



Original article

What should “we” do? Subjects and scales in the double-bind between energy transition and lithium extraction

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ABSTRACT

It is now broadly accepted that lithium is needed to power the energy transition and address climate change, or, simply stated, “we need lithium to save the planet.” And yet, we are faced with an ethical dilemma. While lithium technologies may allow us to slow climate change and perhaps offer opportunities for lithium-rich countries like Bolivia, extraction has socio-environmental consequences at the local level. How can we exploit the planet to save it? Rather than seeking to resolve this apparent double-bind, we propose to stay with it through an exploration of narratives around lithium and the energy transition. We begin our questioning with a focus on ethics – what should we do? We then approach the dilemma through two ethnographic vignettes, related to Bolivia’s Salar de Uyuni. Our approach allows us to reflect on the scales and subjects invoked in this dilemma, and to interrogate homogenizing “we” positions implicit in pervasive narratives. The article ends with a reflection on what we – in our diversity as differently-situated but interrelated people with distinct projects – can do.

1. Introduction

Raw materials extraction, lithium-ion batteries, energy transition, and “solving” climate change are closely linked. Assertions of this nature can be found in an increasing number of scientific publications related to battery value chains and energy transition, as well as mainstream and specialist news sources. It has become almost trite to say that transitioning to renewable energy sources to address climate change will require increasing amounts of “critical” raw materials like lithium, cobalt, and graphite. However, in this article we call attention to the discursive links being made by these assertions, which many of us now already begin to skim over because of their “taken as given” character. We want to take a new look at how these links are constructed in emerging narratives related to energy transition and its reliance on raw materials, through the use of two ethnographic vignettes and a conceptual framework based on scales and subjects. At the same time, the article acknowledges that the energy transition poses real ethical dilemmas and contradictions, and difficult choices must be made by diverse actors operating at different scales and with diverse concerns, including the authors and readers of this article.

Pervasive narratives in this field are quite familiar to most readers,

and we only sketch them here briefly as a way of introduction. The first goes like this: *In order to solve global climate change, humanity must jump-start an energy transition, and one of the key technologies to facilitate this is the lithium-ion battery, which requires mining of critical raw materials.* A second common narrative, itself becoming relatively dominant, particularly through increasing interest from investigative journalists (not the least, at *The Guardian*, e.g. Greenwood et al., 2020; Riofrancos, 2021; and *The Washington Post*, e.g. Chason and Godfrey, n.d.; Steckelberg et al., n.d.), highlights the dark ‘underbelly’ of this process. This second narrative goes like this: *Materials like lithium have to be mined from particular places in the world, which threatens ecosystems and the livelihoods of marginalized, often indigenous, people.*

In some accounts, again particularly apparent in more journalistic media, these two pervasive narratives are set into opposition, framing what is sometimes explicitly referred to as a “dilemma” (e.g. Balch, 2020; Glatzky, 2022). The dilemma goes like this: *An energy transition is necessary, which requires raw materials, but can we justify destroying local environments and livelihoods at the sites of extraction to do it?* This dilemma takes different forms, but is apparent in an increasing number of headlines. To name a few, “The Lithium Mine versus the Wildflower” (Barber, 2021), “Lithium mine pits electric cars against sacred

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Indigenous land” (Gee et al., 2021) and, even, “How much mining is needed to save the planet?” (Holzman, 2022). In such writing, contradictions and tough choices abound, not the least, for environmentally-conscious readers who might like to buy an electric car, or even “save the planet”, but also worry about things like “wildflowers”, “mining”, and “Indigenous land.”

In academia as well, it would seem that there is a growing consensus about the existence of “a dilemma faced by modern society. On the one hand, the adoption of low-carbon technologies such as electric vehicles is considered crucial to reduce greenhouse gas emissions and mitigate climate change. On the other [...] a rapidly growing demand for critical minerals may result in collateral damages particularly in local communities and ecosystems affected by extraction.” (Agusdinata et al., 2022, 14) Drawing on Thomas Hylland Eriksen and others, this kind of quandary can perhaps be understood as a “double-bind.” The concept, originally proposed by Gregory Bateson (1972) to explain schizophrenia, describes “a dilemma where any decision is unsatisfactory” (Eriksen, 2018:426); a situation where “competing possible paths to overcoming the dilemma negate one another, posing a contradiction and leading to no possible resolution.” (Cattelino, 2010:236) We need to transition to renewable energy to save the planet. But how can we exploit the planet to save it? Then again, how can we not? Clearly, there seems to be a dilemma confronting local livelihoods and ecosystems threatened by the impacts of raw materials extraction, against energy transition and addressing climate change at the global level.

In this article, we do not directly challenge these prevailing narratives. Instead, we seek to interrogate them, and in particular, the dilemma posed between them, by drawing attention to how particular scales and subjects are produced. To do this, we bring in material related to Bolivia’s Salar de Uyuni – the world’s largest lithium resource – to form two ethnographic vignettes. With their help, we ask what these two narratives and the dilemma between them look like when we pay particular attention to the scales and subjects invoked. Is there *really* a dilemma? *Who* faces this dilemma? How does our thinking about this dilemma shift when we interrogate the implicit scalar subjects it contains? Finally, does any of this tell us something useful about what we should do?

To be clear, we admit that the energy transition indeed poses tensions and contradictions which are both real and urgent. Climate change and safeguarding local environments and ways of life are both critical challenges. However, these tensions and contradictions require closer attention to be paid to how lithium extraction unfolds across different scales and places at the current juncture of energy transition (e.g. Fornillo and Lampis, 2023; Irarrazaval and Carrasco, 2023; Kingsbury and Wilkinson, 2023; Riofrancos, 2023). We agree with others who argue that the way this particular dilemma has been framed has made room for corporate and state interests to capitalize on an imminent boom, or “mining themselves out of the crisis”, rather than facilitating ethical and reflexive action (see Carrasco et al., 2023; Noever Castelos, 2023; Weinberg, 2023). How we think about the problem may be part of the problem itself, as the critique and reflection offered here seeks to elucidate.

We advance our argument by first outlining our conceptual framework, and explaining what we mean by dilemma, scales, and subjects, drawing primarily on anthropology. The article then proceeds in steps, oriented around two ethnographic vignettes (Sections 3 and 5) drawn from media sources (vignette I) and ethnographic interviews (vignette II) carried out in 2020 by the first author. The protagonists of these vignettes express different visions of socio-environmental futures, and relate to different scalar projects, but are all connected to a particular place, the Salar de Uyuni in Bolivia, and the raw material it is now famous for: lithium. The vignettes are not chosen to “represent” any particular scale or group of actors, but rather as ethnographically-based points of reflection. Each of the two vignettes is followed by a short reflection (Sections 4 and 6), where, through the concepts of scales and subjects, we examine what new light can be shed on the apparent

dilemma we have highlighted. The article concludes with a longer discussion, where we outline how the dilemma and the crisis of doing it seems to invoke – what should we do? – cannot simply be resolved once and for all. Rather, while ethical choices must be made, facing the dilemma between raw material extraction and energy transition will require repertoires of doing and relating that enable us to *stay with* its ambivalence.

2. A dilemma across subjects and scales

In the narratives that we briefly introduced above, the dilemma between lithium mining and energy transition appears as a question of ethics. Indeed, as High and Smith (2019:10) have argued, “[q]uestions about energy are intensely ethical as they encourage, if not demand, reflection on how we feel we ought to live.” Today, the energy transition is particularly ethically charged, appearing not only as desirable and right, but also quite simply as necessary, even existentially so.

Yet, who actually faces this dilemma, and do “we” all face it in the same way? A generalized “we” appears as the main subject in most pervasive narratives about the matter at hand, like in the fossil fuels that drive “our” cars, the planet that “we” have thereby destroyed, the lithium that “we” need to extract in order to save it, or the places that “we” sacrifice by doing so. At the same time, however, the dilemma implies other, more particular, subjects that pose the contradiction, like indigenous people living near sites of extraction, or even wild flowers that are in need of conservation. Thus, before addressing the ethical question, that is *what we should do* in the face of such a dilemma, there is need to be more specific about *who “we” are* to begin with. This is what we¹ – the authors – mean by the question of the subject.

Scholars in anthropology and beyond have long taken issue with the question of generalizing subjects and the particular futures they portend. They have deconstructed grand narratives, from Modernization to Globalization to the Anthropocene, showing time and again how portraying humanity as a unified subject conceals, legitimizes, and reproduces unequal temporalities and spatialities between centers and peripheries, global North and South (e.g. Blaser, 2019; Escobar, 1995; Ferguson, 1990; Tsing, 2000). Similarly, however, they have challenged the South as a unified subject, showing how it is itself permeated by countless lines of difference. Yet, the point has not been to merely locate the most marginalized positions, but to show how people living in the margins are entangled in complex webs that traverse these lines, and through which they encounter globalizing projects (e.g. Blaser, 2010; Cepek, 2016; Kirsch, 2014; Tsing, 2005). Accordingly, they have questioned how pervasive narratives have simplistically portrayed “local people”, often serving their authors’ agendas more than those of their subjects (e.g. Cepek, 2020; Kirsch, 2007). The question of the subject then is surely a complex one. How do we express global problems together with issues that matter for particular places and people without recurring to neither globalizing nor localizing subjects?

Anthropologists dealing with similar energy dilemmas have approached the question through ethnographic engagement with interlocutors who were tangled up in complex social and ecological dynamics related to energy production and consumption. Confronted with the ambivalent standpoints of situated interlocutors, they have made room for the ethical sensibilities of diverse subjects, be they engineers, workers, or community activists (e.g. Appel, 2012; High, 2019; Howe, 2014; Phadke, 2018; Smith, 2013). Accordingly, they have challenged

¹ Note that, throughout the article, “we” (with quotation marks) is used to refer to particular constructions of subjects explicitly or implicitly invoked in narratives and in the ethnographic material. On the other hand, the pronouns we, us, our (without quotation marks) refer primarily to us as authors of this article (the only subject position we can properly claim), while not excluding readers situated in multiple locales and at multiple scales who may identify with this and similar dilemmas the world over.

previous scholarship, which has “often exerted unreflexive judgement on what the place of energy in human life should be, which energy sources are good, and whose conduct is wrong.” (High and Smith, 2019:13) Following the so-called ethical turn in anthropology (see Mattingly, 2012; Csordas, 2013; Mattingly and Throop, 2018) they have instead advocated for “energy ethics” as an analytical and ethnographic approach “to capture the ways in which people understand and ethically evaluate energy.” (Smith and High, 2017:1) Indeed, approaching the dilemma from an analytical rather than normative perspective turns the question of the subject on its head (see Frigo, 2017). In the presence of diverse voices and positions, it makes little sense to speak as a generalized “we.”

And yet, such an approach is not exactly what our particular dilemma calls for. We doubt that stories about particular people and places alone will unsettle pervasive narratives about lithium mining and energy transition. Such narratives address a global problem that calls forth a global subject; they will hardly be displaced, or even replaced, by stories about particular people. Thus, in this article we seek to keep them both in our frame of reference. The emphasis on reflexivity in ethnographic research enables us to do so in a particular way. Among the different subjects populating this article we have to count ourselves as well, authors and audience. What happens when we – writers and readers – encounter such narratives? Given the significance they convey, we may feel the urgency of global ecological crises. We may feel uneasy to stand aside and watch, feel urged to climate action. And yet, what about indigenous people and wild flowers? Practicing reflexivity in approaching the dilemma analytically would seem to require, first, admitting this feeling of ambivalence – being caught in-between.

Building on the inspiration that dilemmas and ambivalences are fruitful starting points for studying both cultural situatedness and human universals (e.g. Boehm, 1989; Coates, 2017), we bring in the specific concept of scale to notice how this particular dilemma, or double-bind, comes into effect, or not. Indeed, as Joshua DiCaglio (2020:483) has remarked, Gregory Bateson (1979:199) understood double-binds to emerge from positions and movements between different scales, leading to “information appropriate as a basis for decision at one level [being] used as a basis for decision at some other level.” We find conceptualizations of scale as a matter of practice particularly helpful to think from such positions in-between. Summerston Carr and Michael Lempert (2016:10) have described scales quite pragmatically as “ways of seeing and standing in the world.” In their view, scale and scaling describe how things are, and are made, variably large and small, near and far, similar and different – all depending on where one is located. And since “ways of seeing are entwined with ways of doing, making, and being” (p. 20) scales are substantial factors that organize people’s relations to worlds across times and places. Moreover, their approach includes “not just how scale materializes but also how and why scale matters.” (p. 9)

That is, a pragmatic understanding of scale is about analyzing how interlocutors shape social realities through scale-making practices while simultaneously considering how we as authors (and readers) affect these realities through our own practices of scaling and rescaling (see also Tsing, 2012a, 2015; Strathern, 2004). In the narratives resulting from such practices, people are not bound to one particular scale – local or global or anything in between – and neither are the problems they lament, and the solutions they hope, to be part of. In the ethnographic vignettes in the following sections, local people call forth global subjects, whose projects they escape to formulate their own. Contradictions abound in such stories, yet they can hardly be said to prevent action, like a dilemma does.

Based on such an understanding of scale, in what follows we try to stay with the contradictions of energy transition as a global problem, rather than seeking a way out of them. We draw on Gabrielle Hecht’s (2018) ideas about how to address the Anthropocene and its problems with scale. Critics, she notes, have rightly taken issue with the Anthropocene concept’s singular subject (humanity), which has allegedly come

to change the world at a planetary scale.² However, she argues against abandoning the concept altogether, as its purchase in interdisciplinary and public debates bears potential to foster awareness of ecological harm. And thus she wonders: “How can anthropologists (and their scholarly kin) build on these critiques while retaining the concept’s political power, along with its potential to spark new narratives, methodologies, and forms of knowledge?” (p. 111). Her answer is to “treat empirical objects as interscalar vehicles, as means of connecting stories and scales usually kept apart.” (p. 115).

In this article, we travel with lithium across scales as a way of thinking through the apparent dilemma between mining and energy transition. We propose this device as one way of grappling with lithium’s materiality beyond that of our merely extractive relations with it (cf. Köppel, 2020). As a scalar vehicle, lithium connects particular places of extraction with those of consumption, but it is also (because of this) at the very heart of the dilemma between the territories of extraction and a “global” energy transition.

To put the planetary ambitions of this dilemma around lithium in their place, we attend to how the dilemma is transformed through two ethnographic vignettes that tell of particular people located in particular places. We explore how they invoke different subjects in their scale-making projects to pursue what they think is right and necessary, or defend what they hold dear. Thus, we scale up issues that appear small, intimate and particular, to stand next to what seems large and of universal interest. We discuss the effects that these vignettes may have on us as authors and audience as we write and read them. Their stories may not be as pervasive as the two narratives we signaled in the introduction, yet might spark slight shifts in the ways we address a problem that tells of the World at risk. In Cheryl Mattingly’s (2013:318) words, such an exploration might “foreground those events that serve as experiments in possible futures, small inaugurations into something that might constitute a fleeting experience or might portend a future different than one had envisioned.”

3. Vignette I – Teague and Emily

“I think that extracting Bolivia’s natural resource, it will revitalize the entire country. Tens of billions, maybe hundreds of billions of dollars of wealth will be created for Bolivia by extracting this natural resource.”³ This quote launched the October 2, 2020 episode of the Minerals Manhattan Project podcast with American “serial entrepreneur” Teague Egan. Teague is the founder of a US-based startup company developing technology for lithium extraction from salt flats, like the Salar de Uyuni in Bolivia.

Teague was welcomed by host Emily Hersh, for her part, consultant in the lithium industry with a particular focus on South America. Her podcast features experts from the “battery space,” which is currently disrupting the energy sector. As Emily’s voice echoes through the opening of each episode: “Today I think that Western supply chains are more vulnerable to China than most people realize. The question that I kind of have is: Does the US even want to stay a superpower?”

The current energy transition caught many governments off-guard. Only late did they realize that they had little control over the

² The Anthropocene is a proposed geological epoch that begins with noticeable human impact on the earth’s geology and ecosystems, including climate change in particular. The term is a composition of the Ancient Greek words *anthropos*, meaning ‘human’, and *kainos*, meaning ‘new’ or ‘recent’. The concept has provoked considerable debates in the social sciences about promises and pitfalls of humanity as a world-defining subject (e.g. Blaser 2019; Haraway 2016; Moore 2016).

³ This first vignette is based on online media materials. Unless indicated otherwise, all quotes in this section are taken from episode 23 of the “The Minerals Manhattan Project” podcast: <https://www.mineralsmanhattanproject.com/948238/5703094-the-energy-x-factor-ft-teague-egan>.

industries in the making, nor over the supply chains feeding them. Almost everything seemed to be coming from China: solar panels, batteries, and even cars. Emily was among those ringing the alarm bells, advocating for “Western” policy makers to get involved in this strategic issue. And get involved they did, with Inflation Reduction Acts and Green Deal Industrial Plans.⁴ Meanwhile, as “clean” and “domestic” energy moved up the political agenda, so did “critical” raw materials like lithium. To secure reliable supply, Western heads of state have demonstrated willingness to take action, even invoking rules and rhetorics suited for times of war.⁵ As it became a matter of growing public concern, lithium also offered unique opportunities to people like Teague.

As he tells the story, his venture into lithium began with serendipity and Elon Musk. Teague had invested in Tesla early on and bought one of their electric cars from the returns on his investment. “I’m a big believer in what Elon Musk is building. Actually, I think he’s the greatest entrepreneur not only of our generation, but of our lifetime. So, I’ve been following his journey and it was about 2017 when I was kind of at a crossroads myself.” Teague was unhappy with his passive role as investor. “That’s just not me. I’m an activist, I like to build things.” Following his father’s advice he wrote a list with his passions and another list with what he thought the industries of the future would be. His two “crossover passion industries” were: renewable energy – “probably because of being a Tesla owner” – and space – “you look up into the stars when you’re a kid and you wonder what’s out there.”

A little later, he decided to explore South America. “Never in my life would I have thought that my travels would take me to Bolivia. I mean, I just couldn’t even imagine what would be there. You know, it’s a relatively poor country.” Nevertheless, he ended up taking a tour to Salar de Uyuni. “It’s one of the most beautiful places you’ve ever seen – pure white beauty for as far as the eye can see.” The tour guide told him how the salt flat had formed over thousands of years, and how it was now the world’s largest lithium reserve.

“So, here I am, a Tesla owner, which is being powered by lithium-ion batteries, thinking about the world’s largest lithium resource right below my feet and it being for the most part untapped, you know, due to geopolitical tensions down in Bolivia and the politics of the government and whatnot. But put all that aside, the world’s largest lithium resource is in Bolivia and it’s untapped. And I just thought to myself, this is the biggest opportunity that I’ve seen. Lithium is going to be such a highly demanded element for the production of batteries and we’re going to need so much of it in the next ten, twenty, forty years. This is the exact opportunity that I’ve been looking for. And it was right there that I decided to start the company.”

By now, his company has signed agreements with several of the world’s largest lithium miners. The industry faces a real challenge in terms of not only meeting expected rising demand, but adapting to frequent revisions in those expectations. The dominant method today – pumping salt brine from below the salt flats into huge ponds to let it evaporate under the sun – is relatively slow and is meeting increasing public concern over impacts on livelihoods, water, and ecosystems.

Direct Lithium Extraction has emerged to save the day, promising to be faster, occupy a smaller footprint, and waste less water. Both venture capitalists and industry leaders are now investing millions into

⁴ Energy transition technology, and batteries in particular, were crucial points on the agendas enacted in 2022 by the US Inflation Reduction Act and the European answer, the Green Deal Industrial Plan. Both policies provide public money and tax incentives to attract investment as a way of building domestic industries that are regarded as strategic.

⁵ In March 2022, US president Biden invoked the Defence Production Act of 1950 to secure supply of particular raw materials, including lithium, while a few months later, EU president Von der Leyen announced a Critical Raw Materials Act in her 2022 State of the Union Address, colored in the rhetoric of a “war raging on European soil.”

technologies that have yet to be proven to work at industrial scale. Teague’s company is developing one such technology. The idea came to him after his revelation in Bolivia. Conducting research, he was struck by the inefficiency of current extraction methods and started looking for alternatives. “I felt like a filter was really the answer. Filters separate things and I wanted to separate the lithium. So it was kind of a logical thing for me.”

Their technology is based on membranes, which act as selective barriers that let lithium pass through while stopping other ions dissolved in salt brines. Teague did not know much about membranes, but he managed to sign an exclusive licensing deal with some of the world’s top scientists in the area. And more deals soon followed. “Today, we have experts all over the world working on their specific things.” The company resembles a network of contracts, whose value is based on a particular “portfolio of patents.”

And its value is growing. “I will not stop until it’s a ten billion dollar company,” he declared in yet another podcast interview.⁶ How does that work? “Like, we’re talking to Bolivia about an agreement. They want to produce 500,000 tons of lithium per year. If we do a deal with them for our technology where we make a thousand dollars per ton, for 500,000 tons that’s 500 million dollars, a year, for the next twenty years. One deal.”

Indeed, in 2021 the recently elected Bolivian government launched an international tender to switch to Direct Lithium Extraction. The previous government of Evo Morales had boldly bet on a properly Bolivian project, owned by the State, developed by domestic experts, and producing everything from raw materials to batteries, and even cars, domestically. Over a decade later, the project had still not really taken off. Hence, the new government decided to bet on cutting edge technology, developed by foreign experts, while reaffirming the promise to go beyond raw material extraction.

Lithium industry experts had long ridiculed this promise.

Emily: “The former president has basically spent a decade and a half promising to the Bolivian people that they will make Teslas at the Salar de Uyuni and you and I both know that’s a technological impossibility.”

Teague: “You have to be realistic. They need to do one thing good and do it really good, which is extract their lithium.”

Yet, why would people be willing to settle for less?

Emily: “Why would you, if you were from the Salar de Uyuni, be willing to sacrifice the beautiful natural resource that inspired you on this life journey, if you’re not able to afford it ever?”

Teague: “I think that’s a totally different world for the people that live in Salar de Uyuni; but I think that it’s cool for them to think that it all starts with them, that it all starts with the products that they are supplying to be able to make a Tesla possible.”

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Teague’s startup company put a bid in the Bolivian tender for Direct Lithium Extraction technology – and lost; in June of 2022, they were officially disqualified for submitting their final report ten minutes late. “[We remain] steadfast in the belief our technology is best in class,” the company declared in a public statement.⁷ Meanwhile, the Bolivian government went on to sign agreements with Chinese industry giants and Russian state companies.

4. Do “we” need lithium?

As recounted here, Teague’s dream for his company’s success reflects the American trope of wealthy “self-made” (white) men who get rich on the basis of one innovative and world-changing idea: Bill Gates, Mark Zuckerberg, Elon Musk, to name a few. His world is a world of

⁶ Quoted from IMPAULSIVE episode 245, “Teague Egan Is The Next Elon Musk”, 58:00: <https://www.youtube.com/watch?v=y9dshcJO-Uk>

⁷ See <https://energyx.com/press-release/statement-on-bolivia-ylib-tender-process>

opportunities; opportunities for everyone to become rich – or at least to contribute to the production of cars for the rich – while saving the world. Even poor Bolivians have a role in the story, if only to contribute to this great production of wealth through providing natural resources. From this particularly situated perspective, the double-bind that we have referred to disappears. There are no difficult ethical choices, only win-win stories, even if some – the self-made men with ground-breaking ideas – stand to win significantly more than others.

The story achieves this through a particular scale-making maneuver – the use of “we” as a global subject position encompassing all of humanity – which appears explicitly above in “we’re going to need so much lithium.” This conception of the *whole world needing lithium* is what justifies the extraction of the raw material in the first place. In this particular rendition, the industrial protagonist’s own life story reaches a key turning point at the precise moment when lithium demand is exploding. A new need arises, and a protagonist with big ideas and the necessary industrial and financial muscle arrives serendipitously on the scene. Underlying this story, and others like it, is the assumption that, indeed, *we need lithium to save the planet*. As we exemplified in the introduction, in different guises, this idea pervades global media, government, and corporate portrayals of what the “business” of lithium extraction is all about.

Yet, to date, far from saving the planet, lithium extraction has served to produce batteries for billions of smartphones, tablets, laptops and other gadgets, and will soon – if everything goes according to plan – serve to power a form of energy transition underpinned by the production of hundreds of millions of (electric) cars. Lithium thus permits the maintenance of a particular, privileged form of mobility and a particular way of life in some parts of the globe and for specific strata of society. Stories like Teague’s above, about how *we need lithium*, obscure from view differences across places and social groups in terms of the unequal distribution of the costs and benefits of the form of energy transition that has garnered broad political and corporate support.

This vignette thus serves to illustrate an important point about subjects and scales. *We need lithium* reflects a kind of scalar confusion between the interests of the few and those of the whole it claims to represent (humanity). As Gramsci’s concept of hegemony (e.g. Bates, 1975) elucidated, when the specific interests of a select few are represented and widely accepted as the general interest of society, we often fail to recognize that inherently political choices have been made for us in the process. In this case, corporate interests in battery supply chains, governments supporting green technologies, and relatively well-off consumers who can afford electric vehicles are all aligned with the interest of insuring cheap, abundant lithium supply. These particular interests present themselves as *we need lithium to save the planet*. The interests of a few are thereby passed off as the universal interest of humanity, obscuring the differentiated positions that actually situated people hold in relation to these processes (see also Díaz Paz et al., 2023).

Critical researchers have employed the term “green extractivism” (or “green colonialism”) to name such contradictions of seemingly global interests in places of extraction (e.g. Blair et al., 2023; Dorn, 2022; Dorn et al., 2022; Jerez et al., 2021; Jerez et al., 2023; Voskoboynik and Andreucci, 2021). We agree that the concept is a crucial intervention that redefines the context of lithium in a way to radically shift the significance of stories like Teague’s. The green extractivism concept offers another way of talking about this scalar confusion of particular interests masquerading as universal ones, as well as shifting the focus from the global to the local. The concept accommodates the global scale as a “green” legitimization in the service of power. It also draws attention to stories about the plights and fights of “local” people and places, while tending to hold them up as alternatives. However, as we try to show in the following two sections, the “local” scale, like the global, also deserves critical attention.

5. Vignette II - Donny, Elena and David

After meeting Donny in his little hotel in Rio Grande, situated in the river delta right at the southern border of the Uyuni salt flat in Bolivia, we⁸ take a walk to the village’s water well. Located on community territory, it was drilled by the state lithium company YLB to supply their industrial complex under construction in the salt flat, just a couple of kilometers away. People around here are increasingly concerned about how to share their water resources: Will the mine’s increasing consumption put the village’s water supply at risk?

Since the first studies quantified the lithium resources in the Uyuni salt flat around 1980, the Rio Grande delta has been known as the best place for extraction. When Evo Morales assumed office as Bolivia’s first indigenous president in 2006, lithium moved up the political agenda as a historic opportunity for the country and the region of southwest Potosí. In political alliance with the government, the peasant union Frutcas proposed an ambitious state project to industrialize lithium for the benefit of the Bolivian people. In the beginning, people in Rio Grande enthusiastically supported the project, yet, over the years, they have grown more critical.

Donny is one of the most active residents in Rio Grande when it comes to the lithium question. His story is telling of the village’s intricate entanglements with the emerging industry located in close proximity. Donny is from Rio Grande – he states this fact with a hint of pride. He did not, however, grow up here. His parents wanted a better future for their children and left the village as soon as the time had come for them to go to school. The family bought a second home in the city of Sucre, where Donny ended up studying law at university.

He returned to the village years later, when his parents decided it was time to remodel the family house. Why not take it a step further, Donny suggested, and convert it into the first hotel Rio Grande had ever seen? They named it “Hotel Lithium”. The industrial complex under construction was bringing increasing numbers of visitors to this remote corner of the country, and at least some of them ought to leave their money in this village. He wanted to invest in Rio Grande, contribute to its development, so people could start imagining a future here again, instead of leaving as soon as they could.

Rio Grande has a long history of migration, intimately tied to natural resource exploitation. It was founded as a camp for railway workers by an African slave who had been brought to the Americas to work in the region’s silver and tin mines, or so some people say. Agriculture and cattle rearing have never yielded enough to make a living in this arid part of the highlands. People used to leave temporarily to work in the mines, or to trade with salt they carried from the salt flat to the lowlands on the backs of their llamas. They also gathered wood and produced limestone for the nearby mines, but when these closed down, only a handful of people remained.

Today the village offers a rather different sight, with a daily bus connection, several restaurants and shops, and more trucks per inhabitant than probably any other place on earth. Day after day, these trucks carry thousands of tons of the salts and sediments that constitute Salar de Uyuni. The village owes its revival mainly to borax, a mineral which a community cooperative digs out from the salt flat’s crust. But borax accumulated geologically only in particular parts of the river delta and deposits are slowly running out. People hope that lithium will replace it. For years, another community cooperative has offered transport services to the state lithium company YLB, to construct the huge evaporation pools and ship the salt precipitates to the processing plants.

Rio Grande’s future, then, appears to depend on lithium. Today already, Donny is but one among many who have built their livelihoods

⁸ The first author conducted around 10 months of ethnographic fieldwork in Bolivia between 2018 and 2022. The particular encounters with Donny, Elena and David reported in this section took place in February 2020 during a joint field trip with David Luis Schröter.

at least partially on the revenues that the lithium mine generates. The community has negotiated with YLB, securing service contracts for its many truck drivers and in turn granting access to its water resources. While people in Rio Grande are generally in favor of lithium extraction, they are also well aware of the deal they have struck. They are concerned about the possible consequences for their water supply; but how else ought they secure Rio Grande's future?

Returning from the water well, Donny shares with us his own vision of the village:

"I imagine a Rio Grande with all basic services like in any other big city in Bolivia, with an interesting movement of people who live here mainly because there are jobs related to the lithium economy. [...] I imagine a small industrialized city with technology, a lot of technology. I would even dare to say that we could aim to become a small sustainable city, renewable, like lithium. We could power street lights with lithium batteries and no longer depend on the grid. Imagine electric cars driving around in Rio Grande!"

Elena and David may imagine a different future for their village but they, too, have thought about lithium and electric cars. They are from Colcha-K, a slightly bigger village, sitting only an hour's drive away in the gentle hills above the southern border of the Uyuni salt flat. Right at the entrance the letters on a big mural painting read: "Colcha 'K' – Bolivian Lithium Capital." Here, too, the state lithium company has created certain expectations.

Like in Rio Grande, people here are concerned about the possibility of making a living in a place that has relatively little to offer. How to sustain a community when most others want nothing but to leave? Colcha-K has fared slightly better than Rio Grande, offering better conditions for agriculture and some jobs in the local administration. Recently, the quinoa boom, growing numbers of tourists, and mining projects have even led some people to return to the village.

Elena and David are two of those people. Having both grown up in Colcha-K, they left for high school to the regional capital of Uyuni and later continued their trajectories away from the village. Elena ended up studying sustainable development in Spain and David became an accountant in the capital of La Paz.

Their paths met again when visiting their families in the village and they later moved back to Colcha-K, with two little kids and determined to begin life anew in the countryside. They grow their own food now, all healthy, all natural – unlike in the city. They are proud owners of a little restaurant where they serve homemade pizza made with quinoa flour. "Look," says Elena "we're in the 21st century, we have to develop. But while developing we're going the wrong way." Their own way is to reinvent life in the village, which they imagine as an environmentally sustainable place with strong community ties.

To make this vision a reality, however, a lot of people still have to be convinced. "Most people here think about the short-term only," says David. "They think what we need is money, companies, to buy cars and travel." Unlike most other residents, they are critical of resource extraction in their territories, yet when it comes to lithium their evaluation is somewhat more nuanced. "What we also want," says David, "is that once they start producing batteries, cars start working with electricity, too, and no longer with gasoline, which is also polluting."

And Elena adds:

"It is also about thinking big, in global terms. Because in the end all of us human beings, those over there and those over here, pollute. 'And when the moment of decision arrives,' I told David, 'what do you choose?' It is either protecting our salt flat or the salt flat benefiting the whole of humanity. What do you choose? Thus, when the moment of decision arrives, you choose the global, you choose less pollution, because we are suffocating ourselves at the global level. So, we think that lithium exploitation has to go ahead, provided that the necessary precautions are taken and batteries are produced."

6. To each their own dilemma?

This second vignette features local people who choose to support the development of lithium extraction in their communities, because they hope it will lead to improved living conditions locally (Donny), or can truly contribute to mitigating global climate change through the production of electric cars (Elena and David). Here, the implicit and explicit "we" subjects do not correlate neatly with anticipated "local" or "global" scales. Certainly, Donny's dream of a sustainable city reflects a "local" concern for his community, and the global "we" makes a perhaps surprising reappearance, particularly in Elena's comments ("you choose the global...because we are suffocating ourselves"). Yet, these invoked scales are rooted in projects that reflect particular life trajectories.

"Local" and indigenous people are often portrayed in contrast to hegemonic subjects, but adding texture through the histories and imaginaries of particular people renders a fuzzy division between the local and the global. To be clear, the particular protagonists in this vignette are certainly not taken here as "stand-ins" for all indigenous or local people, nor do these particular people necessarily speak for what any particular group wants. These are subjects who do not adopt a singular local or indigenous voice, but who speak through their heterogeneous and distributed trajectories of origin and movement. Yet, they do all speak from particular places they care for, and which they have called their home for generations. Making and remaking these places livable does not leave them much choice but to stay with the ambivalences of industrial resource extraction.

It is certainly true that lithium mining in South America has faced – in some cases, broad-based – resistance, and raises serious concerns regarding water resources, biodiversity loss, landscape impacts, indigenous territorial rights, and inadequate community consultation processes (e.g. [Argento and Puente, 2019](#); [Escosteguy et al., 2022](#); [Liu et al., 2019](#); [Reynoso, 2023](#)). While media portrayals may – justifiably – highlight the resistance and struggles of local and indigenous peoples against lithium mining (e.g. [Greenwood et al., 2020](#)), these forces are rarely as unified as they are portrayed. As researchers have documented time and again, people living in places of extraction negotiate complex relations – including acceptance, resistance, and many other configurations in between – with the industries operating nearby (e.g. [Babidge, 2016, 2020](#); [Dorn, 2021](#); [González and Snyder, 2022](#)). These relations vary through time, space, and social positions. Even if these differences can and do lead to conflicts in some cases, these complex and heterogeneous relations can be understood as *ambivalences*, rather than inconsistencies, flip-flopping or contradictions, and are entirely natural given the constrained set of choices people face ([Lorca et al., 2022](#)).

In fact, how we act in the face of a dilemma is directly related to how we deal with ambivalence ([Boehm, 1989](#)). In this vignette from Rio Grande and Colcha-K, the particular choices that particular people make revolve around the possibilities of making a living, and sustaining communities, in places that may appear marginal yet are traversed by rich histories. These histories are both indigenous and industrial, and thus populated by local subjects with complex and at times ambivalent relations with the local manifestations of global capital (see also [Kingsbury and Wilkinson, 2023](#)). Here, the narrow margin for maneuvering experienced by relatively marginalized actors does not translate into inaction nor resignation, but into claims for futures in which local residents have a part. These futures, in turn, do not follow a singular script, but are particular weaves of personal desires, local concerns, national projects, and global scenarios. In the interstices of these weaves there is room for local and indigenous people to make decisions and set conditions; although the question remains whether these will be taken into account, or simply brushed aside.

We often expect "other" cultures to be "valuationally flat" ([Shore, 1990](#)) – with behaviors seeming to reflect cultural values in transparent ways, blinding us from the value conflicts and ambivalent internal struggles people actually face. At the same time, we ourselves experience ambivalence every day. While the specific dilemmas people face

and the conflicting values they are confronted with differ across cultures and places, the experience of ambivalence itself seems to be universally human (Boehm, 1989; Coates, 2017). As we will argue in the final section, while indeed we must make ethical choices in the face of this dilemma, it is perhaps more fruitful to focus on *doing* and *how we act relationally*, through all of our, perfectly natural and human, ambivalences.

7. Concluding remarks

We began this article by raising the issue of a double bind – an impossible choice between objectives at global and local levels, as it is commonly portrayed in pervasive narratives of the energy transition and its consequences in places of raw material extraction. To address this crisis of doing we suggested to first consider who “we” are and to address this question of the subject through two ethnographic vignettes. We noticed how particular people mobilize lithium, and its promises and risks, to make sense of the world, decide between right and wrong, and assess what is desirable and urgent. Doing so, we interrogated the meaning and relevance of the apparent dilemma. Through these vignettes we called into question generalizing subjects, such as a global “we” representing all of humanity, or “local people” representing a homogenous group. While these categories still made an appearance in the vignettes, they did so in the situated projects and utterances of particular protagonists.

Indeed, attending to the way scales and subjects are invoked, we find that there is no singular answer to the dilemma, no single choice to be made once and for all, in part because there is no singular “we” subject to make such a choice. All we are left with are particular scale-making people and interscalar vehicles – like lithium, and the stories it invokes – to articulate them. Such choices are not about choosing one side or the other of a dilemma, for we have little alternative but to align with particular people and their projects. These, in turn, are bound to particular places while simultaneously exceeding them.

Perhaps, instead of looking for final answers to impossible choices – *what to do* – we must pay closer attention to how we do what we do (Bentz et al., 2022), including how we relate to – and how we act in relation with – others (e.g. Gram-Hanssen et al., 2022). Maybe we can learn some more from our protagonists, paying less attention to *what* particular choices they make and more to *how* they act in the face of the energy transition’s implications. Recall how Teague made a list with the industries of the future to identify renewable energy as the “crossover passion industry” that led him into lithium mining. It is a list full of big ideas about how human ingenuity, and the entrepreneurial spirit of people like himself and his role models, will change life on this planet (and even on others). In his story, the energy transition materializes in a very particular, overly self-confident repertoire, with industrial protagonists like him at the center of the crucial moment in history, and places like the Uyuni salt flat at the periphery and, apparently, mired in the past. Yet, it is this kind of hubris that has brought “us” into this mess now called the Anthropocene; so if we really need a common enemy, “perhaps in the end [it] is hubris,” as John Law (2016:49) has suggested.

What other repertoires might there be to perform the energy transition story? Recall how Donny imagined Rio Grande as a “sustainable city” thanks to lithium, and how Elena challenged David to choose between the salt flat and “the whole of humanity.” Like Teague, they embrace the techno-futures and planetary scale of mining for the energy transition. They do this while placing their own communities at the center, yet they situate these concerns within a “global” context – including climate change and energy transition – rather than pushing these to the periphery. We may agree or disagree with their choices, but a key difference is that their stories are not about hubris. Why? In part, it is because the subjects in this case are simply not in the same privileged position as Teague to turn their stories into material reality. However, it also has to do with the ambivalences that caring for a particular place entails, and how people face these.

We argue that acknowledging how particular people in particular places deal with ambivalence may lead us to consider altogether different models of *doing*. Here we refer to Annemarie Mol and others’ work on care and other everyday practices, working from feminist theory (Mol et al., 2015; see also Mol, 2008, 2021), where care is understood as “an inherently interdependent survival strategy, a foundation for political organizing, and a prefigurative politics for building a world in which all people can live and thrive.” (Woodly et al., 2021) Instead of individuals who deliberately choose to act in a certain way to pursue certain projects – i.e. making definitive choices to “resolve” the dilemma – we may think of doing as *tinkering*, which is iterative, and contingent upon the actors involved, the situation, and not least, the way different actors are situated and interrelated.

We – authors and readers – are differently situated; different from the people who appear in these vignettes, and different from each other. However, our concerns and projects likewise rarely fit neatly into “global” or “local” categories (e.g. is driving a car a local or global problem, a political or practical choice?). We maintain different, but perhaps also similarly ambivalent and complex relations with things like climate change, global capital, energy transitions, electric cars, and resource extraction in places near and distant. Our choices – and perhaps, our very existences – are also somehow interrelated and interdependent, not least through processes like climate change and global markets. The contradictions that arise pose a series of questions that are at the same time pragmatic and political, with both local and global implications. We suggest that we have little alternative but to “stay with” (Haraway, 2016) the everyday choices that arise in these contradictions. And since people in places of extraction will not resolve this question for us, we have to figure it out ourselves, tinkering in the places that we care for, contextualizing and reflecting on our choices in their local and global situatedness.

Yet, this situatedness does not suggest a kind of extreme “to each their own” localism. To be situated in a place is to be *situated in relation* to other peoples and other places. Facing anthropogenic climate change requires collective action among a highly heterogeneous collective of vast spatial and temporal span. In light of such heterogeneity, where singular subjects and choices will not do, alliances and coalitions that cultivate sensibilities for relations and action across difference may offer strategies against *inaction* and *indifference* (see Tsing, 2012b). Indeed, the crisis of doing which the dilemma represents may finally be better understood as a crisis of relating.

In these situated and cross-scalar encounters and multiple ways of relating, there is a need to be open to unexpectedness and the unknown (Puig de la Bellacasa, 2012), perhaps precisely because we do not act in isolation, and cannot, if indeed we let go of hubris, deceive ourselves into thinking that we have total control. Concretely in this case, we should at least recognize the actual uncertainties in predefined futures that seem to be smoothed over by pervasive narratives like those we outlined in the introduction. It is not a given that local environments will inevitably be destroyed by lithium extraction, yet neither is it a given that transitioning to electric cars (if this even occurs, at scale!) will make a significant difference in mitigating climate change.

Some initial steps in relating differently across scales might be: first, to proceed with caution. If local environments like the relatively poorly understood Salar de Uyuni and other salt flats ecosystems of South America are to be sacrificed – to one degree or another – in the name of addressing climate change or building electric vehicles for the privileged, clearly, at the very least, we must get a much better grasp on what it is that is being sacrificed. Second, this would require building a broader coalition of situated knowledges on what lithium extraction, on the one hand, and the energy transition, on the other, actually imply, for

whom, at what cost, and from differing valuational perspectives.⁹ The same would of course apply to other “critical” raw materials in places now under extractive pressure across the globe in the name of the specific form of energy transition that has been mapped out for us.

In the end, then, this article is also a story about the role of academics like ourselves in addressing these quandaries. Self-reflexivity is what scholars of energy ethics have rightly called for, and as we hope to have demonstrated, insights from anthropology and feminist theory provide new ways for thinking and acting through this and perhaps other dilemmas, keeping in mind how we are all differently but interdependently situated. If lithium is not a climate change vaccine, then maybe the interscalar stories it evokes can act as an antidote to hubris. There are no general solutions to avert the dangers of big categories, problems, and questions; only occasional reminders that things may not be quite as they appear.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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⁹ To date, basic questions such as how much water is consumed in lithium extraction and refining processes have largely been addressed from narrow perspectives that reflect corporate knowledge and interests.

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