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Extractive developments in the Salar de Atacama through the lens of intersectionality:
Learning from Lickanantay women

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Abstract

In a situation of climate emergency, state and non-state actors are globally making efforts to reduce CO_2 emissions. To answer these demands, crucial minerals are needed for the production of batteries, which are used in particular in electric vehicles. Lithium is one of the key minerals for these purposes, as it provides high levels of energy storage capacity. More than 58 % of global lithium reserves are stored in Argentina, Bolivia and Chile. Scholars have been analysing of the effects of the mining industry in these countries, but currently there is little work on gender and ethnicity in relation to lithium mining. This thesis analyses contemporary developments through the lens of intersectionality, with a focus on the experiences of indigenous women. Applying the intersectional lens to discuss concepts of energy justice and slow violence contributes to the discourse around a fair energy transition, drawing attention to gendered and racialised injustices in the process. A combination of ethnographic work conducted in San Pedro de Atacama and oral history interviews with local indigenous women leads to a nuanced and ambivalent picture of the impact of mining in the San Pedro region. It is apparent that indigenous women do not only experience adverse effects from the mining industry, with opportunities and benefits including better access to education, improved infrastructure, and a general empowerment of women through financial support, as well as benefitting from better access to education and improved infrastructure. Despite the fact that these opportunities arise in the context of the mining industry, concerns about the future of San Pedro and its people are serious. Apart from environmental degradation, adverse effects experiences by indigenous women include cultural loss, discrimination in the labour market and the reinforcement of gendered norms. This analysis contributes to studies on extractivism by providing an intersectional angle, pushing indigenous women's voices into the study of mining and its impacts, an area too-often gendered as "masculine" and as therefore outside the purvey of intersectional analysis.

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1. Introduction

The Salar de Atacama and its municipality San Pedro de Atacama are currently at the centre of global economic processes. Due to lithium mining the area is changing and these changes impact the lives of indigenous women living in the area. The research therefore is guided by the following research questions:

How have daily activities and practices of indigenous women around the Salar de Atacama changed in recent years? Which challenges and opportunities do indigenous women experience in daily life due to lithium mining in the area?

Increasing demand globally for lithium is a massive driver of developments in the area. Governments, as well as non-state actors, mostly from the Global North are aiming at reducing CO_2 emissions by investing in renewable energy sources and promoting low-carbon emission products. A clear example of these discourses is the change from fossil fuel vehicles to electric vehicles, as discussed and promoted in various countries in the Global North. The emissions from transportation currently account for about one third (24%) of global CO_2 emissions. Out of total transportation emissions, around 75% stem from road transportation (Ritchie, 2021).

Lithium is one of the key minerals for a low-carbon future. It is crucial for energy storage capacity technologies such as lithium-ion batteries, a mitigation strategy to reduce CO_2 emissions. Because of the favourable features of lithium-batteries (high energy storage capacity, low weight) the demand for lithium is increasing (Dorn & Ruiz Peyré, 2020). To fulfil the rising demand, assuming a 2-degree scenario of global warming, lithium extraction and production will need to be scaled up by more than 450% compared to 2018 levels (Hund et al., 2020). Given this development, the geopolitical value of lithium is acknowledged by several scholars (see Fornillo & Zicari, 2017; Göbel, 2013).

Due to the tremendous amounts of lithium reserves and high volumes of extraction, the Salar de Atacama and its population are now at the centre of these global economic processes. Europe imports about 78% of its lithium supplies from Chile (European Commission, 2020). According to the 2017 Population Census, approximately 51% of the inhabitants of San Pedro de Atacama declare themselves to be indigenous, of which the majority belong to the Lickanantay/Atacameño[1] ethnic group (BCN, 2017).

It is important to discuss the risks and local adverse effects of climate change mitigation interventions. Often already marginalised groups and/or groups affected by the adverse impacts of climate change additionally face injuries such as pollution, dispossession or environmental degradation through

[1] Both names describe the same indigenous group.

mitigation interventions (Marino & Ribot, 2012). In the Latin American context, Bebbington (2012, p. 5) observes "the rise of extractive industry visits tremendous change and dislocation on territories and countries within which it occurs … [and is associated with] unprecedented transformations of landscape, labour and social relations".

Following the definition by Gudynas (2018, p. 62), extractivism is "the appropriation of natural resources in large volumes and/or high intensity, where half or more are exported as raw materials, without industrial processing or with limited processing." Lithium mining in the Salar de Atacama is one example of such extractivisms. Local impacts from lithium mining activities have been observed in several studies. Liu et al. (2019) studied the spatiotemporal development of environmental degradation around the Salar de Atacama, whilst Jerez et al. (2021) studied water injustices in the area, caused by lithium extraction. However, studies touching upon lithium and gender dynamics remain scarce.
As such, an approach that takes into account aspects such as gender and race will contribute to a more comprehensive understanding of changes in the social landscape. Ulloa and Svampa are among the few scholars to have looked at mining and gender in the South American context. The work of Ulloa is primarily focused on feminist political ecologies in Latin America and adding the analytical focus of gender into research questions (see Ulloa, 2016; Ulloa 2021). Svampa highlights in her work the "popular feminisms" of Latin America, which allow room to rethink the topics of land, territory, bodies and representation together (see Svampa, 2021). Building and expanding on this scholarship, this thesis adds empirically backed contributions to the field of lithium and gender (as well as their intersections).

At the company Sociedad Química y Minera de Chile S.A. (SQM), one of the world's leading lithium producers, only about 17% of the total 5507 employees are women. This data refers to the entire company, not only the employees working in the Salar de Atacama. The company is aiming at employing more women in the upcoming years (SQM, 2021). While workers at SQM come from all over Chile, SQM is an important employer in the area of San Pedro de Atacama. Looking at the gender distribution of the workers, it can be assumed that a lot of the paid work by men is supported through partners who take care of the household (and, where applicable, children and elders) while the men work in shifts in the mines. Given the remoteness of the mines, the shifts typically last between four and forty days. Through the system of shift work at SQM, traditional roles and binaries between men and women are reproduced, often putting women in the position of having full responsibility for the household.

Alongside domestic work and work in the mining industry, indigenous women in the municipality of San Pedro also work in public administrational jobs, in services, in tourism or in agriculture. Most of

these jobs are related to the availability of water. If indigenous women work in the household and also have a paid job, they can experience a challenging double burden. Focusing on the experiences of indigenous women is particularly interesting because of the intersection of gender and race (Hipwell et al., 2002; Parmenter, 2011). Being indigenous in Chile has for a large part of recent history meant hiding away, experiencing the process of "Chileanisation", with recognition as indigenous people only happening in the 1990s with the resurgence of democracy. Discrimination during the military regime was highly visible and present, and the continued effects of this still have an impact on the social and economic position of indigenous people, albeit in subtler ways (Prieto, 2022; Lorca et al., 2022).

Lithium has been mined in the Salar de Atacama for approximately forty years. However, the attention to lithium came slightly later, as well as other formative events for the region such as the introduction of the indigenous law in 1993. Therefore, the thesis looks at developments connected to mining since approximately 30 years. Focusing on the lived experiences of Lickanantay women will contribute to a more comprehensive understanding of developments related to lithium extraction in the Salar de Atacama.

My research leaves room for ambivalences and nuances within the "group" of Lickanantay women as part of an attempt to avoid the essentialisation of indigenous people, which is often a risk in academic work produced by researchers outside the communities they are investigating (Lorca et al. 2022). Taking into account their experiences and stories will help to contribute to filling the research gap around the effects of lithium mining in the area of its extraction.

The space where the lithium companies extract the minerals lies on indigenous territories. Traditionally, in the entire region of Antofagasta, in which the Salar de Atacama is located, men left for paid work in other mining areas (e.g., Chuquicamata for copper mining) or to urban centres such as Calama, and the women were the ones who stayed in the territory. The lithium extraction now taking place on indigenous territory aggravates adverse social impacts of mining. Indigenous women must navigate by pursuing both strategic and pragmatic goals within the context of an expansion of lithium mining. By hearing individual stories, I am leaving room for different lived experiences, opinions, and views on recent developments in the area.

2. Background: Lithium mining in San Pedro de Atacama

This section provides the background of the research area and lithium mining in San Pedro. To provide a basis for further parts of this thesis, geographical and socio-cultural details of the area are outlined.

The current political situation in Chile is dynamic. With the election of Gabriel Boric, a left-wing politician and progressive former student protest leader, further political changes are expected. He aims to deliver better health care and a more comprehensive welfare state, and advocates for more rights for Indigenous people, migrants and people from the LGBTQ+ community (Bartlett, 2021a).

Furthermore, as a result of the social outbreak in 2019, a new constitution been developed during the last year and presented in early July 2022. The new constitution is intended to replace the constitution agreed in 1980 under the military regime, which imbedded many of the neoliberal principles advocated by the Dictatorship. The process of developing the new constitution was led by Elisa Loncón, a feminist indigenous Mapuche woman, and a majority of the seats on the body forming the new constitution have been given to those generally seen as being left and liberal. This has set high expectations among those struggling for the self- determination and autonomy of indigenous peoples (Bartlett, 2021b).

These recent political developments in Chile might lead to policy changes in regard to land and especially water rights. Additionally, the new constitution – if accepted by the Chilean population in September – acknowledges the indigenous people in Chile, which was not the case in the old constitution. The acknowledgement goes hand in hand with the article that indigenous people must be consulted and give consent to aspects that affect their rights (Molina, 2022).

The research underpinning this thesis was conducted in the Antofagasta region in the north of Chile, specifically around the Salar de Atacama, a salt flat at a highland plateau in the Andes (Figure 1). San Pedro de Atacama, the municipality within which Salar de Atacama sits, is organised with San Pedro at its centre surrounded by villages and Ayllus[2] (Dirección General de Obras Públicas, 2012). The study area is characterised by an arid climate with an average annual precipitation of 83 mm (in San Pedro de Atacama) (Climate-Data.org, 2022a). For comparison, in Utrecht the average annual precipitation is 827 mm (Climate-Data.org, 2022b). This means there is a significant surface water scarcity in the region (Babidge, 2019). The Salar de Atacama is fed on the surface by the river San Pedro, which runs off into the salt flat. Other streams also feed the salt flat, but they are subterranean. They come from snowmelt of the Andean cordillera and additionally form aquifers, springs or lagoons in the area. This

[2] An Ayllu is a form of Andean organisation of a community. It is made up of people who are united by family and religious ties.

complex hydrological system and particular climate has created a unique and fragile ecosystem (Babidge, 2019; Dirección General de Aguas, 2004).

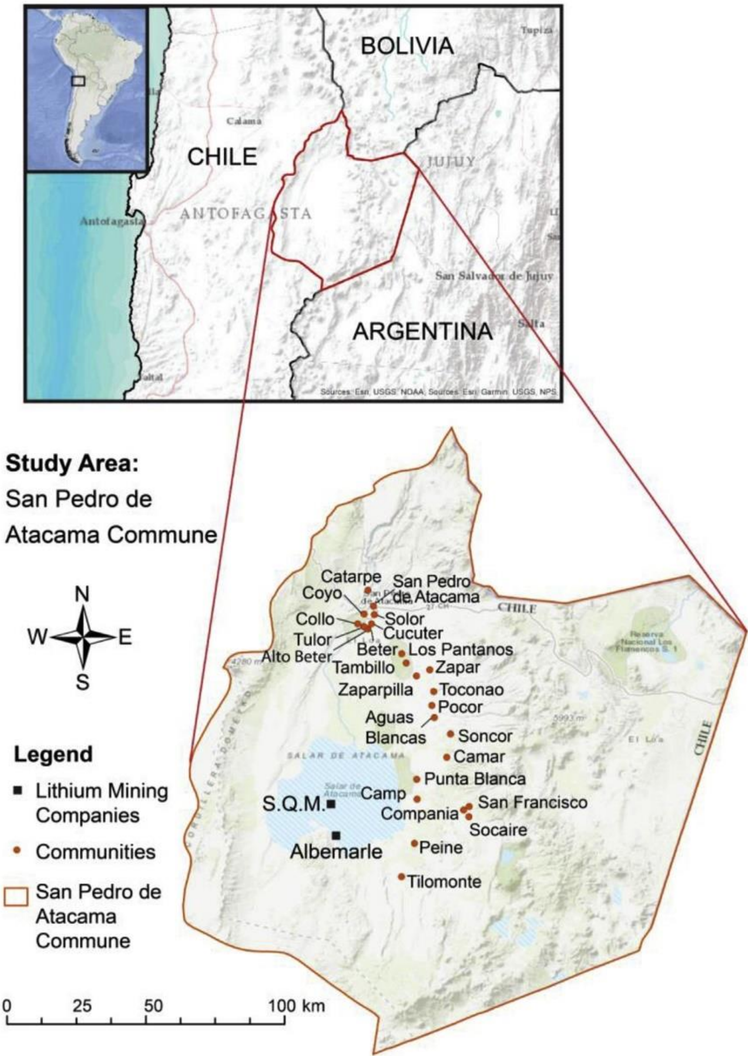

Figure 1. Map of research area, San Pedro de Atacama (Source: Liu & Agusdinata, 2020)

Since privatisation during the military regime, designed to promote the economic growth of the country in the late 1980s, ground water extraction rights have been granted to individuals and companies situated in and around the Salar de Atacama. Minera Escondida and Zaldívar, two copper mining companies, own the majority of subterranean water extraction rights in the area. They are located in the southern surrounds of the Salar. Directly in the Salar de Atacama - and therefore closer to human settlements - operate two lithium mining companies. Lithium mining in the Salar de Atacama started with the company now called Albemarle, a U.S. based company, in 1984. A decade later SQM opened its mine in the Salar as well (Babidge, 2019; Liu & Agusdinata, 2021). SQM is partly owned by

the Chinese company Tianqi (21,9%) and is currently the largest lithium producer in the world (Lorca et al. 2022).

Regulations on the privatisation of water have been implemented for mining companies, which means that the Chilean government sets a limit for the use of freshwater. However, lithium extraction is highly water intensive. While there are restrictions for freshwater usage, there are no restrictions on the pumping of brine water. Brine water is the stored subterranean water which contains the lithium. As the brine water is not counted as water (as it is not freshwater), the extraction of brine water is unlimited and therefore highly contested (Babidge, 2016). Discussions around water (and its decline) are evident around the Salar de Atacama since local livelihoods traditionally are based on pastoral-agro economy. Recently livelihoods have also been adapted to the mining industry (Babidge, 2016). As this example shows, the mining companies, not only lithium producers, have significant influence in various sectors of daily life in the area. Amongst other influences, mining companies support education by providing scholarships, funding cultural events and workshops, and offering health check-ups and much more.

The term "indigenous communities" in Chile has to be understood as a legal term due to the "re-ethnification" process which was initiated through the Ley Indígena (Indigenous Law) in 1993 (Lorca et al., 2022). The newly introduced Indigenous Law for the first time recognised different indigenous groups in Chile. Through the Indigenous Law a state agency called CONADI (Corporación Nacional de Desarrollo Indígena, in English National Corporation for Indigenous Development) was created "to promote Indigenous development, protect Indigenous lands and maintain a registry of lands, communities and associations" (Lorca et al., 2022, p. 6). CONADI also supports communities with state subsidies and a say in matters that concern the communities.

It has been argued that the introduction of the Indigenous Law had enormous symbolic effect (Lorca et al., 2022). It is important to note that not every person who self identifies as Lickanantay is part of the legal entity of an indigenous community. Discussions around who is indigenous (enough) or what makes one indigenous are currently very visible in the area. In this thesis the term "Lickanantay" will be used. This thesis choice has been made to follow the self-identification of many of the indigenous people. The word "Lickanantay" comes from the local language kunza - it can be interpreted as "habitantes de esta tierra" ("inhabitants of this land"). While using this term, it is important to recognise its limitations and acknowledge that some indigenous people from the area self-identify as Atacameños. See also Babidge (2015) for a short discussion around the terms.

The Salar de Atacama lies in the indigenous territory of the Lickanantay people. A majority of the population in the entire so-called Lithium Triangle (in Argentina, Chile and Bolivia) consider themselves

as indigenous or as descendants of indigenous communities (Gundermann & Göbel, 2018). According to the 2017 Population Census, approximately 51% of the inhabitants of San Pedro de Atacama declare themselves to be indigenous of which the majority belong to the Atacameño/Lickanantay people, followed by the Quechua people (BCN, 2017).

During the military regime indigenous people were significantly discriminated against, with the "Chilenization" of many indigenous people, causing them to lose their indigenous identity (Gundermann, 2018).

In the last part of this chapter, it is important to address the roles of gender and their meaning in the area over time. Before the Spanish Inquisition, relations between men and women in the Andes were based on complementary dualities. The dual nature of gender relations is still ingrained in daily practices and sacred rituals. However, it is important to note that the duality in the Andean cosmovision is based on equal power distribution. In opposition to the unequal power relations of "Western" relationships brought to South America by the colonisers, there are no unequal power relations in the Andean worldview. Men mostly were in engaged in political power but had to negotiate with the women who the held power in the domestic sphere "to culturally re-create the gendered duality that marked their lives" (Horswell, 2003, p. 28). However, these gender roles cannot be understood as absolute, as there was also a notion of a third space, the ritual enactment of a third gender. Based on the analysis of several colonial texts, Horswell (2003) argues that the duality in the Andean cosmovision is negotiated along a transitional area – corresponding with a third gender (see also Schiwy, 2007).

By the early 20th century, gender roles in the Atacama Desert were clearly separated. The shift to this clearer distinction in gender roles can be explained by the import of the European patriarchal system which was brought to South America by the colonisers (Schiwy, 2007). Men followed tasks and jobs outside the house, while women had the responsibility for domestic spheres (Benedetti, 2005). Historically, mining in northern Chile, as well as in other countries, is strongly associated with a largely male workforce. Even today in Chile only 9.2% of employees in the mining industry are women (Dirección del Trabajo, 2019).

This can be seen as a reflection of the gendered nature of labour distribution. Under the military regime in Chile, traditional gender roles and norms such as domesticity, motherhood and sexual propriety were encouraged (Barrientos Delgado et al., 2011). However, political and economic changes since the end of the military regime influenced women's gender expectations and ideals (Barrientos Delgado et al., 2011). As Silva et al. (2016) explored, many families in the so-called "mining north" of Chile are linked in different ways to mining (work). The influence of the mining culture affects family systems

and dynamics in the area. Furthermore, many families in northern Chile inherently maintain the colonial legacy, characterised by the obligatory permanence of the woman in the home, with responsibility over childcare and family administration, while the man fluctuates between the mine and the domestic sphere, depending on his working pattern (Silva et al., 2016).

Indigenous women are often described as the people who stay in the territory. They seem more connected to the land, because men have often left the territory to search for paid work in urban centres or other mines in the region. The role of indigenous women as the ones who stay in the territory is therefore crucial, as they clearly are important actors and negotiators in the context of mining. Being in the position of staying in the territory also helps to explain their concerns about the future of the territory. That is not to say that Lickanantay men are not concerned about the territory, but their greater mobility means they related to the territory in a different way. This also relates to the fact that the responsibility for elders and children lies with the women. This will be explored further in the second part of the analysis.

3. Literature review

In the following, work around the intersection(s) of gender, indigeneity and mining will be explored. The literature review engages with three key strands: the adverse effects of mining on indigenous women, the benefits of mining for indigenous women, and the highly complex relations and dynamics between indigenous women and the mining industries.

Research has shown that large-scale mining practices affect indigenous women in different, and often more significant, ways than they do men. For example, indigenous men are more likely to be included in negotiations and benefit from more employment possibilities (Parmenter, 2011). The lack of authority of indigenous women in negotiations with mining companies has been explored by Horowitz (2018) in New Caledonia. In her ethnographic work, it became clear that the "apparent lack of 'impact' within their own society provided a justification for the company to discount the women's wishes. Clearly, women's lack of customary authority within the community provided a convenient excuse for excluding them" (Horowitz, 2018, p. 1431). Parmenter (2011) uncovers the experiences of aboriginal women employed in a large-scale mining project in northern Australia. Many of the experiences describe working in an environment which was heavily dominated by non-indigenous and mostly male workers. This means that many of the indigenous women encountered sexism and racism at their workplace (Parmenter, 2011).

Mining has often been defined as inherently "masculine" – and looking at employment numbers, it is clear that the industry is still male dominated (see SQM, 2021). For women interacting with the mining industry through employment, this might lead to experiencing sexist views and limited career possibilities, with women often remaining at "the bottom of the company hierarchy" (Lahiri-Dutt 2010, p. 332; Parmenter, 2011). In the Global South, several researchers have observed that women tend to be employed in administrative or ancillary positions (Jenkins, 2014).

Other adverse effects of the introduction of large-scale mining on (indigenous) women are less direct but nonetheless significant. As noted above, Jenkins (2014) highlights the connection between women's livelihood and water in areas of mining. In her work, she sets out a research agenda on women, mining and development and argues for four different intersecting areas which are important to explore: (i) women as mineworkers, (ii) gendered impacts of mining, (iii) women's changing identities and roles in mining communities, and (iv) gendered inequalities in relation to benefits of mining activities. These areas of research remain key and will help in guiding this thesis.

One specific focus that it is important to note here is how the mining industry in Latin America contributes to the reproduction of heteronormative modes of living and working. With traditionally assigned roles and functions (e.g., men as breadwinners and women as caretakers for the family) these

gendered norms and roles are reproduced (Ulloa, 2016). Consequently, women are more affected than men by changes in the territory itself – for example, household tasks such as cooking, bathing babies, washing, taking care of the land are reliant on water that may be impacted by mining (Jenkins, 2014).

Women from the indigenous communities surrounding lithium mines in the so-called Lithium Triangle (Chile, Bolivia, Argentina) also often work for subsistence or in tourism-related workspaces, areas where their livelihoods heavily depend on water. Water scarcity induced by mining activities therefore impacts women more directly than men (Jenkins, 2014). Hence water in the dry Atacama Desert has a highly contested value and is a key resource for living in the area (Babidge, 2016).

Ulloa argues that colonial relations are often reproduced in mining activities, allowing then to continue these gendered inequalities (2016). In further studies on the gendered impacts of mining, threats to women's livelihoods from increasing violence, health issues and changing community power structures and economic relations are explored as well (see Jenkins, 2014). Other researchers argue that women are supporting the mining industry through their unpaid care work, following the argumentation of Federici (2004) (see Sinclair, 2021). To have the capacity for production, capitalism requires mostly unpaid reproductive labour. This especially includes the reproduction of a workforce.

There are other impacts of mining on women which are yet to be fully explored, such as the repercussions for mental health of the introduction of large-scale mining in an area (Jenkins, 2014). Additionally, indigenous populations can experience a loss of cultural heritage that might come with the introduction of large-scale mining on indigenous lands. In many indigenous communities land (and water) is closely connected to cultural meaning and significance (Babidge 2016, Jenkins 2014).

With keeping in mind Lahiri-Dutt's (2012) caution to not simplistically frame women as "victims" of mining, in the following the potential benefits of mining on indigenous women are also explored. As stated by Lahiri-Dutt (2011), mining does not only lead to adverse effects on (indigenous) women. Positive outcomes for women include easier access to education and travel and improved infrastructure. (Indigenous) women might also benefit from mining activities through their participation in decision-making in negotiations with mining companies (Lahiri-Dutt, 2011; Parmenter, 2011). Jenkins additionally highlights the role of women as key economic actors in labour related to mining, such as the provision of food, drink and accommodation (Jenkins, 2014). Sinclair (2021) explores with three case studies in Indonesia how resistance work or participation in corporate social responsibility (CSR) programmes can also have the effect of empowering (indigenous) women. She argues that "gendered legacies of mining depend on how resistance or participation create opportunities to overcome structural inequalities exacerbated by mining" (Sinclair, 2021, p. 1).

In most of the research about (lithium) mining in Latin America, indigenous women have been overlooked and received little attention. Actors that receive most attention in research are the state, lithium producers, or indigenous communities as a whole (see Dorn & Gundermann, 2022; Jerez et al., 2021; Lorca et al., 2022). Therefore, the lack of attention of indigenous women in the context of (lithium) mining constitutes a clear research gap.

To contribute to research about the socio-environmental impacts of lithium mining in the Lithium Triangle it is useful therefore to focus on indigenous women. By considering their ways of life, their experiences with living in an area of extractive industry and their attitudes towards mining it is possible to develop our understanding of the complexities of large-scale mining activities. As shown, the implications of mining for (indigenous) women are highly diverse.

While the focus of journalistic and academic interest falls more towards environmental impact assessments relating to, for example, water decline, other work focuses on forms of resistance to mining activities, or on the dynamics and relationships between indigenous communities and mining companies as described in the earlier section 2.

Research has often overlooked the aspect of gender – especially in the research area of lithium mining in the Andean region. As a pioneer in the field Enriquez (2021) applied a queer-ecology approach to lithium extractivism in South America as one of the first researchers taking gender into account of lithium mining. To conclude, I want to cite Li (2009), who recognised in her work that the women's "response to mining activity is sometimes marked by ambivalence and contradiction. As they struggle to negotiate their means of livelihood, people's relationships with the mining company oscillate between antagonism and cooperation."

This thesis will argue that a nuanced approach is needed to understand the experiences and the involvement of indigenous women better. With that the debate around a fair energy transition can be more differentiated. Taking into account their experiences and stories helps to contribute to fill the research gap about the local effects of lithium mining in the area of its extraction. Especially the link between gender and lithium mining has not been much explored yet, and therefore more attention is needed. As Lahiri-Dutt points out (2011), it is crucial to take women as important actors into account in research about mining, and for too long their perspectives have been overlooked. This accounts particularly for indigenous women in San Pedro, as they historically are the ones who stay in the territory and take care of their families, and are in a position of marginalisation within the Chilean state.

4. Theoretical framework

This chapter will lay out and elaborate on the relevant theoretical concepts needed for the research. In particular, the key concepts of energy justice and slow violence. Furthermore, the concept of intersectionality is summarised, which will be used as the theoretical framework for the research. All presented theories, concepts and tools will guide this research. The analytical framework is presented at the end of the theoretical framework, bringing together the different theories and concepts, providing guidance of the analysis of this case study.

4.1 Energy justice

Energy justice is a concept which has gained attention over the last eight years, driven by debates around environmental justice, although not all authors situate it directly within environmental justice (Lacey-Barnacle et al., 2020). It centres around critical analysis of where (in)justice occurs in energy systems. The concept is generally understood as applying “justice principles to energy policy, energy production and systems, energy consumption, energy activism, energy security and climate change” (Jenkins et al., 2016, p. 174).

Recently in energy studies, question have been raised about how costs and benefits of energy production and consumption should be distributed and how fair we are being towards future generations (looking at nuclear waste, pollution of the atmosphere etc.). This resonates with the concept of slow violence (see Nixon 2011). To tackle these questions, there are two dominating theoretical frameworks on energy justice, which are presented below.

The first is the work of Sovacool & Dworkin (2015), framing energy justice as a conceptual tool, an analytical tool and a decision-making tool. Sovacool & Dworkin (2015) define the concept of energy justice as “a global energy system that fairly disseminates both the benefits and costs of energy services, and one that has representative and impartial energy decision-making” (p. 436). Modern justice in their understanding has societal and individual dimensions: it translates to a healthy society and refers to the fair treatment of individuals in day-to-day life. To achieve this justice, distributional justice and procedural justice are both involved. Distributive justice deals with questions about who benefits from energy production and who is harmed by energy production processes. Procedural justice asks questions about who is involved in decision-making processes, and under what conditions.

In the context of this research, it is crucial to emphasise the importance of access to high quality information about energy and future plans, and informed consent for energy processes. As a decision-making tool, decisions must be made that promote and take account of principles such as availability, affordability, sustainability, inter- and intragenerational equity and responsibility.

The second major framework on energy justice is by Jenkins et al. (2016). This breaks up energy justice into three tenets, adding recognitional justice to the distributional and procedural justice in the work of Sovacool & Dworkin (2015). This aims to take account of the fact that to tackle injustice the concern must first be identified, second it must be identified who it affects and, third, remediation strategies must be identified. When considering distributional justice, the dimension of production as well as of consumption and what happens after the life circle of a product are of concern. Where are the burdens distributed and how can benefits be spread more evenly/be re-distributed?

Recognitional justice is crucial to go beyond the simple question of who is affected. It calls for the acknowledgement of all affected individuals and their perspectives "rooted in social, cultural, ethnic, racial and gender difference" (Jenkins et al., 2016, p. 177). In particular, non-recognition and misrecognition are discussed to actively find out about affected groups or individuals. It also has implications for procedural justice: Who is included in decision-making processes? How can these processes engage all stakeholders without discrimination? Local knowledge is taken into account as well as representation in institutions.

These frameworks often are applied to questions revolving around forms of renewable energies. By looking at four different pathways of decarbonisation and their impacts in different communities, Sovacool et al. (2021) show that impacts (burdens) of renewable energies are spread across a variety of different groups. Following up on this, the question is raised: Sustainable for whom? Resonating with distributional justice, the authors introduce the term "decarbonisation divide" to showcase the stark opposition between who benefits from renewable energies and who experiences adverse effects of the transition towards renewable energies. As can be seen from their case studies, decarbonisation divides are not only manifested in North-South terms but are also very much visible within regions.

Questioning the whole conceptualisation of distributional, recognitional and procedural justice, Dunlap (2021) claims that the term "renewable energy" is misleading and not useful. Instead, he suggests using the term "fossil fuel+ technologies" to describe what is currently understood as renewables. To deploy renewable energy sources, mining and production is still needed to meet the constantly rising demand for energy. Jerez et al. (2021) for instance describe this green extractivism (a continuity of extractivism but with the emphasise of carbon neutrality, leaving aside consequences such as environmental degradation) as replicating historical inequalities between the Global North and South.

Extractivism often takes place on Indigenous territories, turning these lands into "sacrifice zones". The term sacrifice zone was initially used to as a label to describe contaminated areas for the mining and production of nuclear weapons during the Cold War. Later, its usage was expanded to describe inhabited area which are heavily chemically contaminated, often in the context of low-income and/or

minority communities in the United States (Zografos & Robbins, 2020; Lerner, 2012). The term is often used in relation to questions around environmental justice, because people living in sacrifice zones are often marginalised and/or racialised, carrying more than their fair share of environmental burdens (Scott & Smith, 2018).

Currently, the term "sacrifice zone" encompasses "places and populations that will be affected by the sourcing, transportation, installation, and operation of solutions for powering low-carbon transitions, as well as end-of-life treatment of related material waste" (Zografos & Robbins, 2020, p. 543). Whereas for countries in the "Global North" the mining in indigenous territories is only a question of answering the increasing demand for energy, for people living in those areas, it is a question of survival (Dunlap, 2021, p. 86). These projects have therefore sometimes been answered with pushbacks from rural and Indigenous populations. By relabelling "renewable energy" as "fossil fuel+", further environmental and social inquiry is supported, and the harms of these new forms of energy become less abstract and more visible to a broader audience.

Another concern related to the concept of energy justice is raised by Broto et al. (2018). They engage with the limitations of the concept of energy justice and claim that while discourses around energy justice are important, practical implications from these discourses are limited because of a lack of effective sanctioning or regulatory measurement. While questions regarding justice are seen as crucial, to actually aim at energy justice further, and more effective, action is needed.

Using the concept of energy justice for this research shows the links between the local, "on the ground", implications of mining and wider global dynamics. The concept in particular poses questions around who benefits from increased mining, and who carries the burden. Most of the demand for the minerals comes from countries in the Global North who aim at mitigating climate change with renewable energy sources. The concept of energy justice takes into account the localities of the energy transition, especially making room for questions about sacrifice zones. Applying energy justice encompasses critically asking questions and helps to uncover the inequalities of the energy transition in a nuanced and differentiated way.

4.2 Slow Violence

Slow violence is described by Nixon (2011) as violence that occurs gradually and out of sight. It typically leads to delayed destruction and this destruction is spread across time and space. Often it is attritional and not perceived as violence. Usually, violence is very time bound and direct. Therefore, a different narrative is needed: disasters and destruction can also be slow processes. When this is the case, they are often anonymous and slow moving and happen outside of our short attention spans and do not

receive coverage by the speculation-driven media.

Nixon argues that slow violence poses various challenges, namely scientific, legal, political and representational challenges. Furthermore, he asks how we can "rethink the standard formulation of neoliberalism as internalizing profits and externalising risks not just in spatial but also in *temporal terms* as well" (Nixon, 2011, p. 35, emphasis added). While Nixon acknowledges domestic violence as well as post-traumatic stress as potential applications of slow violence, he does not go further into developing the connections.

George (2014) expands Nixon's notion of "slow violence" as Nixon only considers environmental risks. Picking up on that, George (2014) applies the concept of slow violence to the "dangers posed to women by masculinised governance, or militarism" (p. 316) in the context of women's peacebuilding activities in the Pacific Islands. She argues that various types of slow violence can produce insecurities for women; environmental risks are not the only slowly developing dangers.

De Leeuw (2016) is another example of how the concept of slow violence can be further developed. She applies slow violence as a lens to help comprehend the ongoing colonial violence in Canada, which infiltrates the personal spheres of indigenous peoples, including homes, families, and women's and children's bodies. Both George and De Leeuw reframe the concept of slow violence through a focus on gendered violence. In both their studies, the temporal dimension of gendered slow violence – a term used by Rezwana & Pain (2020) - is crucial. Often gendered violence is a "long-term experience; many of the survivors had experienced multiple forms, leading to a layering and compounding of trauma over time" (p. 756).

In this research the concept of slow violence is deployed in several different ways. On the one hand, long-term changes in local practices and activities can be understood through the concept. On the other hand, the concept brings together environmental harm with other forms of harms, such as the change of traditional ways of life or livelihoods. As shown in the works by the cited authors, the concept allows expansion towards different dimensions of the danger towards women. Looking at lithium extraction in the Salar de Atacama, factors such as water (decline), labour circumstances, pressure from companies and other potential dangers can add to uncertainties for women.

There has, however, been some criticism of the concept of slow violence. The authors below reinforce the fact that the concept must be used with caution and reminds all researchers of the need to listen closely and invest time to reflect and correct assumptions. Furthermore, these authors set the concept into a broader societal context, reflecting on wider positions of power.

Criticising Nixon's notion and understanding of slow violence, Babidge (2020) emphasises that the position of Indigenous people is not as rigid as Nixon's understanding. He contrasts the velocity of

neoliberalism and its short-term goals with the long-term visions for life of Indigenous people. By using this framing of a "chronotype" (p. 50) of Indigenous peoples Nixon takes a very generalised view, seeing Indigenous people as necessarily tradition-driven and associated with the past. Babidge refutes this narrative, saying that Indigenous people have always been involved in the neoliberal dynamics of hyper-industrialised conditions. This complicates the question of who is affected by slow violence and how positions are distributed on a local level.

By asking the question "out of sight – for whom?", Davies (2019) is questioning the acceptance that slow violence happens to people and communities out of sight. With his study of the uneven geographies around pollution, he argues that slow violence does not exist because of a lack of stories about affected people, but instead that environmental risks are deliberately ignored, and therefore certain populations and geographies become vulnerable to sacrifice. His notion of sacrifice and ignorance of local impacts adds to debates around sacrifice zones. He argues that addressing and criticising the structural conditions and global power relations is crucial to overcoming these uneven geographies. Considerations of violence therefore demand consideration of justice.

In spite of these described criticisms, in this thesis the concept of slow violence is used as a starting point to look at the temporal dimension of extractivism and the changes that lithium mining leads to. However, keeping the criticism in mind, the concept is expanded in this thesis, as it has been done in the various works above. By allowing for expansion of the category of violence, it provides an essential starting point for the analysis in this thesis. In particular, both the concept of slow violence and that of energy justice help to address the dimensions of time and space. In this thesis, they are brought together and seen through the lens of intersectionality, allowing us to interpret these concepts alongside the realities of life for indigenous women in mining settings.

4.3 Intersectionality

Intersectionality in this thesis will be employed in the sense of critical inquiry to study social phenomena (see Hill Collins & Bilge 2020, p. 37-39). At the same time, however, intersectionality is also understood as a praxis which aims at aiding the empowerment of communities and individuals (p. 43). Crucially, it is a concept that helps to explain complex realities. The intersectional approach is used for this research as it allows an exploration of nuances and ambivalences and is an open analytical tool. Therefore, it goes hand in hand with ethnographic research. As a working definition I will use that given by Hill Collins & Bilge (2020):

"Intersectionality investigates how intersecting power relations influence social relations across diverse societies as well as individual experiences in everyday life. As an analytical tool,

intersectionality views categories of race, class, gender, sexuality, nation, ability, ethnicity, and age – among others – as interrelated and mutually shaping one another. Intersectionality is a way of understanding and explaining complexity in the world, in people, and in human experiences." (p. 2)

Intersectionality emerged from post-colonial and anti-racist feminism (Kaijser & Kronsell, 2014). Crenshaw (1989) coined the term intersectionality, using an analogy of a junction to explain how different forms of discrimination can intersect. Traffic comes and goes in all four directions:

"Discrimination, like traffic through an intersection, may flow in one direction, and it may flow in another. If an accident happens in an intersection, it can be caused by cars traveling from any number of directions and, sometimes, from all of them. Similarly, if a Black woman is harmed because she is in the intersection, her injury could result from sex discrimination or race discrimination" (Crenshaw, 1989, p. 149).

It is important to acknowledge, however, that the concept of intersectionality was in use before the term itself existed. In social movements from the late 1960s until the early 1980s, women of colour were developing the concept through their activism and their intellectual work. And since its formal definition by Crenshaw in 1989, intersectionality as an idea is still in the process of self-definition (Hill Collins & Bilge, 2020). Cho et al. (2013) present intersectionality as an important tool to study inequality, power relations and identity. Other scholars have developed the concept of intersectionality further, linking it to postcolonialism (McShane, 2021) or development studies (Bastia, 2014). McShane understands intersectionality as a decolonial methodology, as an alternative epistemology and as a form of political praxis (McShane, 2021, p. 73).

Cho et al. (2013) argue that by focusing on structures of power in certain socio-political conditions, intersectional dynamics are being located in social space and time. This means that intersectional debates then circle around how specific categories and identities depend on dynamics in the particular setting in which people are located (Cho et al., 2013, p. 807). Adding to this, Bastia (2014) highlights the contribution of intersectionality in explaining the specific experiences of people, acknowledging the heterogeneity of persons. By understanding different categories of oppression as interconnected as well as interdependent, the complexity of people's experiences become clear (Bastia, 2014).

In this research, intersectionality is being used to grapple with the different experiences of indigenous women in the Salar de Atacama, with the aim of finding out about interconnected forms of oppression. At the same time, leaning on Bastia's further point, this research understands that aspects of a person's identity such as age, gender or class not only constitute positions of disadvantages, but that they can also lead to privileges (Bastia, 2014). To aim at a more holistic understanding of the experiences of the indigenous women both forms of oppression and of privilege will be considered. Privilege is

approached by taking into account comparisons with white Chilean women, as well as considering privileged positions of indigenous women with higher education for instance.

Using an intersectional approach does not mean including as many analytical categories as possible but focusing on categories which are relevant in a particular setting. As such, this research will mostly be focusing on the aspects of gender and race ethnicity. For this type of narrow analysis, it is important to prioritise the most interesting intersections (Kaijser & Kronsell, 2014). However, other aspects of identity will also be considered where they appear to be relevant for the research questions, for example family or social status.

Putting the experiences of indigenous women at the centre of this research helps us to consider recent developments around the Salar de Atacama from a new angle. The analytical categories of gender & ethnicity facilitate unpacking the perceptions and the experiences of critical social actors around the mining facilities, who are often absent from studies around mining. Studies show clearly that women are disproportionally more affected than men by mining activities. Their social position can be influenced further by features such as being indigenous, adding to existing disadvantages (Jenkins, 2014). Ethnicity is used a category for all the indigenous women who self-identify as Lickanantay. In a country with a long history of colonialisation, indigenous people are still racialised, which means that they are ascribed racial identities, and experience forms of oppression and discrimination as a result. Indigenous women who experience the intersection of these two modes of oppression are in a unique situation, which can additionally be shaped by further features and modes of oppression.

In the context of lithium mining in the Salar de Atacama, the intersection of gender and ethnicity is particularly interesting because (Indigenous) women are a group of people who are highly relevant actors in mining contexts (Lahiri-Dutt, 2011). However, the focus of journalistic and academic interest has tended to fall more towards environmental impact assessments relating to, for example, water decline, and where work has gone beyond this it has focused on forms of resistance to mining activities, or on the dynamics and relationships between indigenous communities and mining companies (see Liu & Agusdinata, 2020; Lorca et al., 2022). As such, the debates around energy transition have often been gender blind. As Mang-Benza says: “The concept of gender refers to the socially constructed and acquired roles, behaviours, and expectations associated with men and women. Because gender blindness breeds inequalities, attention to gender issues is likely to bring more justice and equality in the energy transition” (Mang-Benza, 2021).

It should be noted that one criticism of intersectionality as an approach is that its language is not precise enough and that is lacks a precise methodological approach. However, it has been argued that this lack of precision is not in fact a lack, but part of the development of intersectionality approaches.

The openness of the concept makes clear the fact intersectionality is (still) in process and allows room for exploration (Hill Collins & Bilge, 2020, pp. 49-50). This condition makes intersectionality an appealing theoretical vocabulary for research, as it allows expansion and application in various contexts. Applying intersectionality means this research is using an inductive format and will work from an interpretive angle, aiming at understanding people's lived experiences from their perspective – from an emic perspective. The emic perspective is the insider's view; their beliefs, their perceptions and system of meaning (Hennink et al., 2020). From that perspective a complex topic, such as that considered in this research, allows room for a variety of answers, nuances and ambivalences.

4.4 Analytical framework

Having introduced the key concepts and theory of this research, in the following the analytical framework is briefly presented to illustrate how the combination of the concepts and theory provide the basis for the analysis.

It has to be said that other current developments in the area such as the expansion of tourism and the impacts of climate change (e.g., decreasing precipitation, changes in precipitation patterns) cannot be entirely excluded and left out of the analysis of developments through lithium mining in the area. Applying an intersectional lens to the analysis allows to see things in combination and acknowledge simultaneities.

The aim of this research is to understand the local consequences of lithium extractivism experienced by indigenous women around the Salar de Atacama in Chile. Acknowledging the heterogeneity of this group, the different narratives, perceptions, and experiences of the women are described and analysed to understand recent changes in the region due to lithium extraction.

To reach for some conclusions, it is important to look at the issue from different scales. Energy justice as a concept will help to explore issues such as who benefits from current and future energy systems, and where are the burdens distributed. These questions do not only consider the global North-South dimensions but are also relevant on a national/regional level. As such, this concept engages with the spatial dimension of the research. The concept of slow violence serves in particular as a tool to explore long-term processes and developments in the area, focusing on the dimension of time. Global (economic) dynamics influence the local dynamics which will be explored in the research. What effects have the global demand for lithium had on the communities around extraction sites? Studying the developments and changes of life trajectories and experiences of the women on a micro-level allows linkages to be drawn to the broader picture, especially to the macro-dimension of climate change mitigation strategies.

As there has not been much research done on the gendered impacts of lithium mining, intersectionality will help in uncovering a less discussed set of developments from mining in the Salar de Atacama. Intersectionality is used as “a way of understanding and explaining complexity in the world, in people, and in human experiences” (Hill Collins & Bilge, 2020, p. 2), primarily serving as an analytical tool in this research.

Ultimately the research contributes to debates and discourses around a fair or sustainable energy transition. This provides a basis for answering the research questions of the thesis:

How have daily activities and practices of indigenous women around the Salar de Atacama changed in recent years? Which challenges and opportunities do indigenous women experience in daily life due to lithium mining in the area?

5. Methodology & Operationalisation

In the following chapter the applied methods of this research will be outlined. Throughout the research, several methods were used. During the early stages of the fieldwork the focus was on ethnographic work, moving more towards oral history interviews with selected participants in the later stages.

In addition to the collection of this primary data in the field, secondary data such as reports, academic papers, local newspapers, and global journalistic work were studied. For instance, evaluations of the impacts of SQM on the human rights of the Lickanantay people (Aylwin et al., 2021). Journalistic work encompassed articles from newspapers from the Global North (e.g., The Guardian, The New York Times), as well as Chilean newspapers (e.g., El Mostrador, Resumen), and the local newspaper Chululo.

Including these secondary sources as part of the research was essential to better understanding the local and global dynamics in the context of (lithium) mining, and to prepare for the time in the field. Later in this chapter, the operationalisation of the research will be presented, the handling of ethics laid out and limitations of the chosen methods will be discussed.

Data analysis was conducted after the data collection as well as during the process of collection. Through reflection during this process, the research has been adapted and further developed. Hence data collection and data analysis will not be two distinctive processes which can be separated, instead they go hand and hand and form a dynamic relationship (Coffey, 2018).

5.1 Ethnographic work in San Pedro de Atacama

During the period of fieldwork in Chile I had the opportunity to work with the Instituto de Investigaciones Arqueológicas y Museo (IIAM) located in San Pedro de Atacama. The Institute is a research centre focusing on anthropogenic work under the auspices of the Universidad Católica del Norte. The institute's research considers a plurality of cultural, historical and social spaces, involving different spatial and temporal scales - this covers questions from pre-hispanic and historical social processes, right up to considerations of critical and contemporary events in the social life of the area. Researchers from the institute helped to guide me during the research process, connected me with potential interview participants and invited me to join community activities. I was also provided with a workspace at the Institute and generally supported in understanding the field and local dynamics better.

As this research topic has not previously received significant academic attention, using ethnographic research methods facilitates the production of new, emic findings. The research is concerned with questions regarding practices, and how practices may have changed due to the process of lithium extraction in the area. Ethnography therefore is a suitable approach to study how processes have led to changes in the life of the concerned group. The field has been entered with openness to potential changes in the research to give permission to refinement and to switch angles (Coffey, 2018), which did in fact turn out to be needed later in the work.

Initially participant observation was applied. This approach offers the useful duality of partially participating in and with the setting, and at the same time making observations in order to make sense of activities, events and relationships (Coffey, 2018). The role as a participant allowed me to dive into the complexities of the field and understand the local dynamics and connections. While as an observer, I have been able to explore the nature of the social setting while aiming at staying objective.

However, I acknowledge that being objective is an ideal, and not the reality of observation. Especially at the beginning of the research, before speaking to participants, participant observation was useful in getting a feel for the setting and to take behaviour in with a fresh mind. Additionally, the first weeks in the field were used for settling into the area and organising practicalities such as housing. Observations were recorded with field notes to facilitate a systematising of recorded data. Additionally, photographs were taken to augment this written recording. Another aspect of observation was establishing contact with the study population (Coffey, 2018). This phase was primarily used to build rapport with potential participants.

5.2 Oral history interviews

Oral history interviews were conducted with Lickanantay women. This qualitative approach allowed me to gain etic and, most importantly, emic insights and understandings from the participants, which led to new inductive findings. The etic perspective is the point of view from an outsider, in this case me, the researcher. The emic perspective is information from the insider’s point of view, of their values, their perceptions and beliefs and their meaning system (Hennink et al., 2020). Qualitative research facilitated understanding people’s perceptions, opinions and emotions as well as their views and behaviour. Furthermore, qualitative research helped to provide detail, nuance and deeper context of the complex situation around the Salar de Atacama (see Hennink et al., 2020).

By applying an oral history approach, the starting point of knowledge production is the perspective of the indigenous women themselves. It is a method to access voices which are not often heard, presupposing that the participants “have valuable knowledge to share based on their life experiences,

including their behaviors, rituals, attitudes, values and beliefs" (Leavy, 2011, p. 11). One of the major purposes of oral history is understanding people's subjective experiences of historical periods of social change.

I tried to enter the interviews with as few pre-thoughts and plans as possible – except for a rough interview guide in case some direction was needed. I wanted to see where the participants would take their own stories, thereby trying to avoid allowing my "western eye" too much influence on the interview and the narratives of the participants. An article by Zapata-Sepúlveda et al. (2014) inspired me in trying to apply a de- colonising approach, emphasising the listening part of the interviews for understanding cultural and ethnic contexts better. This fits with the epistemological understanding of oral history as a collaborative project (Leavy, 2011). The authors describe in their how they tried to research the concept of gender-based violence against Aymara women in the north of Chile. During their field work it became clear that the concept of gender-based violence is a concept developed in the Western world. As the Aymara have a different worldview/cosmovision, their understanding of violence was different from the understanding of the researchers. This example emphasises how important it is to engage with multiple interpretations of violence.

Applying oral history can partly help to amend Western-centric perspectives by taking into account the actual narratives of Indigenous women. Therefore, in my interviews the participants told their stories in the order they wanted with their own focuses and could be as detailed or general as they wanted. The aim of this approach was to make room for their experiences, their perspectives, and opinions. In moments where I was uncertain if I had correctly understood a point, I asked for clarification. Hence, these oral history interviews led to the co-production of knowledge, and meaning developed out of this collaborative process (Leavy, 2011). This de-colonizing approach to the research goes hand-in-hand with applying an intersectional lens on the findings, attempting to use a decolonising approach across the whole project. As outlined in section 4.3 intersectionality comes from post-colonial and anti-racist feminism and is an important tool to study inequalities and power relations.

In practical terms, applying oral history can look different, depending on the interest of the researcher, but also depending on how much the participant provides without further encouragement. Oral history is understood as a method of qualitative interviews (Leavy, 2011). Typically, the focus is not on the whole life of a participant but focuses more on a specific topic or part of life (O'Reilly, 2012).

I completed six interviews with indigenous women - four out of the six interviews closely followed the approach and methodology of oral history, meaning, in general terms, that the conversations were free-flowing with just some limited guiding. The two other interviews were held with indigenous women who can be described as "experts", as they have both engaged with the broader topics of this

research in their academic career. These interviews, therefore, were partly conducted using an oral history approach, but also included parts which leaned on a more classic qualitative interview method.

As Leavy (2011, p. 16) describes oral history allows the researcher to understand historical processes and to "make links between micro-level experiences and macro-level environments that shape and contains these experiences". Applying oral history facilitate answering the research question of experienced changes in the lives of indigenous women. In the case of this research, understanding local perspectives helps to explicate the impacts of global demand-driven mining activities in the Salar de Atacama. Though these oral history interviews I was able to learn about, and from, the biographies of indigenous women around the Salar de Atacama.

5.3 Data collection

In the initial phase of the research project, the focus was primarily on ethnographic work. Participant observation in the field was conducted, as well as informal conversations and encounters which allowed me to gain an insight into the complex realities of the region. These conversations and the participation in local events and social gatherings helped me to better understand the field and its dynamics and hence were of significant value for the later research. Additionally, the informal conversations provided an insight on the different perspectives among people in the region towards mining, to learn on the one hand how charged the topic is for some actors and on the other hand to understand that only a relatively few people think much about the mining industry at all.

These informal conversations took place with an artist, an activist, several researchers, workers employed by or formerly employed by SQM (or its subcontractors) and young locals. Talking to these different social actors in the field allowed me to understand their perceptions of current developments in San Pedro de Atacama in a broader sense. Some of the people I spoke to are Lickanantay themselves, some of them come from other parts of Chile and have experienced living in this area for several years. These conversations generally did not focus on the experiences of indigenous women directly, but rather around general perceived challenges in the area – such as the decreasing water supply, the impacts of climate change and developments in tourism in the area. The information coming from these conversations is of high value in understanding simultaneous recent (economic) developments around the Salar de Atacama and local people's perceptions of these developments.

To record the information gained through participant observation a field diary was used. Collecting notes and keeping the diary up to date was helpful to understand the local dynamics, norms and relationships. This data was augmented by photographs taken in the field.

Additionally, I took part in several local events which centred indigenous people (or, sometimes. only indigenous women). One was a presentation of a study assessing the impacts of SQM on human rights, especially on the rights of the Lickanantay indigenous people. Another event was the official signing of a contract between SQM and the "Alianza de Mujeres Atacameñas" (Alliance of Atacameño Women), a project which grants 2000 women approximately 3000 US-Dollars for their own projects. This covers activities in health care, agriculture, music, culture, and other sectors. I also took part in the certification ceremony of the "Casa Telar". The "Casa Telar" is a weaving project for indigenous women funded by SQM and in collaboration with the foundation ONA. Again, observations were collected in the field diary and supplemented by photography.

The six oral history interviews were conducted separately (see 5.2 above), and were with Lickanantay women between the ages of twenty and forty. All of the six women were based in San Pedro de Atacama or close Ayllus. To prepare the oral history interviews, I followed a guide on how to do oral history provided by the Smithsonian Institution Archives (Smithsonian Institution Archives, 2020). With the consent of the participants the interviews were recorded and later transcribed. The collaborative nature of this method allowed for co-production of knowledge. Therefore, transcripts of the interviews have been shared with the participants in case they were interested in receiving them.

5.4 Operationalisation

After conducting the interviews and collecting several life stories of indigenous women from around the Salar de Atacama, the interviews were coded using the software Nvivo. During the coding process inductive and deductive strategies were applied to capture the emic perspective of the participants as well as to relate back to the theoretical framework. The codebook can be found in the appendix. The coding process was divided into the three following steps:

First, I approached the data with an open coding strategy to explore and discover preliminary categories during the first reading of the transcripts. In the second step, I formed overarching categories detected from the theoretical background and from new information within the data. Broad categories such as "mothers" have subcategories to filter out the different dimensions of what the description of mothers encompasses. For example, the description of the paid work of mothers, their domestic labour, their responsibilities and so on. Other broad categories are, for instance, the family situation, instances of discrimination, attitudes towards mining, perceived changes in environment and social fabric, and dealing with cultural losses. The content of the categories leads to different directions, aiding the analytical framework. For instance, several manifestations of discrimination provide a basis for the intersectional approach of this thesis. Perceived changes in environment and

social fabric help in uncovering injustices and allow a long-term perspective, taking the time dimension of impacts from mining into account. While the choice for these first types of codes was taken to make sense of the findings with the analytical framework, other codes such as education, matriarchy or infrastructure were developed inductively when they revealed limitations of the concepts of the analytical framework. And a third type of codes were codes not directly related to the research questions or the theoretical background. These codes were developed to facilitate a broader understanding of general ideas about life, ways of life, perceptions of the Chilean state and other aspects.

The last step of the coding process formed the connection to the analysis. I looked for links between categories, for seemingly contractionary opinions or views, and for reoccurring patterns. The coding process as part of the research served to simplify data and to re-think first ideas and perceptions (see Coffey, 2018, p. 83). Further these analyses of the interviews facilitated the understanding of changes in the living environment around the Salar de Atacama. They allow for linkages between the micro- and macro-level; as well as between the experiences of individuals and the development of the area, which is highly driven by different mining activities such as lithium mining, copper mining and potassium, alongside other resources. On a higher level these analyses additionally facilitated making linkages between the local and the global, showing how developments in one place shape and influence developments in another place on Earth.

Inspired by the qualitative research circle by Hutter-Hennink (Hennink et al., 2020, p. 5), I understand data analysis and its tasks as interlinked: between making sense of the data and analysing observations or interviews, it is possible to go back to collect more data to further explore issues that have arisen. It is also important to link data collection back to the research design because the analysis is informed by the theoretical and conceptual ideas presented previously. Therefore, data analysis is undertaken at all stages of the research. Preliminary readings on the topic helped to prepare for the field, whereas in the field data analysis helped to redefine the focus of research activities and to adapt adequately.

After outlining the operationalisation of the data, it is important to shed light on the challenges and limitations of this research. Below, these will briefly be outlined in order to offer as much transparency as possible about the research.

5.5 Challenges & limitations of the research

Arriving in the field, conducting initial participant observation and speaking to a variety of social actors connected to lithium mining was helpful to learn about the local perceptions of mining activities in the

area around San Pedro de Atacama. Through my work with researchers at the IIAM I learned that the area falls into the interest of many researchers, especially those coming from European countries.

Some Lickanantay communities have experienced bad research practices from these researchers. For example, participating in studies but never hearing back from researchers again, and never seeing or hearing about the results of a study. This could explain why a so-called "research fatigue" (see Clark, 2008) was apparent. This created a challenge in accessing potential participants for my research, because I too am a European researcher. Another aspect that could explain the participants disinterest is raised by Zapata-Sepúlveda et al. (2014, p. 932): Potentially the disinterest "can be understood as a response to historical violence against their culture, and as an anti-colonial stance in favor of their rights and respect for their culture" [sic].

Because of these difficulties accessing participants, the IIAM supported me in turning to community leaders to legitimise my research through them. After that I could access communities with the community leaders as gatekeepers. After building rapport with potential participants and other social actors, it was possible to conduct interviews with six Lickanantay women. However, due to limited time in the field and the limited trust among the participants, it was not always possible to discuss highly sensitive topics such as alcoholism or domestic violence.

Through the preliminary ethnographic work, I also learned how charged the topic of lithium extraction around the Salar de Atacama is. Therefore, I adapted my methods. Initially, qualitative in-depth interviews with Lickanantay women were planned, in which lithium mining and its impacts were directly addressed. However, I switched the approach to oral history interviews, to avoid posing too many assumptions and to allow room for more nuanced answers about the actual reality of the indigenous women living there. During these interviews buzzwords such as "extractivism", "water" "scarcity", "mining" and so on were mostly only used or addressed when the participant herself mentioned them. The insights from ethnographic work facilitated this switch and contributed to the broader understanding of the dynamics around lithium mining around San Pedro de Atacama. Additionally, this ethnographic work helped in understanding gender relations in the area.

One last, but important limitation are my own Spanish language skills. Although I refreshed my Spanish before coming to the field, spending a week around Santiago to develop my understanding of Chilean Spanish, my Spanish ability sometimes led to a language barrier. I initially learned Spanish in Bolivia and later deepened my ability in the northerly countries of South America, but Chilean Spanish has some unique vocabulary and ways of using words compared to those more northerly countries. All of these factors can lead to things getting "lost in translation". However, participants in the research and other conversation partners were all aware of the limitations of my Spanish and helped with great

patience and with explanations where needed. In cases where I was worried about misunderstandings, I would ask the participant to repeat or rephrase their point and would then confirm my understanding of what they had said in my own words. All quotes from the interviews used in this thesis are my own translations.

5.6 Positionality and reflexivity

In qualitative fieldwork research, it is important to acknowledge, particularly during the data collection and the interpretation phases, that the researcher comes with their own subjective views. Through reflexivity the researcher unpacks how their subjective views, their social background and their assumptions influencethe research process. Reflexivity should be conducted during the whole research process (Hennink et al., 2020).

I entered the research area as an outsider with Eurocentric biases. I am a white woman, coming from a stable financial background, with the privileges of a German passport, and have undertaken formal education. By actively using a field diary I reflected on my thoughts, every-day encounters and new learnings. During the fieldwork I tried to regularly check on my subjectivity and the assumptions I brought to the field

Working from this cross-cultural perspective on the issues and concerns of indigenous women did not only provide an understanding of structural violence in their society, but by confronting me with another culture's assumptions also revealed to me aspects of my own habitus (see Horowitz, 2018). Being aware of this habitus facilitated further conversations with the participants, leaving more and more assumptions behind. This is a good example of how reflection helped my own learning and allowed me to adapt my research throughout.

5.7 Ethical considerations

Before coming to my findings and analyses, some ethical aspects will be addressed.

Qualitative methods, such as those used in my research, are used to understand individual people's personal beliefs, perceptions, and feelings. Therefore, the ethical principle of "doing no harm" must be constantly considered, in particular by keeping information secure and anonymous (Hennink et al., 2020).

Participants of the oral history interviews gave informed consent to be part of the research. Before every interview they were informed about what taking part in the research means. It was explained

that their participation is voluntarily and therefore they can withdraw their consent anytime and leave the interview. They have read a consent form, written in comprehensible language, explaining again their voluntarily participation and that their data will be used anonymously and kept confidentially (see appendix). Before beginning any interview, the participants agreed to be recorded. It was explained that their data is exclusively used for this thesis, and they were given my contact details in case they wanted to reach out again after conducting the research. Participants who expressed a wish to receive a transcript of their interview have been sent the document. All participants will receive a copy of this thesis and the accompanying communication product (this is a blog article about the topic on lithiumworlds.com, directed to a non-academic audience that will be available in both English and Spanish).

In preparation for my research, I read intensively about the geographic and social context of the area and research topic, as well as developing my Spanish skills. However, actually being in the field exposed me to numerous new and unexpected situations which I had to handle spontaneously and flexibly. For example, learning moments were triggered by unexpected comments of participants, or instances of one participant crying during the interview. Navigating the distance or closeness between participant and researcher was challenging.

6. Analysis & Discussion

In the chapter below, the opportunities and challenges for indigenous women in the context of lithium mining are presented, analysed and discussed in order to answer the research questions: How have daily activities and practices of indigenous women around the Salar de Atacama changed in recent years? Which challenges and opportunities do indigenous women experience in daily life due to lithium mining in the area?

A crucial aspect of this research is an understanding of the changes that have taken place in recent years in the Salar de Atacama, and the implications of these changes for the people living and working there. Lithium has been extracted in the region since 1984 (Lorca et al., 2022), and in 1993 the implementation of the Indigenous Law, recognising the indigenous people and their land, **f**acilitated some of the key developments in the area. However, it is only since 2000 that there has been significant interest and attention given to lithium extraction, and, as such, this research primarily considers developments over the last twenty years. It should be noted, however, that it is often not possible to draw clear delineations in time, particularly when considering the influence of overlapping processes and their impacts through the memory of people who have lived in the region for their entire lives. Any periodisation in this research is therefore necessarily loose.

The first section, below, explores changes in daily practices and activities over this period, drawing on the concepts of energy justice and slow violence. In the following sections the challenges and opportunities experienced by indigenous women in the context of lithium mining are presented, analysed and empirically discussed. While a simplified dualism of challenges and opportunities helps untangle some of the complexities around this topic, it is important to acknowledge that the described challenges and opportunities cannot always be exclusively identified as such. There are often links, contradictions and ambivalences within many of the described experiences, making them in some contexts a challenge and in others an opportunity. Lastly, all three dimensions – of change, challenge and opportunity – are brought together in order to analyse their intersections and look at issues of energy justice and slow violence more broadly.

In the following, the term “women” is used as shorthand for “indigenous women”, as only indigenous women were interviewed for this research. Clearly it is possible that non-indigenous women will share some of the experiences of indigenous women, but that lies outside the purview of this research.

6.1 Changes to ways of life and water

This section considers the persistence of the indigenous people, changes to the ways of life of indigenous women, and attendant cultural losses. This is particularly considered in the context of the challenges around water availability in San Pedro.

Some of the women expressed concerns about the future of San Pedro de Atacama and its surroundings. By this was meant not only the spatial and physical dimensions of the territory, but also the cultural dimension. Economic developments, including the mining industry, have led to many changes to livelihoods and ways of life. The introduction of large-scale mining means that San Pedro and its surroundings is increasingly integrated into the processes of Globalisation; with extractivism placing San Pedro de Atacama into the centre of global economic dynamics.

A concern that cuts across all these dimensions – cultural, economic, and physical – is the persistence of the indigenous people. The case of San Pedro serves as an example for wider questions regarding energy justice, especially distributive justice. The costs of renewable energy provision lie with those living in the indigenous territories in the Atacama Desert, where the mining for essential lithium takes place. While some scholars have argued that more research is needed to fully understand the hydrological impacts of lithium mining (see Babidge et al., 2019), independent researchers have shown that environmental impacts are clearly apparent as a result of the mining activities in the Salar de Atacama (see Bustos-Gallardo et al., 2021; Jerez et al., 2021; Liu & Agusdinata, 2021).

While the topic is highly charged in San Pedro, global attention to local impacts around San Pedro is relatively low. The concept of slow violence helps in uncovering why. As environmental degradation happens over a long process of time the effects are not immediately, nor in a spectacular way, seen (Nixon, 2011). As a result, for many people – especially those living in countries in the Global North - the violence of environmental degradation happens out of sight.

Yet for those living there, this violence can be seen in the stories they tell. For example, many of the participants described declining water, or remembering that during their childhood there was more precipitation and more pasture. Changes in precipitation patterns are likely to be linked to climate change as some of the as conversations revealed. It is somewhat paradoxical that efforts to mitigate climate change globally have exacerbated climate change in mining areas, turning them into sacrifice zones (see section 4.2 above for more on this term). In the context of thirteen years of draught in a row, pumping up brine water for lithium production is highly controversial (Bartlett, 2022; Liu et al., 2019). The combination of several forms of marginalisation – gendered, as women in a still strongly patriarchal society, and racial, as indigenous people who have faced historical oppression – aggravates

this violence for indigenous women and makes still more urgent the need for more effective justice mechanisms.

Each dimension of this threat – economic, physical, and cultural – is considered below.

First, concerns about the physical dimension of San Pedro's future are considered. As other scholars have described, the value of water is highly contested in the area and the consumption of water, especially for extraction from the brine, is one of the main concerns of much of the population of San Pedro de Atacama and its surroundings (see Babidge, 2016; Gundermann & Göbel, 2018). The following quote by one of the participants summarises this. On a sunny, dusty day in San Pedro, she told me:

> "*But I'm not interested in profiting from that, because where does the money come from, from these mining companies that extract without any conscience what is going to define whether we remain a people or not, which is water. Do you understand? We don't have water. Every summer, every summer, with the exception of the two years of the pandemic, every summer we live without water at night, at dawn, we wake up without water and sometimes even during the day*."[3]

In this quote, she illustrates concerns about the future of San Pedro and its surroundings, especially concerns regarding indigenous identity and indigenous persistence which might be affected by lithium mining. What also becomes visible in this quote is the extent to which water is always an underlying issue when it comes to debates around the future of San Pedro and its surroundings. Water is needed to persist in one of the driest places of the earth. The topic of (declining) water was brought up and discussed in several conversations with indigenous women.

As stated by Lorca et al. (2022, p. 5) "water is central to the ecological, cultural and mining history of the Salar de Atacama". Several studies showed how water diminishes because of mining in the Salar de Atacama (Liu et al. 2019, Jerez et al. 2021). Even though there exist legal regulations of allowed water usage, it is not clear these are always followed, for example Albemarle is being sued by the Chilean state for having extracted more brine water than it was allowed. Due to the increased extraction of water by Albemarle, ecological damage occurred which not only affect the ecosystem of the Salar de Atacama, but also affect the life systems and *costumbres* (customs) of the community of Peine. The case is currently being considered by the First Environmental Court in Antofagasta (Cambero, 2022).

This overuse of water has led to feelings of anger among many people living in the affected area.

[3] Quote from one of the participants, San Pedro de Atacama, Chile, April 2022.

Critical opinions were expressed through artistic work in the village of San Pedro, highlighting the importance of water and showing how political the topic is (figures 2, 3, 4). Other artists have expressed their resistance to mining with rap music. These artistic expressions against mining activities in the area show agency among a population aiming for energy justice.

Figure 2. Artworks in resistance of mining, San Pedro de Atacama, 2022

Figure 4. Close up to an artwork showing a dead flamingo. Underneath it says: "the lithium corpse - it's not development, it's plunder", San Pedro de Atacama, 2022

Figure 3. Close up to an artwork showing a map of Chile - below it says "Sacrifice zone. The lithium body, it's not development, it's plunder". San Pedro de Atacama, 2022

During the oral history interviews participants also often raised concerns about the economic future of San Pedro and how habitable the village and its surroundings will be in a few years. In particular concerns were raised several times about what will happen after the mining project ends. By their very nature mining projects have a limited time span, and this means questions about the "creation of long-term local values" are being raised (Dorn & Gundermann 2022, p. 357). These concerns about the future of San Pedro can be understood as the acknowledgement of a violent process taking place, leading to insecurity about how liveable the area will be in the coming years, especially after the mining has stopped.

Alongside concerns about future local values in an economic sense, questions about the future of cultural values were also often raised. In this section, the cultural dimension to San Pedro's future is explored.

Looking at the cultural dimension of concerns about the future of San Pedro, the worries of the indigenous women circled around the changes in livelihoods and the maintaining of cultural heritage. While Lickanantay women have traditionally followed pastoralism or worked in agriculture, maintaining these practices becomes more and more challenging because of the lack of water resources, which leads to unstable livelihoods. For instance, the village Toconao – about 40 km south of San Pedro – is known for its agriculture products, especially fruits. Agricultural labour has traditionally been pursued by significant numbers of men and women. However, since changes to precipitation patterns and a general decline in available water, some of the younger population have decided to leave the agricultural tradition behind and aim at different, new employment opportunities. This is something lamented by many of the women interviewed. To actively decide to continue with the agricultural traditions of the region could be understood as an action taken to maintain cultural heritage.

Due to the growing challenges for those working in agriculture, many indigenous women have themselves turned to regular paid jobs instead, which provide a more stable monthly income. A consequence of this shift is that the practices of pastoralism and agriculture are being abandoned over time. With the abandonment of these practices, knowledge and traditions are lost. This loss underpins the concerns of some of the indigenous women about their future persistence in the area, as illustrated by the following quote from one of the indigenous women interviewed:

> "*Indigenous women and men no longer consider, for example, that agricultural work is fundamental to maintain and preserve their culture. For many of them, it is no longer*

> *a priority, so they no longer plan to cultivate the land, they prefer to keep their paid work and not to farm because it is more of a sacrifice*."[4]

Here it is important to acknowledge that not all of the women express their concern at this loss at the same level of intensity. For some of the women the cultural persistence and maintaining of cultural practices and traditions is of less importance than for others. The gap in being concerned with the continuation of Lickanantay culture and highlighting other issues as more concerning is wide. This can be in part explained using intersectionality. Apart from the intersections of gender and race noted above, other forms of marginalisation such as being a mother apply to some women.

While the framework of intersectionality is useful for understanding how several marginalisations can intersect and lead to perceptions of cultural loss, this is not the only consequence of mining around the Salar. As will be discussed in the second part of the analysis (see section 6.3), new job opportunities can, for instance, lead to empowerment and help in overcoming such marginalisation. Other developments over the last thirty years that can help mitigate intersecting marginalisations include better access to education, and improvements to infrastructure. These developments have led to more indigenous women moving from domestic and agricultural or pastoral work to stable, employed positions. While in some senses these changes have been positive, both in terms of the women's economic position and marginalised status, these transitions also mean that traditional practices are at risk of being forgotten.

Each individual's experience of different marginalisations can lead to variations in their understanding and perception of wider changes, as how those changes affect them and are received are deeply dependent on the particular intersections of each woman's marginalisations (see Hill Collins & Bilge, 2020). Therefore, when using a concept such as slow violence it is important to remember the perceptions and agency of those women being impacted and written apart, as for some the violence is not perceived as purely negative, and may in fact be experienced as giving them freedom and opportunities. Nonetheless, the loss of cultural heritage can be understood as a consequence of slow violence taking place, even when accounting for these nuances in the way individuals experience that loss.

Another example of the slow violence done to the cultural future of the area relates to employment practices. The company, SQM, makes an effort to be on good terms with the surrounding indigenous communities as can be seen in their Sustainability Reports (see SQM, 2021). However, their engagement with and support of the indigenous communities has limits. For example, as one participant noted, there are no days-off given on the known and important holidays of the Lickanantay

[4] Quote from one of the participants, San Pedro de Atacama, Chile, April 2022.

people. This means that people who would like to spend that day with their families have to ask for a day off, and it is not guaranteed that it will be granted on that day. The maintenance of time-specific rituals and tradition is challenging if only a limited amount of people can participate, and it becomes harder to pass those rituals and traditions down to future generations.

The mining industry as an important employer around the Salar de Atacama has a very significant influence in many different sectors of daily life in the area. Not taking account of the traditional days of the Lickanantay people is an example of how the mining companies directly shape the ways in which cultural persistence or loss take place. In this case, the structural neglect of important days actively hinders the maintenance of cultural practices. This contribution to a distancing from traditional rituals can be understood as another form of slow violence.

As can be seen, there are numerous ways in which the participants considered the future of the indigenous people in San Pedro to be at potential risk. Not just the physical challenges caused by climate change and loss of water, but the economic future of the region after the end of the mining industry and the cultural loss caused by the changes in lifestyle and traditional practices that have followed the arrival of mining in the region. All of these dimensions can be seen as aspects of slow violence in the region, and all require more effective and urgent justice mechanisms. Without such mechanisms being put in place, it is incumbent on us to ask how just the energy transition can ever truly be.

6.2 Challenges linked to mining around the Salar de Atacama

The following part considers the challenges experienced by Lickanantay women connected to lithium mining in San Pedro de Atacama. Several of the findings are drawn from aspects directly mentioned and described by the participants of the oral history interviews. Other findings have been based on observations and informal conversations and from other insights of ethnographic work. Often both of these dimensions came together and supported each other.

6.2.1 Discrimination in the labour market

Discrimination towards Indigenous people was highly visible in Chile until the introduction of the Indigenous Law in the mid-1990s. The Indigenous Law recognised different indigenous groups in Chile and their territories, and the newly created state agency CONADI was given the task of supporting the development of indigenous communities, something it continues to do today (Gundermann & Göbel,

2018). Participants described that discrimination reduced after the Indigenous Law was passed, and that also meant that feelings of being ashamed of being indigenous went down as well.

Despite the decline of forthright discrimination and marginalisation since mid-1990s, discrimination is still present., although in more subtle forms than previously. This can be seen in some of the experiences of indigenous women. While talking about the labour market and employment possibilities in the area – especially job possibilities at the mining company SQM – the women described how indigenous women rarely get to higher positions in the companies. Women from central Chile or women described as "blond, tall, thin, white"[5] have access to higher positions at the company. This shows again how the intersection of certain features – such as race, appearance, or body type – play a role in possibilities in the job market and therefore influence social relations (Hill Collins & Bilge, 2020). The intersections any one individual has will shape their life experiences and opportunities (see Leidig & Bayarri, 2022). Intersectionality is, therefore, a crucial tool in analysing how the overlap of different factors and attributes leads to different experiences.

As Cho et al. (2013) emphasise, intersectional dynamics are located in specific social spaces and times. In the specific social context of the employment composition of SQM, the combined nature of marginalisation leads to fewer job possibilities for indigenous women. Although many indigenous women from the surrounding communities are employed, they mostly work in related services such as kitchen staff in the mine cafeteria, in hospitality or in other affiliated services. Generally, they are employed in lower-status positions, often with subcontractors of the mining companies rather than the companies themselves. This makes visible the ways in which employment possibilities for indigenous women remain limited.

One of the participants told the story of how she worked for a period of time in a mine close to Calama, the closest urban centre to San Pedro. She occupied a leading position, supervising a group of men. After a short time in this job, she quit. She described how she felt uncomfortable leading the group of men, not having sufficient "strength"[6] to succeed in her allocated role. This example illustrates not only how male-dominated the mining industry still is, but also the ways in which sexist and patriarchal attitudes can become internalised by the women themselves. She felt herself to lack strength, either because of sexism and racism experienced from those under her supervision, or because she had on some level accepted the idea that women are inherently weaker and that strength is associated with masculine attributes. This shows the ways in which subtle sexism can drive women out the labour market even if they are not being directly discriminated against.

[5] Quote by an indigenous woman during an informal conversation.
[6] Quote of an indigenous woman during the oral history interviews, San Pedro de Atacama, Chile, April 2022.

Additionally, being a younger indigenous woman, and therefore a (potential) mother can create additional forms of discrimination within the labour market. Some women described that their opportunities to find a job with the mining companies was reduced because the companies feared they could become pregnant and be unable to continue working. In this example, the intersections of being a (potential) mother, a woman and indigenous all aggravate the difficulties of getting a job in the mining industry, combining together multiple forms of discrimination.

The evidence of discrimination can be seen in the employee statistics for SQM. The majority of employees hired by the two lithium mining companies in the Salar de Atacama are men. In 2021 out of all 6,081 employees of SQM, 18,2 % were women (SQM, 2021). It has to be noted that the company has made efforts to employ more women. In 2016, only 10,31 % of their employees were women, and so in recent years their percentage of female employees is growing. However, as is visible in the data, the industry remains male dominated. It is therefore worth questioning the extent to which indigenous women benefit from the local mining industry in terms of employment possibilities.

With regard to employment possibilities there is still a long way to go in achieving greater parity between the genders, with greater efforts aimed at achieving a fairer distribution of benefits needed to at least head in the direction of a fair transition. Mang-Benza (2021) argues that to address gender blindness in the energy transition it is not enough that more women are mainstreamed by being employed in decision-making positions in the energy sector. She suggests that women should join forces to tackle the patriarchal energy sector and views the energy transition as "an opportunity to advance justice and gender equality issues" (Mang-Benza, 2021, p. 8).

Despite this, considering the gender employment gap provides a starting point for asking questions about justice in the energy transition, especially distributional justice. In the case of San Pedro it is clear that it is mostly (indigenous) men who profit from the employment possibilities brought by the mining companies. Indigenous women, who experience the intersection of several forms of discrimination, still have limited options in the mining labour market.

6.2.2 Reinforcement of traditional gender norms

The third issue to address is the reinforcement of gender norms as a result of the mining industry in the area. Again, it is important to keep in mind the long history of mining in the entire region of Antofagasta. Since approximately 1860, mining has played an important role in the region's economy. Indeed, the War of the Pacific was in part a war fought over this resource-rich territory. While formerly part of Bolivia and Peru, Chile took over because of its economic interest in the resources in the region (Benedetti, 2005). Most importantly for this research, due to this long history of mining in the regions

of Antofagasta and Tarapacá, men have "always" left to work in the mines.

The fact that this is not a new phenomenon is important for two points that need to be addressed: first, because mining is generally associated with masculinity, with hard physical *male* work, research interest in the context of mining has often overlooked women and other actors related to mining. Only in more recent years has there been a shift in focus to look at other related actors (Lahiri-Dutt, 2012). Considering the experiences of other actors in the mining areas is important because their different relations to the work of mining bring other aspects of the industry and the region to the fore.

Drawing on their experiences and role helps us, as researchers, to understand better the entire picture, rather than a narrowly gendered conception of what is happening on the ground. The second point to draw attention to is the extent to which men leaving to work in the mines has become an ingrained tradition in the region, and one that influences the very conception of "masculinity" for those living there (Barrientos Delgado et al., 2011). The current nature of the mining industry continues to reinforce and re-state these same gendered norms and roles. The following illustrates in more detail what this exactly means for indigenous women, especially for mothers.

The system of mining, especially the requirement to work in shifts – because of the remoteness of the mines – reinforces gendered norms. Social norms are "informal (often unspoken) rules governing the behaviour of a group, emerging out of interactions with others and sanctioned by social networks" (Stewart et al., 2021, p. 2). Gendered social norms govern the expected and accepted behaviour of women and men, often perpetuating gendered stereotypes such as placing women in domestic spaces and portraying men as "breadwinners" who go outside the family sphere.

Many of these described norm,s stem from a hetero-normative and patriarchal perspective, a worldview brought to the Americas as part of the process of colonisation. Colonisers changed the traditional, pre-colonial roles and relationships between men and women, imposing "western heteropatriarchal and binary sex/gender systems in settler societies, as a condition of their religious, economic, and political life" (Morgensen, 2012, p. 13). Before that, in the Andean *cosmovision,* social organisation was based on a sense of community, in opposition to western individualism. Men and women were perceived as complementary, without power asymmetries. Since the colonial period other "Western" ideas have continued to be imported, including ideas such as the "nuclear family", influencing family and gender dynamics in the region (Zapata-Sepúlveda et al., 2014).

In Chile around 75% of all mothers are single parents (Hiner, 2021). Around 84% of those single mothers do not receive the required alimony from the fathers. This means they experience the burden of bringing up their children on their own, while at the same time having to financially make up for the earning gap that is not fulfilled by fathers. Feminist groups in Chile describe this as a form of gendered

violence (Luza Carrión, 2022).

Many men from around the Salar work for the mines. Because of the remoteness of the mines, these men typically work in shifts. These shifts typically last for another between seven and forty days. Men who have their families living close by, for example in the communities of Toconao or Peine, can return to their families after their 12-hour shifts. Men who do not live as close usually spend their entire shifts in camps or other accommodation close to the mining location. This means that they are absent from their families and family responsibilities during the periods of their shifts. This labour system of mine work and its implications for family dynamics is uncovered by Silva et al. (2016). The authors particularly explored the connection between mining, masculinity and fatherhood, providing some useful overlaps with this research.

In this case, the absence of many men due to the remote mining work comes together with the highlighting of the strong role of Lickanantay women, which several participants emphasised; for example, in the following a quote by a participant illustrating the perception of indigenous women:

> *"The role of the Atacameño [Lickanantay] woman is very matriarchal in the family. Generally, in many Atacameño [Lickanantay] families, we are extended families […] so the role of women is always very strong because it is the woman, if they separate, it is the woman who stays with the children or if there is no responsible father, it is the woman who carries on with the children. In that sense, the Atacameño [Lickanantay] woman is like a fighter […]. A person who always looks for and struggles to make ends meet […]."*[7]

During the conversations with the indigenous women, it became clear that they often have full responsibility when it comes to family matters. This is particularly the case with their own children, but it also applies to looking after elderly family members. Usually, the oldest daughter takes much of the responsibility for care-work of such older relatives. Further quotes by other participants augment this view. After arriving later than the time of our appointment for the interview, because she had things to do, one woman told me the following:

> *"I've always noticed that the people here in San Pedro, the women, the old women, are very matriarchal. They are the ones who run everything. Or the eldest daughter. They are the eldest and the one who follows the eldest. For example, there is my eldest son, but the woman who follows... for example: if there are two men and a woman, the woman is the one who always has to do all the work."*[8]

[7] Quote from one of the participants, San Pedro de Atacama, Chile, May 2022.
[8] Quote from one of the participants, San Pedro de Atacama, Chile, May 2022.

Something similar was said by anther indigenous woman:

> *"And here in the villages, indigenous women feel they have this responsibility to take care of their families. Because it is also frowned upon for parents to be left alone. That is frowned upon here. The family that does it is not well accepted by the public, no. People look down on that, that is, as a child, one has the duty to take care of one's parents when they are old."*[9]

As noted, most of the responsibility for domestic and care work falls to (indigenous) women, so that in case where they also have to follow a paid job to sustain themselves, this leads to a double burden of work. While this set of gender roles has a long history and has been engrained in the Lickanantay people since at least colonial period, it can be argued that mining activities reinforce these attributed gendered norms and roles.

This reinforcement of gendered norms and roles can be understood as another example of slow violence, as indigenous women are likely to be "held" in challenging positions and left with family responsibilities. Nixon's articulation of slow violence is particularly apt here: that slow violence typically occurs in the passive voice, "without clearly articulated agency" (Nixon, 2011, p. 136). In this context, the double burden on women and its reinforcement by the demands of the mining industry can best be understood as a form of slow violence. The structural reproduction of those forces, the process of slow violence they create, is fuelled by the demand for minerals coming from countries in the Global North.

It has to be noted, however, that many women make use of their agency today. In the conversations with the women, it became clear that some indigenous women challenge these gender dynamics within their own relationships, because they do not want to live with (all of) the attributed gendered roles and norms. Nonetheless, some indigenous women described that still "*siempre hay una la que lleva todo*" (which roughly translates to "there is always one *(using the female form)* who carries everything"[10]. This is reflected by the fact that in all of Chile, women spend about twice as much time a day as men on domestic work (INE, 2019), although the amount of time spent on domestic work varies between the regions. Clearly, however, this inequality is not only dependent on location, but is impacted by the forces shaping gender in communities and families, alongside other factors such as ethnicity or social class. Depending on the intersection of these different identities the position of women and their time spent on domestic work is likely to vary. Being in a position to change gender norms and roles in one's own relationship can also be highly dependent of a variety of factors, including

[9] Quote from one of the participants, San Pedro de Atacama, Chile, April 2022.
[10] Quote from one of the participants, San Pedro de Atacama, Chile, May 2022.

economic status, education, race, and the community values of those around you.

As these gendered inequalities and the reproduction or reinforcement of the gender norms that underpin them are apparent in the lives of many indigenous women, it can be argued that these circumstances are in part a product of energy injustice. Allowing an oppressive system to operate cannot be considered part of a fair energy transition.

6.3 Opportunities linked to mining around the Salar de Atacama

As has also been highlighted by other scholars, the introduction of mining does not exclusively bring adverse effects for indigenous women. The economic development of a region due to mining and other related developments also brings opportunities for indigenous women (Mang-Benza, 2021). In the following, some of the opportunities from mining that were described by the indigenous women interviewed are discussed.

6.3.1 Better access to education, improved infrastructure, overall economic development

Following other scholars (see Jenkins, 2014; Mang-Benza, 2021), in the case of the indigenous women in and around San Pedro de Atacama it can be shown that, as well as challenges, the mining industry, and the connected economic development of the area, leads to some opportunities. Particularly in this section it is important to be conscious of the fact that several parallel developments took place around the same time and influenced the economic development of the area. Of particular note here are the boom in tourism since the last fifteen to twenty years and the changes induced by the introduction of the Indigenous Law in the mid-nineties (Dorn & Gundermann, 2022; Liu et al., 2019).

During the interviews, many of the women described improvements to infrastructure, especially the availability of (tap) water and energy, something which was not the case in their childhood (the women are mostly in their thirties and forties now). Having both of these utilities more readily available makes daily life easier, especially for indigenous women, who often have the role of caretakers in their families and are therefore responsible for domestic tasks that require water and energy.

While the provision of water and energy improves the life circumstances of all women in San Pedro, it is particularly important for the smaller villages around the Salar, which are heavily populated by indigenous people. Many participants described how life in these villages is more difficult than in the centre of San Pedro because of lacking services for instance, and so the impact of better utilities in these villages is even more significant than it would be for those living in the centre of San Pedro.

Another aspect to draw attention to is improved access to education. Access to education in this case is understood in a spatial/physical dimension, but also in terms of other lifted barriers to (higher) education. During the interviews with the participants, many of them explained that they had to leave their families to receive education. Three of the six participants told me that they spent most of their childhood and adolescence in boarding schools. This meant that they could only see their families very rarely, which was challenging in several respects. First, because of their absence most of the year they could rarely participate in rituals of the Lickanantay or celebrate specific dates together. Second, being away from their families meant that it was generally more difficult to share time, experiences or rituals with the families.

In recent years, participants said, there are more schools and educational institutions available, closer to the homes of many families, so that children do not have to visit boarding schools to receive their education. Scholarships and other financial support/financial stability provided by the mining companies also support access to education. For instance, SQM gives scholarships to the children of employees who have delivered outstanding performances (SQM, 2021), and Albemarle aims to provide scholarships for women in STEM (Albemarle, 2022). These scholarships are linked to specific conditions, but nonetheless support the children of, in particular, indigenous women in receiving education. Many of the participants have attained a higher educational level than their mothers. In this way, indigenous women and their families can directly benefit from investment from the mining companies. This is clear in the following quote from one of the participants:

> "*I know that many people here are against mining. But it's the only way to get out because it's like the best paid work. And they give you benefits for your children*."[11]

It is apparent in this quote that this woman perceives the impacts of mining activities as being in tension: although she acknowledges the perceived risks of mining and the opposition to it, she also states clearly that the financial benefits of working with the mining companies can be immense.

More generally, economic developments over the last 30 years have helped the empowerment of women through better access to education, health facilities, and improved infrastructure such as roads, but also water and energy provision. Although it is not possible to distinguish the exact impact of mining activities on the overall economic development of the area – compared to other factors, such as tourism –the contribution of the mining industry is apparent (Dorn & Gundermann, 2022). This trend is likely to continue in the future, as it is estimated that between 2018 and 2030 SQM will transfer

[11] Quote by one of the participants, San Pedro de Atacama, Chile, May 2022.

a total of 8.3 billion US Dollars to the state, the region, and the communities within it (Dorn & Gundermann, 2022).

In recent years, direct payments from Albemarle to indigenous communities have also facilitated the economic development of the region. In 2016 Albemarle signed a contract with the *Consejo de Pueblos Atacameños* (Committee of Atacama Peoples), recognising the existence of rights and claims over the Salar de Atacama. In this contract they agreed that significant payments, of 3.5 % of the total lithium and potassium sales, would go to the 18 indigenous communities around the Salar and to the *Consejo de Pueblos Atacameños.* Considering the current production levels, these payments roughly add up to 10-15 million US Dollars per year (Dorn & Gundermann, 2022). With these payments it will be possible to make further investments in infrastructure and education and the region.

With this money from Albemarle, the *Consejo de Pueblos Atacameños* and the communities have greater agency over how money is invested, although 0.5 % of the payments must be allocated to planning and development studies (Dorn & Gundermann, 2022). This means the communities and the *Consejo de Pueblos Atacameños* can invest in improvements to infrastructure, in education or pay professionals who help in negotiations with the companies (see Babidge, 2020). As noted above, these improvements to infrastructure are of particular benefit to indigenous women, especially in their roles as caretakers in their families. Domestic work is becoming easier with energy and water availability in the house, while improved access to education through better roads and new educational institutions leads to improved chances of women receiving (higher) education and therefore opens new professional possibilities.

The contract between Albemarle and the communities can be seen as a tool for achieving some measure of cooperative energy justice. Indigenous women, who are in a marginalised position in Chile, gain agency through the payments from the mining company. Eleven out of the eighteen presidents of the communities are currently women (*Consejo de Pueblos Atacameños,* 2022). Even though the arrangement of men and women as presidents changes over time and, as reported by participants, is not (yet) aiming explicitly at parity distribution, the fact that indigenous women are part of the Committee allows them to advocate for their interests and pressure for their demands to be met. By participating in negotiations through their presidential positions they can direct the payments towards their needs. Distributional justice should also be mentioned, as the communities receive(d) improved infrastructure and energy provision, in this way also benefitting from the production site. Additionally, it can be argued that recognitional justice is also visible. By recognising the land of the Lickanantay, Albemarle acknowledges the people affected by their production and through the contract with the communities the company aims at remediation strategies (see Jenkins et al., 2016).

The following quote from a participant illustrates the described economics dynamics and also pushes the discussion in a further direction:

> "*So, of course, these are the things that, if one has to recognise that thanks to this [economic] growth, which could be mining, could be tourism, all this economic development that there is today in Atacama, has meant that the role of women has changed in many ways and that women have become empowered. Before that, it was impossible for a woman to occupy this type of an empowered position.*"[12]

What is clear from this quote is that the economic growth in San Pedro is acknowledged, although it is obviously difficult to disentangle which sectors contribute and in what proportion. Second, the participant clearly states that (indigenous) women have only been able to access higher positions with these recent developments.

From some of the conversations it also became clear that the economic development of San Pedro led to more employment options in the area in support industries. For example, since there are more schools available in San Pedro, more job opportunities for teachers open up. This is of high importance for many of the indigenous women, as it became apparent that a major reason to leave San Pedro was (and still is) to seek job opportunities elsewhere, for instance in urban centres further away.

Despite these increased opportunities, young people still frequently leave their communities and territories to seek work elsewhere, something mourned by many of the indigenous people who remain. However, the economic development and associated creation of more employment opportunities played a role in some of the participants deciding to stay or come back to their communities around the Salar. With more employment opportunities the women who stay(ed) in the territory gain more agency over their lives and are able to make decisions based on factors other than spatial considerations.

Looking at these examples through the lens of energy justice, it can be argued that the overall economic development and connected improvements in infrastructure, services, and opportunities facilitate distributive energy justice. While the intersection of being a woman and being indigenous leads to the marginalisation of many indigenous women (especially in the local labour market (see chapter 6.2.1)), nonetheless, the described economic developments in the area can also facilitate possibilities for indigenous women in the area, offering more opportunities and agency.

[12] Quote by a participant who academically engages with indigenous feminism from an Andean perspective, San Pedro de Atacama, Chile, May 2022.

In many of the interviews it became clear that for many of the women agency came from working in the mines (or having a partner working there) and so receiving a stable monthly income. In an area which otherwise survives on tourism and agriculture a stable job in the mines is appreciated, especially during the period of the pandemic, when the tourist industry was badly affected. Even within a situation that came be seen as an example of slow violence, there can remain positive elements, and making clear judgements is never straightforward.

These positive elements, however, do not emerge spontaneously or from a vacuum. The *Consejo de Pueblos Atacameños* as well as the pressure of local resistance played an important role in achieving some of these positive developments. For instance - as described above - the *Consejo de Pueblos Atacameños* is involved in negotiations with the mining companies, aiming at the most advantageous outcomes for the indigenous communities.

It is also important to note that when it comes to local resistance not all indigenous people, or all women, engage in active resistance against mining. During many of the conversations it became clear that instead of resistance, many of the women are instead supportive of working with the mining companies, negotiating with the companies to achieve better outcomes or supporting the mainstreaming of information about the mining process and its local environmental impacts. As Lorca et al. (2022) explored, for many indigenous people the full retraction of the companies from the region does not seem to be feasible, so they instead work to achieve the best set of outcomes given the persistence of the companies in the territory.

6.3.2 Initiatives by SQM to empower (indigenous) women

Part of the strategic operation of SQM is community work with communities living around the extraction site in the Salar de Atacama. This community work encompasses a variety of activities, including educational activities or health related actions] (SQM, 2021). With community work the mining companies aim at legitimisation of their work and compliance (Gamu & Dauvergne, 2018). As stated by Sinclair (2021, p.9) “Corporate social responsibility programs […] can indeed create opportunities to overcome negative or unequal impacts of mining”. This part of the analysis will explore this line of argumentation, illustrating it with some examples from the field.

The company SQM focuses on community work in the sectors of health, education, culture and patrimony (SQM, 2021). Some of these activities are directed in particular at indigenous women with the aim of empowering them. Generally, it can be argued that community work is used by SQM as a tool to build compliance and legitimise their work in the area.

As indigenous women are primarily the people who stay in the territory and who hold power in decision-making, especially in the domestic sphere but increasingly in public affairs too, it is important for SQM that they work with them in order to legitimise their activities and get support from the community. Indigenous women are of high importance for community cohesion, and often have a key role – both directly and indirectly – in negotiations between the communities and SQM.

Building alliances and support is, therefore, important for the work of SQM. Some scholars interpret CSR practices as a form of slow violence, co-opting the marginalized and leaving them without options (see Gamu & Dauvergne, 2018; Holtermann, 2014). Three of the six participants interviewed expressed their opposition to the social engagement of the mining companies, as they understand such CSR practices as a legitimation for further extraction (of water) in the area, putting the future of San Pedro at risk.

To paint a picture of SQM's efforts to empower (indigenous) women, in the following some community activities directed at (indigenous) women are described. For instance, during the month of April, SQM funded a check-up centre for breast cancer in the main square of San Pedro de Atacama, providing free health care services for women.

Another example are the workshops of the "Casa Telar" (Weaving House) project, where indigenous women from the Salar de Atacama are invited to (re-)learn ancient weaving techniques. As described by Peña (2021), under colonialisation (missionaries) more and more weaving techniques were forbidden, because the messages of the textiles were inspired by the Andean cosmovision. Pieces were burned and weaving got severely restricted as part of the process of Christianisation. The forgetting of weaving practice was intended to encourage people to forget their cultural heritage and adjust how they saw the world. Under the military regime of Pinochet (1973-1990) lots of traditional textile practices were also lost, as the regime took action to discourage them. During this period indigeneity received a subversive connotation of fighting against the military regime, and wearing ponchos or indigenous belts became symbols of left ideologies and therefore of official contra culture in the 1980's. In addition, militarisation in the frontier areas was rising and many of the traditional textile practices and much of the knowledge (about language and other parts of cultural heritage) passed over generations and was lost and forgotten. The number of weavers in the country has as a result diminished notably.

This also applies to the surroundings of the Salar de Atacama. Only a few (older) indigenous people have the knowledge and skills of the ancient techniques. The ONA foundation in cooperation with SQM therefore offers workshops to (re-)learn these practices. (Indigenous) women can participate to reconnect to this part of cultural heritage.

This means, that the argument in 6.1.1 – that mining has caused the loss of cultural heritage – can be nuanced here. While contemporary developments have indeed displaced traditional ways of life and the praxis of many rituals, work like that undertaken by the ONA foundation aims at facilitating the re-connection to some practices, showing how the mining companies can be co-opted to support the recovery of heritage they have also played a part in destroying.

A certification ceremony for those completing the weaving workshops was held at a beautiful, nicely decorated location in San Pedro with a view of the surroundings volcanos. The indigenous women who received the certificates seemed proud of their work, which was exhibited the same evening. It also became apparent that they felt appreciated by the evening organised for them, with music, food and drinks provided, and everything very nicely set up (see figure 5, 6). This series of workshops and the exhibition of the artworks clearly contributed to the empowerment of some of the indigenous women.

Figure 5. Certification ceremony for the women finishing the weaving workshops in the Ayllu Larache, San Pedro de Atacama, 2022

Figure 6. Woven pieces by the indigenous women presented at the certification ceremony

Another example of how SQM contributes to the empowerment of women is the signing of a contract between SQM and women from the Alianza Mujer Atacameña (Alliance of Atacameño Women). This financial project was signed at the end of April 2022 with an event taking place in the main square in San Pedro de Atacama. Due to this contract 2000 indigenous women are receiving around 3000 US Dollars as a lump sum to create and pursue their projects. These projects cover four lines of possible

engagement: Health and a healthy living, agriculture and protecting water and land, development of production and trade, and cultural heritage and environment. The event was very formal, with the people attending dressed up nicely and the main square of San Pedro decorated (see figure 7).

Figure 7. Signing of a contract between SQM and women from the Alianza Mujer Atacameña in the main square of San Pedro de Atacama, 2022

An Andean music and dance group was part of the event, and the Wiphala[13] was waved. During the speeches of officials from SQM and the Alianza Mujer Atacameña the important role of indigenous women in the communities and the territory was highlighted. By addressing the indigenous women directly and by signing the agreement, SQM strengthens their relations with indigenous women in the territory, while at the same time offering opportunities for the empowerment of the women. These programs offer the opportunity to create long-term local value for the indigenous women in and around San Pedro de Atacama.

These projects by SQM provide case studies that illustrate the influence of the mining companies on the population and daily lives of indigenous people. The contract described above between Albemarle and the communities and the Consejo de Pueblos Atacameños adds to this illustration; through their shared economic interest, the company Albemarle and the communities are strongly interwoven. The

[13] The Whiphala is the flag representing indigenous people native to the Andes, including today's Peru, Bolivia, Chile, Ecuador, north-western Argentina and southern Colombia.

link to the communities by Albemarle and SQM can be interpreted as ways to create long-term local value around the Salar. Again, recognitional justice can be applied. Through the companies' contracts and other efforts, their work might be understood as more and more legitimised.

This calls into question the lack of nuance in the concept of slow violence, as it does not encompass positive developments that can take place in parallel while a slow process of violence occurs. Nonetheless, these positive developments within the context of the mining industry must be considered with caution, and as researchers we must look critically at the extent to which CSR practices do actually provide sustained benefits and facilitate the long-term creation of local value.

6.4 Discussion

Bringing the described opportunities and challenges together, the complexity of the relationship between indigenous women and mining becomes clear. While some of the opportunities and challenges may appear contradictory to outsiders, contradictions and ambivalences towards the mining industry underly many of the women's experiences. This often leads to them feeling torn, a reality which became apparent in the ethnographic work as well as in the conversations with the indigenous women. As mentioned, the Chilean north has a long history of mining, so the population is used to mining activities and what consequences they can lead to. In particular, stories about the Saltpetre mines around Pozo Almonte in the very north, and how a lot of these former mines and settlements are nowadays so-called ghost towns, are very vivid in the memories of many people.

The feeling of concern such stories create underpin worries about the future of San Pedro and its surroundings. What will happen after the period of mining ends? What are the long-term outcomes? How will the area be sustained after the end of mining? Because of the limited timespan of any mining project questions constantly revolve around long-term developments in the area and fears for the future. Despite the opportunities the companies provide, as described in section 6.2, the companies will eventually leave, and it is an often-discussed issue what will become of the post-extractive areas (see Gamu & Dauvergne, 2018).

In the following, conflicted feelings and ambivalences towards the local mining industry will be discussed. Furthermore, the following part engages with the concepts, partially expanding them and addressing limitations.

It is of high importance for this research to show different experiences, opinions and perceptions of recent developments. Intersectionality as an analytical tool allows the varieties of experiences to be unpacked, adding often absent voices and realities into the debates about a just energy transition, and

helping to rethink and expand the concept of slow violence. Using intersectionality also shifts the focus away from heterogenous perspectives on a group towards singular experiences and perceptions, as the intersections not only add to one another but shape and influence one another.

Conflicted feelings emerged in several conversations with indigenous women. Being an indigenous women working for SQM (or a subcontractor), or having their partner working in the mining industry, seemed for some of the women to lead to feelings of inner conflict. Engaging with the mining industry and working for it in one way or another was often justified by having a stable monthly income and being able to provide for children. In particular the latter seemed of high importance to many of the indigenous women, as (good) education in Chile is described as very expensive. Support for the children is not only needed to pay university fees, but also rent, food and, where possible, travel expenses. Universities are located in big urban centres in Chile, with young students from the San Pedro municipality often attending the universities in either Antofagasta or Arica, both cities several bus hours away. Calama – the closest urban centre – offers only very limited educational programmes, as the participants made clear in interviews. So, while accepting the benefits of working within the mining sector or having partners who work there, some of the women stated clearly that they are against mining activities in the desert. The following quotes by two participants illustrate this feeling of being torn:

> "*If I have the opportunity to work for SQM, I'll do it, I'll do it, I said. But it still goes against what I think, it goes against what I believe in, against my opinion […]. I know that many people here are against mining. But the only way out because it's like the best paid is to work. And they give you benefits for your children*."[14]
>
> "*Now I work in something that I honestly don't like. Because I'm working with mining. And mining for me... there was a process in my life where I went into a kind of depression...But I always sang rap. I've always been against mining, I've always been against the issue of exploitation and all that. And then karma fell on me. Because I talked so bad about mining, today I am working there*."[15]

Similar expressions of discomfort were made by several participants. To understand the mixed feelings of some of the indigenous women it is important to understand where these feelings come from. Using slow violence as an approach helps to uncover what is driving these feelings. For many of the women

[14] Quote by an indigenous mother of two children during an oral history interview, San Pedro de Atacama, Chile, May 2022.
[15] Quote by an indigenous young woman during an oral history interview, San Pedro de Atacama, Chile, April 2022.

it seems clear that the long-term environmental impact of mining in the area might lead to unfavourable living conditions. This suggests that the women are, on some level, aware of the slow violence taking place. However, the concept of slow violence doesn't make space for ambivalences among those subjected to violent processes. While the concept helps in understanding the negative long-term consequences of violence, it does not leave room for positive aspects or opportunities that are bound up with this process. In the case of lithium mining in the indigenous territories, these opportunities – especially for indigenous women – have been clearly described in chapter 6.2.

The concept of energy justice helps to raise the debate around the issue(s) to a global level and introduces some more nuance to the conversation. The different dimensions of energy justice – distributional, procedural and recognitional - create space to look at an issue from different angles.

Looking at the distributional dimension of lithium mining in relation to Lickanantay women it can be seen that while there are clearly harms perceived by the women, at the same time some of the indigenous people also benefit from developments associated with mining in the region. Answering the question of how to assess distributive justice in such a case is difficult. Fundamental questions of how to weight people's experiences and from which position it is possible to make judgements must be considered. Looking from the perspective of procedural justice, this thesis can provide only initial and tentative thoughts, as a discussion of decision-making (who is involved and under what conditions) is outside the scope of this research. It should be noted, however, that indigenous women, through their roles in the *Consejo de Pueblos Atacameños*, are to a certain extent involved in decision-making about the development of the surroundings of the Salar de Atacama.

This is of particular importance as the influence of (lithium) mining companies on different aspects of daily life is apparent in the area. Albemarle, for instance, has deals with Peine, Catarpe and other communities around the Salar. These communities receive 3.5 % of the Chilean revenues of the company each year, in the last year (2021) this was approximately 10-15 million US Dollars (Dorn & Gundermann, 2022). The influence of the companies also reaches into sectors such as health, culture, and municipal government, among others. Sometimes in subtle ways, sometimes through direct projects or actions such as funding an outdoor gym in San Pedro de Atacama (see figure 8). This influence of the companies creates a relationship of dependency, especially if the mining companies take over responsibilities and services that would, or could, otherwise be provided by the municipality or national government.

Figure 8. Outdoor gym with a poster, showing Albemarle's involvement in daily life, San Pedro de Atacama, 2022

Through participating in activities provided by SQM and by making use of benefits, indigenous women are taking agency over their lives and the decisions connected to mining. Including this offset of experiences in the research, it becomes clear that the concept of slow violence does not sufficiently tackle the ambivalences within long-term processes. The intersectional lens applied to this research adds much-needed nuance to otherwise simplistic understandings of a complex process. The opinions, perspectives and experiences of the participants in the research differ greatly from each other. Although their views overlap in some areas, it became clear that their experiences are shaped and influenced by the varying intersections of their identities. For instance, a young woman being brought up with a close relationship to indigenous practices and traditions perceives the loss of cultural heritage as more severe than an indigenous woman who has spent much time of her life in Calama, perhaps because this is where she had to go to receive a good standard of higher education.

Slow violence as an approach by its very nature imposes a black and white lens on a situation (see Gamu & Dauvergne, 2018; Pain, 2018). What is needed to theorise the experiences of indigenous women around the Salar de Atacama, and in other parts of the world where indigenous women relate to mining, is the space to include ambivalences and nuances within the concept of slow violence. As other scholars (see Babidge, 2020) have pointed out, Nixon uses a very generalising notion of indigenous people, putting them in the position of victims with barely any agency. To consider and

include more actors in the debate around a just energy transition, it is important to not essentialise indigenous people and to take into account their heterogeneity.

Around the Salar de Atacama, indigenous women make conscious choices regarding their economic situation, especially in order to provide for their children and their education. These choices are being taking while having different opinions of local mining activities. As covered by the concept of energy justice, recognitional justice is a crucial part of this research. By centring indigenous women and their experiences in relation to the mining industry, their voices are placed on future research agendas, and their important role in the context of extractive industries is acknowledged. The following quote illustrates how far the mining companies reach into various sectors of life. Additionally, it becomes clear that some of the indigenous women do not see a way around the companies and therefore decide to engage with them in a way that they find empowering (see also Lorca et al., 2022).

> "*How do we get out of this circle in which mining will always be? It is related to all jobs, even us [not working in a mining related sector]. We recently trained two craftswomen, a ceramics craftswoman and a textile craftswoman, who were perfect with their work, their innovation system and everything. Because they already see it and they already know it, but nobody is going to teach them anything. However, if there were other tools, for example, to become a teacher, it was important for them to learn how to have that capacity, and for us to think about them being teachers in the future, instead of having to bring people from somewhere else. And we did it with a mining fund. Because we had to apply for the project because we didn't have the resources. So that's how it is, or in the end, the empowerment of women is also often due to these resources from the mining industry itself*."[16]

While mining activities have created the benefits for indigenous women described in section 6.3 above, worries about environmental risks and the loss of traditional practices are apparent at the same time and often within the same individual. The conflicted feelings of many of the indigenous women demonstrate clearly how complex the issue is in San Pedro de Atacama. Energy justice offers ways to critically relate these local experiences to the broad, global developments of the energy transition.

When considering distributive justice, questioning how the costs and benefits of energy provision – in this case the mining process – are distributed, it must be taken account of that the region is expected to dry out further in the coming years (Jerez et al., 2021; Liu et al., 2019). Concern about this drying out is evident in the views of many of the interviewed women, who question what the long-term living

[16] Quote by an indigenous woman in San Pedro de Atacama, Chile, May 2022.

conditions will be in the area. On the other hand, in terms of empowerment and increased labour opportunities, due to the economic development of the area driven by mining, it can be argued that distributional justice is at least partly taking place.

Recognitional justice is also aimed at by, for example, the support provided by SQM to indigenous women (as per section 6.3.2 above). Clearly though it is debatable how far the company is doing this out of an intrinsic motivation to improve the lives of those in the area as opposed to using corporate social responsibility projects to legitimise their work (see also Gamu & Dauvergne, 2018).

To achieve procedural justice, there is still a long way to go. While some indigenous women occupy negotiation positions in the *Consejo de Pueblos Atacameños*, structural barriers in the Chilean laws limit the decision-making of the Lickanantay people with regard to the future of mining in the area.

Slow violence helps in understanding the slowness of the processes taking place and is therefore a useful analytical tool when focusing on the impacts from mining activities. These impacts do not occur in an immediate and spectacular way, rather they emerge slowly with time. Diminishing water resources and the loss of traditional practices are slow processes, as is the reinforcement of gender norms. Looking especially at the social impacts of the mining process it can be argued that the reinforcement of gender norms is actively resisted by the many indigenous women who want to live their lives differently.

All these violent processes connected to mining are important to take account of in discourses about a fair energy transition. Nonetheless, the indigenous women, and other actors generally portrayed as victims in the context of mining, have agency in disrupting this violence. For example, with regard to cultural losses, some of the indigenous women actively engage in maintaining cultural practices and rituals, and in preserving the local language, kunza.

The described opportunities and challenges, and the connected changes in the life of indigenous women, has led to the ambivalence of these women towards mining. What has become apparent is that the effects of mining lie in the intersection of these opportunities and challenges. How these affect each person depend on many factors, including the individual intersection of discrimination that each woman experiences (see Bastia, 2014). It is therefore important to nuance the understanding of slow violence and to include and discuss the positive outcomes which can occur even during a violent process. Nonetheless, highlighting these positives does not mean that we should stop being vigilant concerning issues of justice and fairness in the energy transition.

7. Conclusion

As Dorn & Gundermann (2022) point out, the character of lithium is paradoxical. This thesis supports this notion of paradox and contributes to uncovering the ambivalences towards lithium mining in the area of San Pedro (see also Lorca et al., 2022). While several opportunities and benefits for indigenous women have been described, the challenges connected to lithium mining in the area are serious. Due to enhanced integration into global dynamics, the lives of indigenous women in the area have changed. While these changes include improvements in infrastructure, easier access to education and other positive outcomes for many of the women, the adverse effects of mining, such as cultural loss, continuing discrimination and the reinforcement of gendered norms, can also be seen in the experiences of many of the women.

The intersectional approach taken here allow for an exploration of these partly paradoxical effects, taking into account the individual intersections of forms of oppression as well as the wider setting. In this thesis emphasis has lain most heavily on the intersection of gender and ethnicity, while acknowledging other factors too. This perspective helps to uncover the complexities around the topic in San Pedro, acknowledging the heterogeneity of persons (Bastia, 2014).

In this context it is important to note an underlying challenge of this study: how representative the interviews are. It could be the case that indigenous women living in other *Ayllus* or villages around the Salar would express different perspectives and experiences. Further research could usefully engage with more groups of indigenous women, including those living in communities further south of San Pedro, such as Socaire, Camar or Peine. As highlighted by many participants and locals, each community is very unique. Additionally, it would be interesting to explore other intersections than those focused on here, for example questions of class, age or abilities. Different findings may emerge with different emphases. Nonetheless, the analysis of the experiences and stories of the women in this study contribute to a more complete understanding of the area's dynamics.

The growing global demand for lithium for the purposes of energy storage shapes the area around San Pedro de Atacama. Lithium is mined under the notion of a fair energy transition to mitigate climate change. This thesis, however, explores the local implications of these mining activities, and contributes to uncovering the continued social inequalities between the Global North and South. By learning from indigenous women from the area, a more nuanced and ambivalent perspective crystallises on the mining activities around the Salar.

Interpreting energy justice in this context, using the lens of intersectionality, allows nuanced assessments of justice. The different dimensions of energy justice help in untangling the inequalities connected to a fair energy transition. Some positive outcomes can be attributed to the economic

developments that result from mining, including for indigenous women in the group, some of whom benefit from these developments. Yet taking into account other aspects, indigenous women clearly endure some of the most significant burdens that result from lithium mining. The intersection of identity markers as well as the intersection of opportunities and challenges lead to complex relation between the women and the mining industry in San Pedro. Intersectionality as an approach is helpful to unpack and understand how different inequalities play out in combination and examine what role they have in reinforcing the general burdens. The burdens carried by indigenous women need to be addressed in discourses around a fair transition.

Having said that, bearing many of the downsides of mining does not mean that the indigenous women do not have agency to enact change. As described by other scholars (see Lahiri-Dutt, 2011; Mang-Benza 2021), mining does not necessarily lead to only adverse effects on (indigenous) women. Nonetheless, striving for change and exerting pressure is far more challenging for indigenous women because of their marginalised position, both in comparison to men, but also as opposed to white women.

The concept of slow violence facilities an understanding of long-term developments and changes, as well as the ongoing reinforcements of violent structures. Taking into account the temporal dimension of violence adds to the understanding of the injustices that occur in a supposedly fair energy transition. This thesis contributes to expanding the concept of slow violence, making the case that there can be positive developments within even a violent process (see chapter 6.2).

Further research is needed to explore how far indigenous women benefit from the payments made by mining companies, and what other benefits come to them aside from broad improvements to infrastructure (including water and energy), and easier access to education. Other directions of research could explore the women's agency, questions around the power indigenous women hold to strive for change and what their roles are in the *Consejo de Pueblos Atacameños.* In light of the new Chilean government and the possibility of a new constitution, research regarding policy changes in the lithium industry and mapping its stakeholder landscape would also be useful. In particular the representation and participation of indigenous women in these processes and systems should be explored.

This thesis contributes to the debates around injustices within the global transition to renewable energy, and what an ethical response to the climate emergency looks like. Furthermore, it questions how just it is to put one part of the world at risk, or even to sacrifice a place, in order to save a privileged way of life in a different part of the world (Lorca et al., 2022; Brand & Wissen, 2017). With the focus on indigenous women, the thesis adds also to ongoing debates on the relationship between lithium and gender.

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Appendix I: Consent form

ACTA CONSENTIMIENTO INFORMADO

Título del proyecto: Los desarrollos recientes en el Salar de Atacama bajo el prisma de la interseccionalidad: Historias de vida intergeneracionales de mujeres likanantay

Objetivo: Conocer trayectorias intergeneracionales de mujeres likanantay en el Salar de Atacama

Methologia: Conocer y reconstruir trayectorias de vida de mujeres likanantay

Yo ………………………………………., Rut…………………., acepto participar voluntaria y anónimamente en la memoria de Master "Los desarrollos recientes en el Salar de Atacama bajo el prisma de la interseccionalidad: Historias de vida intergeneracionales de mujeres likanantay", dirigida por el Dr. Eric Cezne (Utrecht University).

Declaro haber sido informado/a de los objetivos y procedimientos del estudio y del tipo de participación que se me solicita. En relación a ello, acepto participar en entrevistas que se realizarán durante los meses de marso y abril 2022.

Declaro además haber sido informado/a que la participación en este estudio no involucra ningún daño o peligro para mi salud física o mental, que es voluntaria y que puedo negarme a participar o dejar de participar en cualquier momento sin dar explicaciones o recibir sanción alguna.

Declaro saber que la información entregada será **confidencial y anónima.**

En el caso que el entrevistado quiera aparecer de manera nominal en la tesis, se le enviará el texto para que pueda revisarlo. En caso contrario, utilizaremos un nombre de fantasía que usted mismo podrá escoger, para que nadie ajeno al estudio pueda identificarlo, ni acceder a algún tipo de información sensible acerca de usted.

Entiendo que la información será analizada en esta tesis. Por último, la información que se obtenga será guardada y analizada en la tesis, resguardada en dependencias de la Universidad, y sólo se utilizará en los trabajos propios de este estudio.

Este documento se firma en dos ejemplares, quedando uno en poder de cada una de las partes.

______________________________	______________________________
Nombre Participante	Nombre Investigador
______________________________	______________________________
Firma	Firma
Fecha: ………………………	Fecha: ………………………

Cualquier pregunta que desee hacer durante el proceso de investigación podrá hacerla a la siguiente persona y dirección: **Lioba Pause.** Correo electrónico: l.pause@students.uu.nl

Appendix II: Codebook

attitudes towards mining	The interviewees attitudes towards mining in general.
against	Explicit opposition towards mining.
conflicted	Feeling conflicted, mixed feelings towards mining.
neutral	No strong opinion on either opposition to or support for mining.
supporting	Support for mining
cosmovision	Information about Andean cosmovision.
discrimination	Description of experienced or observed discrimination.
earlier	Description of experienced or observed discrimination approx. 20 years or more ago.
labour market	Description of experienced or observed discrimination in the labour market.
shame or fear earlier	Description of experienced or observed discrimination approx. 20 years or more ago, emphasising shame or fear.
shame or fear today	Description of experienced or observed discrimination today, emphasising shame or fear.
today	Description of experienced or observed discrimination today.
Education	Mention of education. Includes all types and different levels of education.
expensive	Education described as expensive.
far away	Location of education described as far away.
themselves studied	Experience of university education.
supported by parents	Received support from their parents to be able to study.
family	Description of family life, dynamics within the family – very general.
living together	Description of broader family members living together.
support	Description of types of support within the family.
father	Mention of fathers or (ex-) partners.
absent	Description of absent fathers or (ex-) partners.
domestic work	Description of fathers or (ex-) partners doing domestic labour.
paid work	Description of fathers or (ex-) partners undertaking paid labour.
any	Description of paid labour undertaken by fathers or (ex-) partners.
mining	Description of paid labour related to mining by fathers or (ex-) partners.
future	Mention of future developments.
labour market	Mention of future developments with regard to the labour market.
accessible education	Mention of future developments with regard to easier access to education.
mining	Mention of future developments connected to mining.
gender dynamics	Description of gender norms, allocated tasks and roles, etc.
changing within own relationship	Description of change in traditionally allocated tasks within own relationship.
Domestic work	Description of who is responsible for domestic work.
Labour market	Description of the role gender plays in the labour market.

matriarchy	Use of the term "matriarchy".
taking care of elders	Description of who takes care of elders.
territory	Gender mentioned in the context of the territory and remaining in the territory.
traditional roles	Description of traditional roles generally and personally.
Identification as Lickanantay	Mention of Lickanantay identity and debates around "being indigenous".
discussion of who belongs	Discussion of who belongs to the Lickanantay people.
feeling of belonging	Expression of a feeling of belonging to the Lickanantay people.
not feeling as belonging	Expression of a feeling of not belonging to the Lickanantay people.
Kunza	Mention of the kunza language.
maintain the language	Mention of efforts to maintain the kunza language.
limited employment possibilities in SPA	Description of the limited employment possibilities in San Pedro de Atacama.
mining	Anything related to mining.
change in ways of living	Changes in ways of living due to the presence of the mining industry in the area.
employed in mining	Description of themselves or family members being employed in the mining industry and related services.
empowering women	Description of how the mining industry leads or has led to the empowerment of women.
negative perspective for future	Expression of concerns about the future because of the presence of the mining industry in the area.
mothers	Descriptions of motherhood, either being a mother or description of interviewees own mothers.
domestic work	Description of the domestic work allocated to mothers.
education	Description of the education of mothers.
paid work	Mention of the paid labour of mothers.
responsibility over household	Description of mothers being responsible for a household and family members. Goes further than domestic work, as includes "mental load".
struggles	Description of the difficulties faced by mothers.
observed changes in & around SPA	Observed changes in and around San Pedro de Atacama over a timespan that starts with the interviewees' grandparents' generation.
environment	Observed changes in the environment in and around San Pedro de Atacama
infrastructure	Observed changes in infrastructure in and around San Pedro de Atacama (including roads, transportation, water, electricity, educational institutions etc).
link to mining	Observed changes in and around San Pedro de Atacama related to mining activities.
ways of life	Observed changes in ways of life in and around San Pedro de Atacama.

people living in SPA	Observed changes in the population composition in and around San Pedro de Atacama
perceptions of Lickanantay community	Views expressed about the Lickanantay community.
machismo	Mention of machismo in the Lickanantay community.
mixed feelings	Expression of mixed feelings about the Lickanantay community.
negative	Expression of a negative perspective on the Lickanantay community.
positive	Expression of a positive perspective on the Lickanantay community.
strong role of women	Description of the strong role of women within the Lickanantay community.
SQM	Mention of company Sociedad Química y Minera de Chile S.A. (SQM).
supporting communities	Mention of SQM in relation to support of indigenous communities.
workers	Mention of SQM and employed workers.
support by other women	Description of being supported by other women (family members and/or friends).
talking about parents	Mention of the parents of interviewees.
father	Mention of the fathers of interviewees and related stories.
mother	Mention of the mothers of interviewees and related stories.
cultural heritage	Mention of traditions, rituals, culture.
continuing, passing on	Description of passing on cultural heritage.
loss	Description of the loss of cultural heritage.
water	Mention of water.
connection to mining	Mention of water in connection to mining activities.
decrease	Description of water decrease (includes precipitation).
cultural heritage & water	Descriptions of traditions, cosmovision, rituals, etc related to water.