and something that maybe the EU doesn't have enough of, or enough access to. Following this, lithium was added to the CRM list in 2020. The scramble around lithium is linked to this idea that there is risk of disruption in the lithium supply, which has been very much reflected in how pricing of lithium has been conducted. This is all very recent, and we see significant investments into the market and growth in production. It really went from a more concentrated market that was dominated by a few large producers, into a market that has been very much growing, where there has been a lot of investment made. And in the same moment, there became a need to commodify lithium, to understand lithium as a singular commodity.

As I gave an example earlier, if we search for the term "copper world price," we get the London Metal Exchange's price. If, a few years back, we would type "price of lithium," the answer would be less straightforward. There would be multiple benchmarks existing for very different chemistries of lithium, whether it is lithium carbonate or lithium hydroxide, and could depend on where it was produced or traded. As such, the standardisation here was much, much more difficult. Lithium is also more difficult to transport

and to store. In a sense, it's a very unruly material as compared to other metals, such as copper.

In our analysis, we found that we can distinguish three price setting modes of lithium over time. Firstly, lithium was traded under long-term contracts, where price setting power was really more on the side of the producers. There were no derivative markets for lithium at that time. There were no alternative sources of lithium pricing. Instead, there were long-term contracts, with prices that were negotiated between the main producers, or the leading producers, and the buyers. And those contracts and prices were very stable; they were often signed over a long time, several years even, which is quite unusual in commodity markets.

And that meant something to this market's demand, that if the price was determined in the contract, there won't be shocks, or volatility. It also meant that different governments that rely on tax revenues, for example, from trade of this commodity, or this resource, have some degree of predictability, maybe even more control, because they can negotiate directly with the producers, who had quite a lot of pricing power. There was, of course, a degree of competition where producers couldn't put just any price that they wanted, but it operated more in the sense of an oligopolistic market where the different producers will try to match their prices. That created a stable market situation, even though the power relations were skewed strongly in the producers' direction.

With regards to the more recent conditions of criticality that we discussed earlier, the imaginary of lithium becoming a commodity of the future, of the green transformation, became prominent. And that brings with it a specific type of momentum to the market, where the production is expanding. We have a whole range of new types of actors coming to this market. We have people who want to do shorter term transactions or traders coming in who try to act as mediators between new producers and the new types of buyers, such as car producers and battery producers. They increasingly need lithium because their market is expanding, which is often summarised as a lithium scramble.

It seems that around 2017-18 there was a prediction of a forthcoming shortage of lithium. Following this, everyone is trying to get their hands on the next supply, which brings a lot of interest, whether physical or more speculatively minded. But that means a new type of market emerges from that, rather than one that is driven by long-term, fixed-price contracts. It is a type of market that is termed a spot market, where a commodity is sold on a short-term basis. A spot transaction can be a single load of a commodity, a single cargo. In a spot transaction there is no long-term contract, but a one-time contract defining a specific volume and quality for a specific price. This is the closest we will get to buyer and seller meeting in the "open" market. And those spot prices existed in the lithium market before, but in a very, very small number.

As we see this market growing, we also see established producers starting to use the spot market to some degree to make extra profits outside of their stable, fixed-price contracts. With my colleagues, we see this growth in spot markets and spot prices around 2017/2018 as the second mode of pricing in the lithium industry. This change has created an opportunity for a new type of actor—price reporting agencies—which are private companies that describe themselves as media market intelligence companies, who started seeing lithium markets as increasingly important for their businesses as well, and consequently started to produce more frequent reporting of lithium prices and reporting price benchmarks.[10] And those companies wanted to produce benchmarks that are even more frequent, for example on a weekly basis, because that is something that then lends itself well to the creation of financial products based on those price benchmarks. This occurs in a space where financial investors are very much interested in the lithium market, but don't necessarily have venues for investment into the market, apart from holding lithium company stocks. So, they're looking for other ways to be exposed to the growing price of lithium.

That resulted in a big change, because now we have benchmarks that can actually be used as the basis for long-term contracts. That would be the third mode of pricing in the lithium industry. Rather than having a fixed price over a long period, we now have a variable price formula in the contract that is linked to the global benchmark, so the prices in the contracts are not stable anymore, they are variable. At the same time, financial products and in fact, derivatives, can be and are created based on those price benchmarks.

Thus, the creation of derivative contracts in the lithium case resulted from two different types of private companies/institutions—i.e., the derivative markets and price reporting agencies, coming together to create a financial market for this new, very attractive commodity. That made room for speculators to come in, opening up possibilities for price risk management (for those who can access this market). But at the same time, it brings in a much more volatile momentum to the market, simply because of the more frequent changes in prices.

It may sound simplistic, but if the price is reported once a year, that's the price. If the price is reported daily, well, this price will move more.

[10] Price reporting agencies operate on a subscription basis—customers (whether firms, investors or derivative markets) pay for the access to the benchmark prices.

It feels like it shouldn't matter. But in fact, it does because investors and lithium markets are very sensitive to those price changes. If we look at stock listings, for example, at the Australian Stock Exchange, which is the main stock exchange for lithium producers, we will see the swings in producer stock prices by several percent daily, and that is related to what is happening with the lithium price.

These are very significant things. And this all creates very specific patterns within the commodity market, emphasising the boom-and-bust cycle. Yet this all still sounds very, very abstract. I would like to point to some very concrete implications of this whole dynamic. To start with, we have the stronger involvement of financial actors in the sector; their trading becomes very relevant to the whole lithium market. Not only because there are investors who use the derivatives, but also there are shareholders investing in lithium companies. With the lithium market expanding, shareholders can pressure the company to maintain exposure to the growing lithium prices, because now those prices in contracts are variable, not fixed anymore. So, we can see that not all lithium companies will actually try to manage their price risks, because maybe that's not what their shareholders want to do.

This is problematic however when lithium prices crash, like they did in mid-2023. Also if we're thinking about large companies that are significant contributors to state revenues of certain states, this will have very tangible implications for state tax revenue. At the same time, as mentioned earlier, under the previous regime of more stable prices, the producer countries' governments had a degree of control, because in the end, they are the resource holders, and they can negotiate with companies that are within their jurisdiction. But because the producers now have less power over price setting (because they use the price reporting agencies' benchmark prices in their contracts), the government cannot really discuss with the producers around price levels anymore. Therefore, a government of, let's say, Chile or Zimbabwe, has very little regulatory recourse to be able to negotiate, for example, with price reporting agencies and their practices, and the type of methodologies they use to establish their prices. In this sense, it also makes it more difficult to exercise regulatory power, in terms of price controls imposed by the states. The bargaining power of states becomes rather low in such a setting and it can be a politically risky move to try to regulate prices, even though we do see a drive towards some kind of resource nationalism and greater control over resources in mineral producing countries.

Lastly, and this is what you already reflected on, once we have this global price, we have different production costs in different spaces, depending on accessibility to the local resource, and again on how "friendly" the government policy is to foreign investors. And that can create regional boom-bust cycles, because should the cost of extraction in one place rise, there is a degree of mobility within the industry. It is therefore possible to invest across the borders to move to a different region where the conditions for investments are more investor-friendly and where the costs of production are lower, so that the profit margin is simply higher.

Obviously, the mining industry is not as agile as manufacturing, but we do see it happening. For example, in terms of copper, we see reduced production in Zambia, which became increasingly expensive to mine copper, while increasing production in DRC, where the material qualities of those resources are simply more profitable. But there is a political dimension to that too, of course, in terms of incentives towards foreign investment and labour costs, among others.

Another issue around being tied, in a way, to those global prices by producer countries is that it can have an implication for the political cycle in the country. This might be a simplification just for the sake of example, but if we think about the type of economy that is heavily reliant on a specific natural resource, should the price of this resource be high, it could be read as a sign of good local governance, but it's not necessarily interpreted as a part of some global commodity price cycle etc.[11] At the same time, low prices can be understood as a failure of governance. Thus, while many countries are exposed to those global prices, some regions are exposed more than others—this is why we frequently talk about difficulties for resource-dependent economies. This is a very big political implication, because again, the price-setting power becomes removed from actual policymaking, and from the local democratic institutions; democratic or not, let's be honest, but the local institutions of producing countries.

FRAUD For you, through the example of lithium becoming critical, what are the key points?

AW The key outcomes of lithium becoming a critical mineral is that we see how the price setting mode or mechanism that is being used, moves away from longer term fixed prices to variable prices that are linked to global benchmarks. That has important implications, because that means that rather than producers having significant pricing

[11] The commodity price cycle is a recurring pattern of rising and falling prices over time, characterised by phases of boom and bust.

power, together with the regulatory bodies that those producers fall under, we rather see that the price setting is taken out into another jurisdiction.

So, we see the derivative markets price reporting agencies and other actors being increasingly in charge of the pricing. That also ties the whole sector to the same benchmark price, meaning that cheaper jurisdictions and cheaper regions and productions are able to reap higher margins, since the price becomes increasingly disconnected, actually, from the local material reality of this commodity. It also means that the local policies and the local state revenues are increasingly exposed to the global price swings.

FRAUD The benchmarks being set globally has a very direct effect, which exacerbates inequality, especially since they're usually based on areas where there can be a higher margin. This incentivises certain problematic labour and environmental practices that afford a higher profit margin. And it's interesting that you talked about how the lithium boom is very recent: 2017-18 is when the investments became significant. That is around when it became a critical mineral in the EU's Critical Raw Material Initiative at the time. It is compelling to see how directly these policies steer extraction.

To finish, can you imagine alternative regulations or policies that would rather promote solidarity around resources, and which emphasise the inseparability of land and body?

AW To start, to make the annoyingly obvious point, that the big change would have to be systemic, because the price upholds the existing modes of accumulation. But thinking in terms of more pragmatic policies and regulations, there are various types of policies that can be considered.

Most radically, what we see in certain mineral producing countries is export ban impositions, where states ban the sale of unprocessed minerals in order to stimulate local infrastructures, local industries, and create employment opportunities. Unfortunately, those kinds of bans have not had a great track record, because they're also dependent on local governance structures, so, the degree of compliance, or ability to actually enforce them is limited, also in the context of possible corruption.[12]

However, I think what we can start considering, really, is to ask, how can producing countries, that actually incur most of the burden of the extractive activities, take power over pricing, rather than be negatively affected by cost-cutting around labour or environmental standards, because the companies that operate under the global price regime want to widen their margins.

There are obviously possibilities towards some kind of cooperation at state level. This is essentially the idea of cartelisation, which sounds very scary, but could be an effective mechanism of regaining price-setting power. Again, political enforceability is very difficult but genuinely, those conversations are not very far away from ideas of resource nationalism, that we see around those expert bans. What is lacking at this stage is the kind of international cooperation between different resource producing countries. And that is obviously also sustained by investors and foreign governments that profit from this lack of cooperation.

However, I think, importantly, and maybe more conceptually, what I would like to bring in is that I believe that ideas of how the prices are made are crucial to actually include in our economic imaginaries. As we see that the prices come in so many different ways into the economy, and there are so many different actors that are taking part in the price making, this aspect is crucial. So, while this is not directly something that I do, I believe this is the next step from the kind of work that I do. There are plenty of great scholars who are focusing on what alternative economies could look like, what more just, decolonial economies could look like.[13] And I think what is a very interesting point here, is to see how much price-setting matters to the economy of now, and how we would like to tackle the question of price-setting in economies that are built around more just principles. Because simply reforming price-setting is not sufficient to achieve some kind of just outcomes. But embedded in some broader imaginaries, it's a very crucial element to consider how it would work and how it could be a part of a broader change.

FRAUD Can you maybe just explain very briefly what you meant by cartelisation?

[12] Such bans are difficult to enforce logistically, as they depend on the state having the capacity to monitor what materials are actually exported. In the case of raw ores that could necessitate a chemical analysis of the contents to establish whether the material subject to the ban is contained in the ore. Furthermore, export bans are enforced in a decentralised manner, by officers at country border (continued on next page)

posts, hence making it difficult to control and curb possible instances of corruption.

[13] See for example Ulrich Brand et al., "From Planetary to Societal Boundaries: An Argument for Collectively Defined Self-limitation," *Sustainability: Science, Practice and Policy* 17/1 (July 2021): 264-291.

AW We can think of OPEC, the oil cartel which was very much in charge of setting oil prices. That has, of course, very many drawbacks as well; I wouldn't like to say that this is the perfect solution. But when we think about distributional outcomes between specifically global north and global south countries, it is a certain way of bringing back bargaining power to resource holders, if resource controlling countries were to enter some degree of cooperation.

FRAUD Cartelisation is certainly a radical suggestion. We understand your proposal as a call to cooperate, rather than to monopolise, and perhaps especially to subvert, or redistribute the power imbalances in which resource holders are often at a disadvantage. The colonial legacies embedded in these power structures is something that we have explored in previous conversations with Adekeye Adebajo, Peo Hansen and Stefan Jonsson, and Ndongo Samba Sylla.[14]

We are very thankful for this conversation, which has elucidated the complex notion of price-setting in the management of extraction. It has also outlined how "criticality" can drive extraction, and how the centralisation, or control over benchmark prices can effectively fuel market volatility and speculation. Who is setting the price? According to what parameters? What are their interests? These become important questions, especially because derivative markets which set these benchmarks, such as the London Metal Exchange, are private companies who simultaneously have strong regulatory power. The current commodity trade infrastructure, regulated by these gatekeepers, brings about very material conditions of trade, but also labour, political and extractive environmental conditions. We conclude with the notion that price-setting is a lens through which certain relationships between finance and resource management become tangible.

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[14] See previous episodes in the EURO—VISION podcast series: The Curse of Berlin, Eurafrica and Colonial Currencies & Other Investment Stratagems.

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