

Lithium extraction in Argentina: a case study on the social and environmental impacts



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Executive summary

The global demand for lithium has grown significantly over recent years and is expected to grow further due to its use in batteries for different products. Lithium is used in smaller electronic devices such as mobile phones and laptops but also for larger batteries found in electric vehicles and mobility vehicles. This growing demand has generated a series of policy responses in different countries in the southern cone triangle (Argentina, Bolivia and Chile), which together hold around 80 per cent of the world's lithium salt brine reserves in their salt flats in the Puna area.

Although Argentina has been extracting lithium since 1997, for a long time there was only one lithium-producing project in the country. In recent years, **Argentina has experienced increased interest in lithium mining activities.** In 2016, it was the most dynamic lithium producing country in the world, increasing production from 11 per cent to 16 per cent of the global market (Telam, 2017). **There are now around 46 different projects of lithium extraction at different stages. However, little consideration has been given to the local impacts of lithium extraction considering human rights and the social and environmental sustainability of the projects.**

With this in mind, the current study seeks to contribute to an increased understanding of the potential and actual impacts of lithium extraction on local communities, providing insights from local perspectives to be considered in the wider discussion of sustainability, green technology and climate change. The guiding questions of the investigation have centred on the different social and environmental dimensions and human rights impacts that communities are experiencing as a result of lithium extraction. It has focused on two of the most recent and advanced lithium projects in the Argentine Puna – Sales de Jujuy and Minera Exar projects – which are both located in the Olaroz-Caucharí salt flat in Jujuy Province.

The investigation focused on two communities located close to the lithium projects: Huancar and Pastos Chicos. A third community, Olaroz Chico, decided not to formally participate. However, exchanges with some of its members allow us to include some impressions of their view too.

Argentine legislation recognises the right to indigenous communal property as well as the right for indigenous people to use develop and control their lands, territories and resources. Moreover, Argentina has ratified the Indigenous and Tribal Peoples Convention 169 of the International Labour Organization (ILO) and signed the UN Declaration on the Rights of Indigenous people (UNDRIP). In relation to extractive activities, this states that indigenous people have the right to determine how to use their lands and resources. It also establishes that States should “obtain their free and informed consent prior to the approval of any project affecting their lands or territories and other resources, particularly in connection with the development, utilization or exploitation of mineral, water or other resources” (UNDRIP, article 32, paragraph 2). However, although the notion of free, prior and informed consent (FPIC) is enforceable according to Argentine constitutional norms, it has not been further regulated in domestic law. This has led to a lack of implementation, which means that, in many cases, the environmental impact assessment (EIA) –required for each mining project- is applied together with a consultation phase that seeks to articulate FPIC rights.

In addition, the 2011 Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises recommend that multinational companies should undertake a series of measures to ensure meaningful stakeholder engagement. For instance, General Policy 14 establishes that companies should recognise existing local community authorities and provide communities with opportunities to express their views and that these views should be taken into account when decisions are made for projects that could affect them.

The authors identified several problems when analysing the engagement and relationship between companies and communities, and when scrutinising the FPIC process from a rights-based approach.

Community members described the engagement process and relationship with companies wanting to extract lithium as more of a one-sided communication rather than a two-way process in which both sides could freely express their opinions to reach mutual understanding. The processes described did not seem to have involved communities or asked how they would like to design engagement activities or receive information about proposed projects and their impacts. For instance, 85 per cent of the interviewees said they were not consulted about how they wanted to receive information provided by the companies.

This study also shows that communities were not properly informed about company activities. To make sure local communities are informed, companies are obliged to provide information in a suitable timeframe and in a way that community members can understand. However, due to the length and technical nature of the materials, community members found it difficult to understand the information provided by the mining companies. This illustrates how companies retained complete control over what information was shared with communities. For instance, community members' testimonies show they found it difficult to understand companies reports and presentations from representatives, whose explanations on environmental impacts were too brief. Also, **it seems that companies did not fully disclose all the relevant information about foreseeable risk factors and their potential environmental impacts.** This raises concerns about whether companies have acted in good faith.

Community members highlighted the significant impact of lithium mining projects on water resources and the lack of information on this matter, both from the companies and the State. They expressed environmental concerns in line with the experts' opinion on the matter.

In addition, the provincial government did not appear to have gathered any baseline information to help understand the environmental impacts of lithium extraction in the area. This adversely affects its capacity to evaluate the EIA of the mining companies and to monitor its activities, further illustrating how companies have control over what information is available to communities and what is submitted in the EIA procedure.

The State has a responsibility for implementing the FPIC process to guarantee participation rights – a responsibility that cannot be transferred or delegated to a third party. However, this study highlighted the absence of State representatives throughout the whole engagement process. This has allowed companies to negotiate with communities in an asymmetrical power dynamic: terms and conditions to achieve their consent and social legitimacy were exchanged without any supervision by the State.

This absence of State and lack of information both serve to cast doubt over how much the State knows about the companies' compliance with FPIC requirements and their social and environmental impacts.

In the light of these findings, the study presents several recommendations for the State and the private sector to make sure companies are honouring their obligations towards communities when they are producing lithium.

Regarding the environmental impact assessment, the study recommends that the State should:

1. Adapt the EIA to national and international standards of citizen participation and FPIC rights.
2. Improve the requirements for baseline studies, providing a guide for the environmental impact study.
3. Realise watershed studies including the whole water basin to address the impacts of each project in the whole water basin system, including cumulative impacts.

Regarding the implementation of FPIC rights, the study recommends that the State should:

4. Inform local communities about their rights.
5. Provide legal and professional assistance to communities to facilitate their understanding and exercising of rights.
6. Ensure State participation throughout the complete FPIC process and integrate impartial parties.
7. Devise capacity building activities for public employees on FPIC rights and process.
8. Provide redress mechanisms for the lack of FPIC implementation.

In addition, the research presents the following recommendations for the corporate sector:

9. Demand that the State should fulfill existing legal standards.
10. Act with transparency and disclose all relevant information in the proper timescale and following due process, including corporate structure and supply chain, income, investment and expected returns and risks to communities and the environment.
11. Uphold and respect international labour, environmental and human rights standards, including the Argentine legislation, OECD Guidelines for Multinational Enterprises, UN Guiding Principles for Business and Human Rights, the Indigenous and Tribal Peoples Convention 169 of the International Labour Organization and the UN Declaration on the Rights of Indigenous people (UNDRIP).
12. Inform and call for other companies in the supply chain to comply with ESG standards.

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1. Introduction¹

The positioning of lithium as a key supply for batteries of electronic devices, electric vehicles and energy storage has put this mineral at the centre of the electronic and energy debate. Thus, its demand has been growing significantly, which should be understood in light of the technical development in the production of larger li-ion batteries used in vehicles, giving the mineral a significant role in climate change debates related to the international community's need to shift to a post-carbon society. Specifically, in view of the global need to reduce greenhouse gas emissions and the anticipated future demand for electric-powered vehicles to reduce our dependence on fossil fuels.

In recent years, salt flats have become the focus of world attention after it was discovered that lithium could be found in its brine waters. Salt flats are found in very arid regions with limited annual precipitation. Consequently, the countries that have reserves of this mineral have seen an increasing amount of interest in lithium extraction from multinational mining companies, battery producers and electric car producers.

Argentina has a central role to play in this scenario, since it is part of an area known as the “lithium triangle” – along with Chile and Bolivia. The three countries together account for around 80 per cent of the world's lithium salt brine reserves. Argentina is the third biggest global producer of lithium after Australia and Chile (Landini y Marcheta, 2018).

Argentine government officials have welcomed the lithium boom, regarding it as an opportunity to increase investment and employment in the country. However, the environmental and social impacts of lithium extraction for local communities have not been taken into account as the number of projects has multiplied.

The purpose of this study is to contribute to an increased understanding about the actual and potential impacts of lithium extraction at a community level in Argentina. The expectation is to provide insights from local perspectives that can be considered in the larger discussion about sustainability, green technology and climate change. The findings will be relevant to government bodies and authorities, mining companies and companies indirectly involved (those that use lithium in their products) as well as experts in this field.

This research aims to investigate the local impacts of the two most recent and advanced lithium projects in the Argentine Puna – Sales de Jujuy and Minera Exar, which are both located in the Olaroz-Caucharí salt flat in the province of Jujuy. The study investigates local impacts by analysing the dynamics of interactions and the actors involved, while examining the social, economic and environmental aspects from a community perspective. The communities participating here are the 10 Atacama communities that live near the salt flat. However, special attention will be paid to two communities living close to the projects operating in Sales de Jujuy and Minera Exar: Huancar and Pastos Chicos.

Two research techniques were applied: 1) desk research based on gathering of primary and secondary data through a literature study; and 2) fieldwork research based on interviews with community members, a government representative and external actors (described below).

Two visits to the field were carried out, in which 45 interviews with community members were conducted. The selection of interviewees in each of the communities first aimed to include community leaders. Thereafter interviewees from various sub-groups were conducted (women, elderly, young, teachers,

1. The authors would like to thank Olwenn Fruchart, Sarah Bass, Franco Aguilar and Maximiliano Palazzo for their collaboration in this study and to colleagues at the Centre for Research on Multinational Corporations – SOMO (Esther de Haan, Martje Theuws and Alejandro González) for their support in this endeavour.

medical staff etc.). It is important to note that the sample of interviewees does not aim to provide a statistical representation of the community. Instead the purpose was to include different views, perspectives and opinions of the situation.

The interviews were semi-structured but all covered the social, economic and environmental dimensions related to lithium extraction. Due to ethical and safety considerations, all of the community interviewees will remain anonymous. Information was also provided by external actors: a school director, a teacher, nurses and a hydrogeologist. Company representatives were contacted but no answer was received.

The current report is structured as follows: first, it provides background information on the political, legal and institutional context; second, a case study is presented integrating the geographical references as well as the main actors from the company and community; third, an analysis from different dimensions of the interaction process together with the main concerns from a local perspective is provided; and last but not least, a final discussion of the main findings and recommendations for the State and companies involved concludes the paper.

2. Argentina and global lithium production

Argentina has been extracting lithium since 1997 when the Fénix project in the Hombre Muerto salt flat in Catamarca Province started operating. For a long time, this was the only lithium-extracting project in the country. In recent years, however, the country has been experiencing increased interest in lithium mining activities due to the global rise in demand for the mineral. In 2016 Argentina was the most dynamic lithium-producing country in the world, increasing its production from 11 per cent to 16 per cent of the global market as a result of the initiation of a second project in 2015: the Sales de Jujuy project in the Olaroz salt flat in the Jujuy Province (Dirección de Economía Minera, 2017, p. 3). The project alone represented 6 per cent of the global lithium production in 2016 and marked a turning point for the country (Dirección de Economía Minera, 2017, p. 20).

After the removal of a tax² on exports in February 2016 the country has seen an increased interest and investments in the sector with more projects on their way. In a report from March 2017, the National Ministry of Energy and Mining counted 42 projects³ in brine deposits (salt flats) and an additional five in pegmatite deposits (rocks).⁴ There are also great expectations from the government sector, as well as from the private sector, for a new era in which Argentina could play a more important role among the major global lithium producers.

According to national statistics, total production in 2016 was 30,335 tonnes LCE (lithium carbonate equivalent), of which 11,845 tonnes were generated by Sales de Jujuy's project. By the end of 2017 the project was expected to reach its full production capacity of 17,500 tonnes per year. Nevertheless, the production in 2016 placed Argentina as the world's third lithium producing country (16 per cent of the market) after Australia (40 per cent), Chile (33 per cent) and followed by China (6 per cent). The total projected production for 2017 was 35,500 tonnes. Government projections, taking into account the most advanced projects, expect to reach 145,500 tonnes per year in 2022 (Dirección de Economía Minera, 2017, p. 21).

2. In February 2016, after just two months of taking office, the government of Mauricio Macri passed decree 349/2016, by which an export tax on minerals, in force since 2007, was removed. The measure is a general one, and there was no specific reference to lithium. Its basis referred to the need to attract more investment.

3. See Annex I for project details (USGS and SEGEMAR).

4. As well as the above-mentioned salt brines and pegmatite rocks, lithium can also be extracted from sea water. However, this source is still too costly at the moment.

Lithium is used in a variety of products in different industrial areas. The more traditional uses include ceramics, glass and medicine applications. However, more recent areas involve newer applications such as the li-ion batteries for smaller electronic devices but also larger batteries for electric and hybrid cars. Future uses involve the production of nuclear energy through nuclear fusion; this area is still being researched today.

The market is changing rapidly: in 2016 the use of lithium for batteries (39 per cent) surpassed traditional uses such as ceramics and glass (30 per cent) and became the largest single end-use (Dirección de Economía Minera, 2017, p. 15). Undoubtedly, li-ion batteries have many advantages such as their energy capacity, resistance to discharge and resilience to re-chargeability. Its high performance and malleability makes it ideal to be transformed into different shapes and hence, used for smaller electronic devices like cell phones, tablets and laptops. Due to technological developments, high performing larger li-ion batteries for electric vehicles (EV) have become a reality and are expected to be an important driver of lithium demand in coming years. In 2016 the global lithium battery market was worth US\$ 22.8 billion and it is expected to reach US\$ 95 billion by 2025.⁵

At present, the production of EV batteries has changed significantly with the appearance of Tesla's Gigafactory in Nevada, which started its production in June 2017. To further illustrate future demand, Tesla planned to produce 500,000 electric cars per year by 2018, which would require today's entire global lithium battery supply.⁶ For example, Tesla's S model requires 63 kg of LCE per battery, 31,500 tonnes per year considering production of 500,000 cars (Dirección de Economía Minera, 2017, p. 18). Moreover, actors in the Asian market also have similar plans: Toyota and Nissan have announced that they will be launching hybrid and pure electrical models in the near future. In 2013 the Asian market represented 56 per cent of the lithium demand; China had a larger share of 35 per cent (Cochilco, 2013, p. 27). China also controls around 75 per cent of the market for electrolyte solutions.⁷ The increase in demand is also reflected in the price, which has been steadily rising. In 2016 the average price was US\$ 7.475 per tonne of LCE, almost double the price compared to US\$ 3.870 only five years earlier (Dirección de Economía Minera, 2017, p. 9).

According to a report from BIS Research on the global electric vehicles battery market (2017-2026) the BEV (battery electric vehicle) market for passenger cars is expected to register a compound annual growth rate (CAGR) of around 20 per cent from 2016-2026, mainly due to favourable governmental regulations and increased environmental awareness among consumers⁸. The Asian-Pacific region is expected to dominate the BEV market. In 2016 the region had a market share of 79.5 per cent, dominated by the South Asian countries that are home to some of the biggest automotive producers in the world. At present, China has the largest market for EV batteries.

The European Li-ion battery (LIB) market is expected to grow by 15.9 per cent per year (CAGR) during 2018-2024 (according to a report from 6W Research in February 2018). Today, electronics (cellphones, tablets, computers etc.) account for the majority of the LIB market in Europe. However, during 2018-2024 the electric vehicle battery (BEV) market is expected to grow the most and surpass batteries for smaller consumer electronics as a result of enforced government regulations that promote an increased demand for EVs. Within Europe, Germany is the major consumer of Li-ion batteries, followed by the UK and France. The Nordic countries are also increasing their share of the market due to the high usage of EVs, particularly in Norway.

5. See Grand View Research website: <https://www.grandviewresearch.com/industry-analysis/lithium-ion-battery-market> (accessed 30 August 2018).

6. See Tesla website: <https://www.tesla.com/gigafactory> (accessed 5 January 2018).

7. See Nikkei Asian Review: <https://asia.nikkei.com/Business/Companies/China-s-lithium-ion-battery-makers-devour-foreign-rivals>(accessed 5 January 2018).

8. See: BIS Group, website <https://bisresearch.com/industry-report/global-electric-vehicles-battery-market-2026.html>

Furthermore, large investments in LIB and electric vehicle battery (BEV) manufacturing plants across Europe are expected to be major drivers for the expansion of the region's market.

For example, the company Northvolt is building Europe's largest Li-ion battery factory in Sweden; the German company TerraE is constructing two factories that will produce devices according to customer specifications; and German company Daimler is currently constructing two factories in Germany that will supply Mercedes-Benz, among others. LG Chem is also planning a factory in Poland.

The forthcoming Li-ion battery factories in Europe should be seen as part of the expected increase in demand for EV batteries from European car manufacturers. The Renault-Nissan-Mitsubishi alliance is currently the largest seller globally of pure electric cars, but several major car manufacturers have similar plans. For instance, Volkswagen (Germany) plans to achieve a 30 per cent EV production by 2025 and has recently announced a partnership with battery producers LG Chem (South Korea), Samsung (South Korea) and CATL (China) for their EV battery supply.⁹ Similarly, Volvo seeks to produce all electric or hybrid models from 2019. In 2010 Volvo was acquired by the Chinese company Geely, which also owns shares in the company Honbridge Holdings. In turn, an energy affiliate of Honbridge Holdings signed an agreement with Volvo in 2017 to provide lithium batteries for Volvo's production of hybrids and EVs. What exact connection there is between key car manufacturers, EV battery suppliers and lithium suppliers is not completely clear as the information publicly available is surrounded by rumours and investor strategies.

For Argentina, the global scenario is nevertheless considered favourable by many, since Argentina – together with Chile and Bolivia – account for around 80 per cent of the world's lithium salt-brine reserves in the area known as *the lithium triangle*. Currently, lithium can be extracted from three different deposit types, brine (as in Chile, Bolivia and Argentina), pegmatite (hard-rock) and sedimentary deposits, each requiring different types of extraction and processing methods. Today, the first two types are the most commonly used for commercial lithium production. Generally, extraction from brine deposits is more profitable compared to hard-rock mining, making it a more viable method for Li-ion battery production (Tahil, 2007). However, this also depends on a variety of factors such as the size of the deposit, the lithium content, amount and proportion of other elements and weather conditions (evaporation and precipitation rates).

Salt brines are the most common type of lithium deposit and account for 66 per cent of the global lithium resources. They are mainly found in Chile, Bolivia, Argentina, China and Tibet. Even though the Bolivian salt flat "Salar de Uyuni" is one of the largest brine deposits, it is not ideal for commercial production. One of the reasons is that the lithium-magnesium balance in Uyuni is three times higher than in the Atacama region, which makes it more difficult and costly to refine the salt into lithium carbonate or other compounds. Extraction in Uyuni is also more challenging due to slower evaporation rates and to an extent, more state policy seeking to develop national extraction techniques without external collaboration. Although this was successful it has delayed the initial plans considerably. In comparison to Uyuni, the Argentinian salt flats have a more favourable lithium-magnesium balance for commercial production purposes, which means it is less complicated and less expensive to extract. However, the Atacama salt flats in Chile rank first in terms of extraction conditions.

The Argentine national and provincial governments see the current lithium boom as an opportunity for the country in different ways: government officials (and mining representatives) claim that the increase in investment will bring more income in the form of tax revenues and royalties; and also more direct and indirect employment can be created from increased investment and projects.¹⁰ The government

9. Reuters: https://www.reuters.com/article/us-volkswagen-results/volkswagen-assigns-25-billion-in-battery-orders-in-electric-car-drive-idUSKCN1GP12B?feedType=RSS&feedName=businessNews&utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+reuters%2FbusinessNews+%28Business+News%29 (accessed 27 October 2018).

10. El Tribuno: <https://www.tribuno.com/jujuy/nota/2018-5-7-21-47-0-seis-proyectos-de-litio-se-desarrollaran-en-jujuy> (accessed 27 October 2018).

support can be seen in different policies such as declaring lithium a strategic mineral at the provincial level¹¹ or creating public companies to take part in different initiatives. However, little consideration has been given to the local impacts of lithium extraction and the effects on human rights, or the social and environmental sustainability of the various projects.

3. The mining model in Argentina: trends since the 1990s

Argentina cannot be considered to be a mining country like many of its neighbours, as the main focus of its economic activity since independence has been agriculture and livestock. Although there was some mining activity before, it was only at the end of the 20th century when extraction shifted to a bigger scale.

Today, the Argentine mining sector is characterised by the strong participation of private actors, especially international companies, with a significant presence of capital from Australia, Canada and the United States, especially since the mining boom of the 1990s.

The Mining Code, which has been in effect since 1887, regulates how mines are acquired, exploited transferred and closed. It establishes that, although mines are within the domain of the State, they cannot be exploited or disposed of by the State; hence, the mines must be exploited through the mining concessions system. At the same time, domestic and foreign investors will receive equal treatment (Zilla, 2013).

In the 1990s, in order to attract investment to the sector, the legal framework was reformed, offering a package of benefits to those interested in mining activity. Through the sanction of the Mining Investment Law 24.196, issued in 1993, a set of attractions for investors was offered, including fiscal stability for a term of 30 years. This means that the tax or tariff burdens are not modified, nor are the benefits or the exchange rate regime reduced in that period. Among other advantages, it is possible to deduct 100 per cent of the costs incurred in terms of feasibility of the project-prospecting, exploration, special studies, pilot plants and amortising the expenditures in infrastructure of the amount corresponding to the income tax (FARN, 2012). These measures are still current.

This law also eliminated all taxes, including municipal taxes and stamp duties. The set of benefits and exemptions culminates with the setting of royalties at 3 per cent of the pithead price; that is, what was extracted in the first stage of production.

When this incentive regime was consolidated, investments began to increase with a consequent growth in the number of projects, production and exports, particularly regarding large-scale mining operations through open pit techniques that enable companies to extract less concentrated minerals. The sector is export oriented and criticised within society for its lack of spillover effects on employment and economic wealth (Marchegiani y Di Paola, 2017; y Svampa, 2013).

Lithium mining is also under the same regime, which has had few changes since the 1990s, adding mainly environmental and indigenous regulations. These will be addressed in the next section.

At present, the position of Argentina in the lithium supply chain is principally as a raw material exporter. The majority of Argentina's lithium exports go to the United States (55 per cent) and China (28 per cent), followed by Japan (8 per cent) (Dirección de Economía Minera, 2017, p. 20). Due to the mineral's importance for battery manufacturers and automobile industries, end-use companies such as car manufacturers also get involved in the extraction stage to secure their supply. This can be seen, for example, in Nissan's connection to the Fénix project in Catamarca, and the joint venture between Orocobre Limited and Toyota Tsusho Corporation through the Sales de Jujuy project, and between Minera Exar and Mitsubishi. These last two are included in this study.

11. Jujuy has declared lithium a strategic mineral through decree N°7592/11.

These alliances are an indicator of how the global lithium flow is currently developing. The first stage of lithium mining is dominated by Chile, Australia, the US, Argentina and China, where the first chemical treatments of the mineral also mainly occur. The largest global exporters are Chile, Australia and Argentina, while the largest importing countries are the US, China, Japan, South Korea and the EU. In the next stage of product manufacturing, lithium batteries (LIB) production are concentrated in China, South Korea and Japan while the trade of LIBs is largest from South Korea to China and Japan to the US. Hence, China is both one of the largest producers and importers of LIBs, followed by the US and the EU in terms of imports. Lastly, the trade flow of LIB-containing products (i.e. cellphones and tablets) is largest from China to the US (Sun et al. 2017, p. 53).

The amount of lithium used for LIB production was about 30 per cent of the global lithium consumption in 2014, 39 per cent in 2016, and is only expected to increase. The LIB production can further be broken down according to its application. In 2014, 75 per cent of the total LIB production involved consumer electronics such as cellphones, tablets, portable computers etc., while the LIB used for EVs was 24 per cent of production. Of the LIB production for EVs, China dominated the production for electric buses (both all electric and plug-in hybrids) and the US dominated the production of electric passenger vehicles, followed by Europe and China (Sun et al. 2017, p. 53). However, this scenario might be about to change as a number of LIB factories (for consumer electronics and EV batteries) are planned or already under construction in Europe, which presumably will increase the European imports of LCE¹².

Although Argentina's main position in the supply chain remains as a raw material exporter, over the last decade a number of debates have emerged regarding the opportunities presented by the global scenario, particularly relating to the challenges and opportunities of industrialisation of batteries in the country. With this in mind, different research and policy initiatives seeking to add value to the extraction processes have emerged. These will be addressed in the next section.

3.1. Is it different with lithium? Attempts to industrialise

Argentina's first scientific contact with lithium battery production happened between 2005 and 2006 when the National Atomic Energy Commission (Comisión Nacional de Energía Atómica, CNEA) was commissioned to produce, control and test the battery of an Argentine satellite to be placed in the American orbit. This experience introduced Argentine scientists to lithium batteries (Fornillo, 2015, p. 60). During the government of Cristina Fernández de Kirchner (2007-2015), the mineral was given broader attention as several efforts were made to modify Argentina's role as a commodity exporter. The attention did not only come from the different agencies in the executive power, but also from Congress. Its interest stemmed from different requests of reports to the executive power between 2010 and 2014. Moreover, six legal projects were proposed in Congress with intention to regulate the matter. In general, the proposals all sought to declare lithium as a strategic natural resource at the national level in line with statements already made at the provincial level by Salta and Jujuy provinces. These projects sought to create state-owned enterprises to regulate the market and ensure that the National Government had a more prominent role to play in lithium strategies. Until today, these projects have not been approved.

In 2011 a fundamental step towards industrialisation was taken when a working group was created with the objective of promoting scientific and technological research to enable industrial development. The group consisted of representatives from the Ministry of Industry, the National Council for Scientific and Technical Research (CONICET), the Agency for Scientific and Technological Promotion, the National Institute of Industrial Technology (INTI), as well as public and private actors in related sectors. The group was to devise a strategy to produce batteries to supply the national programme "Conectar Igualdad" (Connect Equality Programme), a federal government programme created in 2010 to reduce digital,

¹². Lithium Carbonate Equivalent.

educational and social gaps in the country. The programme distributes netbooks to all students and teachers of public secondary schools, special education and state-owned teacher training institutes.¹³ It was believed the programme would secure a steady demand for the domestic batteries. Initially, the Ministry of Science invested US\$ 500,000 in the project – by supporting a research group. The additional funds needed would be supplied by the project counterpart Plaka, a smaller private Argentine company producing conventional batteries, with an interest to realise production of Li-ion batteries. As the production process takes time, Plaka would assemble batteries from imported components in the meantime before the proper production could start. This strategy was also used by Probattery, another major battery supplier of the programme Conectar Igualdad.¹⁴ The idea was to install the production plant in the province of Catamarca to locally supply the netbook manufacturers (Fornillo, 2015, p. 63).

In 2012 the second important step was taken by the Ministry of Industry by connecting additional sources of financing among potential market actors. These included almost all actors involved in the potential added value chain; state and province representatives, researchers and companies working on the industrialisation process and potential market actors. The investments were quite large – between US\$ 15-30 million – at this point it was confirmed the battery cells would be in production by 2013 (Fornillo, 2015, p. 64).

However, for different reasons, concerns started to arise. First, the essential component of battery cells – separators – was, at least at that time, only produced in Japan. This meant dealing with patents which would increase costs significantly. Second, market actors started questioning the amount of capital required to install the plant in Catamarca and how profitable it would be. Third, computer manufacturers for the “Conectar Igualdad” programme voiced concerns that the price of domestic batteries would be too high in comparison to the ones imported from Asia. Finally, the National Institute for Industrial Technology (INTI) expressed pessimism towards Argentina’s capacity to produce batteries, which made the Ministry of Industry change their strategy and opinion on the matter (Fornillo, 2015, p. 66).

In summary, the battery factory in Catamarca did not come about. Analysts emphasised different views among the public and the private sector regarding the technical feasibility. Also, the technical process has been highlighted as a central aspect of the problem: it required closer collaboration between science, technology and production. In addition, the lack of political will and policies supporting industrial innovation together with insufficient scientific budgets were seen as the main explanatory factors (Fornillo, 2015).

A second attempt

In 2012 Yacimientos Petrolíferos Fiscales (YPF),¹⁵ the state-owned energy company, created the sub-company Y-TEC together with the National Council for Scientific and Technical Research (CONICET) (owned in a 51 per cent of the shares by YPF and 49 per cent by CONICET) with the objective of supporting the industrialisation of lithium-extracting efforts. At the same time, Jujuy Province started working on a strategy to add value to production. Part of the strategy has been to promote a greater corporate control and to create a scientific hub that can produce the necessary research advancements and human resources. In 2011 the public provincial company Jujuy Energía y Minería S.E. (JEMSE) was created with the objective of owning part of the lithium extraction projects (between 5 per cent and

13. Ministerio de Educación: <http://educacion.gob.ar/conectar-igualdad/seccion/142/el-programa> (accessed 5 January 2018).

14. Probattery is one of Argentina’s largest battery companies. In 2012 the company increased production to supply the “Conectar Igualdad” programme as a result of a larger investment. The company has also considered engaging in cell production but the technical and economic challenges were considered too big a risk. However, the company continued to supply the programme after Plaka and are today a consolidated actor in the market (Fornillo, 2015, p. 72).

15. In 2012 51 per cent of the company was re-nationalised by an initiative from President Cristina Fernández de Kirchner. The initiative was approved with broad support in both houses of congress. The re-nationalised 51 per cent was divided between the national state (26.01 per cent) and 10 of the country’s provinces (24.99 per cent).

8.5 per cent). This was done to assure domestic supply for the province. As part of the strategy, the Technological Development Centre “General Manuel Savio” (Instituto del Litio) was inaugurated at the end of August 2017. This was a collaboration between CONICET, the National University of Jujuy (UNJu) and Y-TEC.¹⁶

In 2016 Y-TEC, the Italian battery producer FIB-FAAM (part of the Seri Group) and JEMSE signed an agreement to install a li-ion battery plant in Palpalá, Jujuy. According to the Ministry of Mining, the investment would reach US\$ 60 million over the following two years (Dirección de Economía Minera, 2017, p. 22), and the plant was to be opened in March 2018. However, this had not happened at the time of finalising this study. According to the agreement, Y-TEC and Lithops¹⁷ (the company owned by FIB-FAAM) will be partners; Lithops will provide crucial technical know-how. The company managing the plant is Jujuy Litio S.A. owned by the provincial government (60 per cent) and the Seri Group (40 per cent) with support from UNJu and the Instituto del Litio.¹⁸ The projected market for the batteries is domestic public transportation, an area in which the Seri Group has experience. The production has three stages: first to assemble batteries; second, to produce cells; and third, to produce complete batteries. The Ministry of Energy and Mining projects production to reach around 5 per cent of the electric vehicles in the Argentine automobile market by 2020 (about 35,000 units). This would be done by requiring less than 3 per cent of the country’s current lithium production (Dirección de Economía Minera, 2017). Nevertheless, the result of Argentina’s efforts to industrialise and move beyond raw material extraction still remains to be seen.

4. Decision-making on natural resources in a Federal State

Argentina is a Federal State comprised of 23 autonomous provinces. These provinces all have their own constitution and have all the powers that were not expressly delegated in the Federal State during the period when the nation’s constitution was written (1810-1880). Since natural resources such as minerals are owned by the provinces, it is this sub-national entity that is responsible for decision-making when it comes to mining. National and provincial regulations inform the context and conditions under which projects can start operating. These are generally discussed as part of an environmental impact assessment (EIA) process. Provinces are also responsible for implementing consultation processes to ensure that affected communities participate in decision-making. These points will be addressed in the following section.

4.1. Environmental legal framework

The legal framework of EIA process follows Argentina’s federal system whereby the provinces have autonomy to enact their own regulations within their territorial limits. Nevertheless, the National constitution guarantees human rights, including the right to a healthy environment¹⁹ and the national government has the legal authority to set minimum environmental regulation standards enforceable in the whole country.

The National Law N° 25.675, known as the “Ley General del Ambiente” (LGA) (General Environmental Protection Law), establishes the guidelines, main institutions of the national environmental policy and

16. See CONICET: <http://www.conicet.gov.ar/se-inauguro-el-centro-de-desarrollo-tecnologico-general-savio-en-jujuy/> (accessed 5 January 2018).

17. See Lithops website: <http://www.lithops.it/lithops/Enter.html> (accessed 5 January 2018).

18. See El Cronista: <https://www.cronista.com/negocios/Instalan-en-Jujuy-la-primera-planta-de-baterias-de-litio-de-Sudamerica-20171215-0048.html> (accessed 5 January 2018).

19. National Constitution, Article 41: “All inhabitants enjoy the right to a healthy, balanced environment fit for human development, so that productive activities satisfy current needs without compromising those of future generations, and have the duty to preserve the environment...”

instruments or tools for the management of the environment. Among these tools, the EIA procedure is not only central but also the key instrument to analyse environmental decisions on the ground. An EIA must be carried out before authorising any activity and/or work that can produce significant impacts on the environment (or any of its components) or on the quality of life of the population.²⁰ The public office responsible for analysing the EIA and authorising any activity with potential environmental impacts is designated by the provincial government, where the activity or work will be done.

The EIA is part of a process with different phases, which vary according to the provincial legislation. However, they should at least include:

- A statement from the person (or company or entity) interested in performing an activity in which it is explained whether the environment would be affected or not.
- The submission of an environmental impact study or report (EIA report) with the identification and description of possible impacts and mitigation measures.
- A public participation phase (consultation or public hearing) in which citizens discuss the project and its possible implications for communities. The consultation is the opportunity to present objections and/or comments in a written form. This phase requires adequate and timely access to environmental information related to the project so as to ensure effective citizen participation. If this is not fulfilled, the process could be nullified. This stage is not binding on the approval of the project. This means that the authority conducting the evaluation may make a decision that is different from the opinion of the hearing as long as it is justified (unlike the latter, the Convention 169 of the International Labour Organization established a binding consultation, which is explained below).
- A decision of the public authority regarding the project. There are three possibilities: 1) authorising the project through a declaration of environmental impacts (DIA in Spanish); 2) rejecting the project; or 3) authorising it under certain conditions (i.e. requiring changes from the original project). The decision depends on whether the project respects the national and provincial environmental legislation and minimum standards.

In Jujuy Province, the public authority that make decisions about the projects is the Office of Mining and Energy Resources (part of the Mining and Hydrocarbons Secretariat of Jujuy). It could reject the projects if the reports do not fulfill the contents established by the provincial decree 5707-2010,²¹ and other norms. This decree regulates the procedure for the EIA related to mining activities in the province.

The procedure first includes the intervention of the Unit of Environmental Management of the province (UGAMP),²² which has the duty to give technical advice to the Office of Mining and Energy Resources. This unit has representatives of different provincial agencies as well as non-governmental stakeholders and is in charge of granting its opinion before a decision is made. Among the governmental agencies with representatives in the unit are: Environmental Management Agency, Human Rights, Public Health, Environmental Policy Department, Industry and Commerce, and Water Resources. Other representatives include: the National University of Jujuy, the Centre of Geologists, mining companies, municipal authorities and indigenous communities.

20. Law N° 25.675. General Environmental Law 28/11/2001. Articles 11-13.

21. The decree regulates the integration of environmental legislation and the environmental chapter in the Mining Code (Law N° 24.585/95). More information available at: <http://www.estrucplan.com.ar/Legislacion/jujuy/decretos/dec05707-10.asp>

22. Created by decree N° 2881/97.

In 2011 the procedure was modified by the decree 7592/2011,²³ which declared lithium as a strategic natural resource for Jujuy. The decree also subjected lithium-mining projects to an integral analysis carried out by an expert committee. The committee is composed of experts from CONICET and the National University of Jujuy, who are nominated by the provincial congress, the Environmental Management Agency and the provincial mining department.

Elements of the EIA process and the free, prior and informed consent rights (FPIC) in the case study will be analysed in the report.

4.2. Consultation and Free, Prior and Informed Consent (FPIC) rights

The indigenous population in Argentina has systematically been denied and excluded throughout the country's history. It was only in the 1990s that indigenous rights were recognized at the Constitutional level, marking a turning point in the realisation of human rights for indigenous populations.

Through the constitutional reform of 1994, Argentina recognised the ethnic and cultural pre-existence of the Argentine indigenous people²⁴ and the community property rights for indigenous people to the lands they have traditionally occupied, as well as the right to manage the land's natural resources. The right to land possession is to be neither alienable, transferable, nor susceptible to encumbrance or seizure. Moreover, Argentina has adhered to international agreements such as the Inter-American Charter of Human Rights and the UN Declaration on the Rights of Indigenous People (UNDRIP), which Argentina ratified in 2007. In 2000, Argentina also ratified the Indigenous and Tribal Peoples Convention 169 of the International Labour Organization (ILO), a convention of supra-legal nature that is considered to supersede national law.

The convention establishes that indigenous peoples who might be affected are to be consulted regarding any legislative or administrative measure concerning them, and that this is the responsibility of the state. It also stipulates that participation of indigenous peoples in decision-making processes should be free and carried out in good faith with the objective of consent (ILO C169, Article 6). Also, specifically relating to extractive activities, it emphasises that consultations should take place prior to any approval of exploration or exploitation (ILO C169, Article 15). In this process the opinion of indigenous peoples is binding to the whole process of approval of the activity.

On the other hand, UNDRIP, a declaration – in comparison to ILO C169 (a convention) – has a character of soft law. Neither does UNDRIP stipulate any “new rights”; rather it is an interpretation of the already established universal human rights and international conventions applied to the situation of indigenous peoples. Nevertheless, it is in UNDRIP that the FPIC principle is clarified and consolidated. In the declaration for indigenous peoples' right to self-determination, it is clearly stated in Article 3 (UNDRIP, Article 3) and, in relation to extractive activities, it states indigenous people have the right to determine how to use their lands and resources. It also says that states should “obtain their free and informed consent prior to the approval of any project affecting their lands or territories and other resources, particularly in connection with the development, utilization or exploitation of mineral, water or other resources” (UNDRIP, Article 32, paragraph 2).

In summary, both ILO C169 and UNDRIP, along with the FPIC principle, apply to Argentina. However, despite the recognition of indigenous people's land rights since 1994 and adherence to international legal norms, FPIC has not yet been implemented in federal or provincial legislation. As a result Argentina has several times been subject to international criticism. For example, in 2016 Amnesty

23. Decree N° 7592/11. Declaration of lithium as a strategic mineral in the province of Jujuy. Published 11 March 2011; Jujuy Province.

24. Law 23.302 passed in 1985.

International called for the Argentine government to develop a legal framework on consultation and FPIC, because “even though the right of the indigenous people to a consultation is part of Argentina’s legal framework as a signatory country of international instruments, there is no law or policy, either federal or provincial, that regulates the consultation procedure with the indigenous people” (Amnesty International 2017, 20).

However, efforts have been made to advance federal and provincial legislation on the matter. Law 26.160, sanctioned in 2006, made the communal titles (recognition of land ownership of indigenous communities) reappear on the national agenda. The law entrusts the National Institute of Indigenous Affairs (INAI) with a budget of around US\$ 20 million, to orchestrate what is called the National Survey of Indigenous Territories Programme (RETECI). The programme’s objective is to survey and demarcate the territories of indigenous people, generating conditions and information that is instrumental in the recognition of the possession and community property of all the lands occupied by indigenous people in the country.²⁵ Each ethnic group elects a representative in an assembly where all communities of that ethnic group participate. The representative is part of the Council of Indigenous Participation (CPI) within the INAI and is the link between the institution and the communities (García Moritán & Cruz, 2012, p. 168). Although the process of land regularisation is directed by the INAI, it is important to note that it still operates within a federal system. It is also shaped by the territorial development model introduced in 2004, which promotes a model of decentralised governance. Therefore, the delivery of community property titles remains within provincial government (Brent, 2015, p. 682).

However, the implementation of this right generally remains unfulfilled, which is mostly due to the slow speed of INAI’s performance. While there have been minor achievements in terms of securing community land holdings, there have also been simultaneous processes that threaten indigenous people’s right to territory. First is the ongoing privatisation of land that has been unfolding since the implementation of neoliberal reforms in Argentina, also known as the adoption of the “Washington Consensus”. In the past 15 years, the economic model has shifted towards the “Commodities Consensus” which, although based on a political rejection of neoliberalism, has led to a deeper dependency on natural resource extraction and primary commodity production (Svampa, 2013). Argentine public policies have enormously fostered the development of large-scale agriculture and mining over the last two decades. There is a wide range of laws, instruments and institutional measures at the national and provincial level to encourage and facilitate the implementation of mineral exploitation projects, from which lithium projects also benefit (Göbel, 2013).

In Jujuy Province, the first Registry of Aboriginal Communities was created in 1992, granting communities legal status under the rules of civil associations; until then, the existence of a significant indigenous population in the province had been denied (García Moritán & Cruz, 2012, p. 158).²⁶ Further advancements were made in 1997 when INAI and the provincial government signed an agreement to launch the Programme to Regularise and Allocate Lands to Jujuy’s Indigenous Population (PRATPAJ). It officially recognised indigenous territorial rights as part of the province’s land titling programme. What is notable, however, is that the organisation to receive the national funds, and to be in charge of delivering the community land titles, is the Jujeño Institute of Colonisation (IJC). Created in 1988, the institute has had the historical function of granting private land titles for the purpose of productive forestry or large-scale agriculture (Borghini, 2010, p. 137). The province’s failure to deliver no more than four community land titles in the first few years of operation led indigenous communities to file a lawsuit against the provincial state in 2003.

25. Martínez, A. (27 September 2017). Comunidades indígenas de Argentina corren el riesgo de ser desalojadas si no se prorroga una ley que las protege. La Diaria: <http://bit.ly/2hBZJGr> (accessed 5 January 2018).

26. Nowadays the 10 communities are recognised by the Registry of Aboriginal Communities.

In 2006, the Contentious-Administrative Court ruled in favour of the plaintiffs, ordering the provincial state to recognise the community titles requested, and the application of the right to prior consultation (Solá, 2016). With this, the process has been slightly more efficient, but it still remains slow. In 2013, 16 years after the initiation of PRATPAJ, the Jujuy public notary claimed 44 of the communities that had demanded communal land titles had received them, representing only one third of the requested titles (OEA, 2013, p. 14) and only 16 per cent of the 266 indigenous communities living in Jujuy Province (Zamudio, 2011).

Consultations are generally not applied, or if they are applied, they suffer from different problems and flaws that could lead to the nullification of these processes (e.g. lack of environmental information, absence of state representatives during the process, and the use of a technical language that is difficult for communities to understand).

In many cases the EIA is applied together with a consultation phase that seeks to articulate FPIC rights. The application of FPIC rights in the context of EIA projects will be thoroughly analysed in the case study.

5. The case of Olaroz-Caucharí salt flat

In Argentina lithium activities are concentrated in the three northwestern provinces of Jujuy, Salta and Catamarca. The Fénix project in the Hombre Muerto salt flat, located on the border between the Salta and Catamarca provinces, with a current production capacity of 17,000 tonnes of LCE/year, was the only operating lithium project in Argentina for almost 20 years. The second project to start operating was the Sales de Jujuy project in Olaroz-Caucharí, which started in 2015. Minera Exar project located in the same salt flat of Olaroz-Caucharí just south of the Sales de Jujuy project, started filling the first pond in November 2018 and expects to begin plant construction in 2019. Among the other most advanced projects that are about to initiate production in the near future: three²⁷ are imminent; five are in an advanced exploration phase; 12 are in an initiating exploration phase; and 17 are in prospecting phase.

This study has chosen to focus on the two projects located in the Olaroz-Caucharí salt flat: Sales de Jujuy and Minera Exar. First, because these projects together mark the initiation of a new phase of projects following the increase in global lithium demand over the last decade. Moreover, the Sales de Jujuy project, as it was the first to start lithium extraction since 1997, is considered to be the first greenfield (beginning from zero) project to start operation in salt-brines after 20 years.²⁸ Second, because the Olaroz-Caucharí area is home to 10 indigenous Atacama communities.

As new extractive activities arrive in the area they bring change to a variety of aspects, reconfiguring relationships among different actors. While they present many opportunities, they also bring challenges. The projects provide an interesting opportunity to study the social and environmental aspects of lithium extraction considering the salt flat's unique geographical and cultural context. Olaroz-Caucharí is a closed water basin at 4,300 metres above sea level. It is considered a fragile ecosystem with water stress throughout the year where indigenous communities have lived since ancestral times, depending on land and natural resources (Puente y Argento, 2015; Sticco, 2018). Also looking at projects from two different companies allows the authors to compare different corporate strategies, compliance and results.

27. The Galaxy Resources project in Salar del Hombre Muerto, the Eramet project in Centenario and Ratones, and the Rincon Group project in Salar del Rincón.

28. More information is available at: <https://www.cronista.com/especiales/Litio-una-industria-nacional-posible-20170517-0006.html>

The social and economic situation in the communities has already been altered and uncertainties regarding the environmental situation have arisen. Hence, focusing the study on the two projects enables the study to address the question of how nearby local and indigenous communities are affected by large-scale lithium mining in terms of social, economic and environmental impacts.

FIGURE 1: MAP SHOWING THE LOCATION OF THE LITHIUM PRODUCING PROVINCES IN ARGENTINA

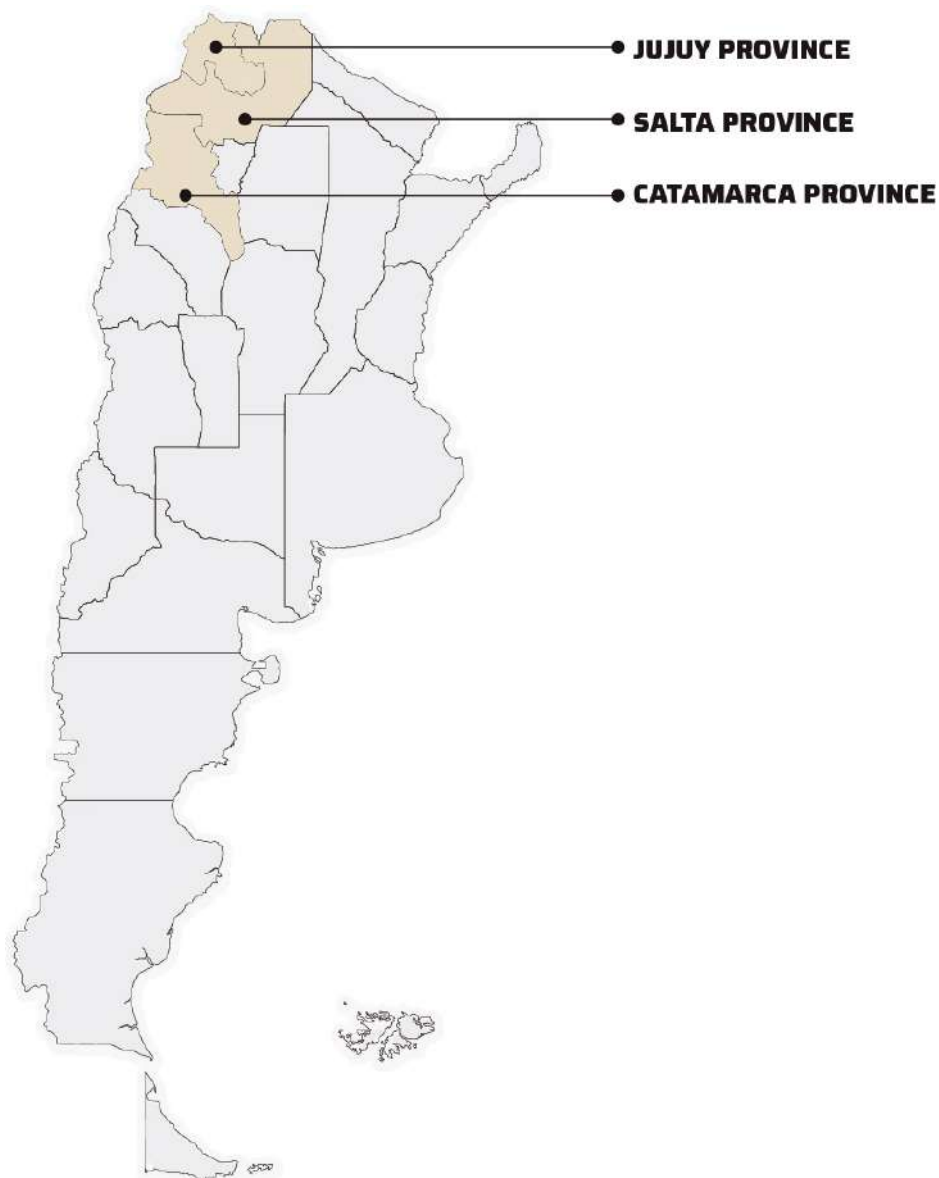


FIGURE 2: MAP SHOWING LOCATION OF LITHIUM EXTRACTING PROJECTS IN OLAROS CAUCHARÍ



5.1. The companies

The following section offers more detail on the main companies involved in the two projects in the study.

5.1.1. Sales de Jujuy

In 2010 the Australian mining company Orocobre, Toyota Tsusho (Japan) and JEMSE (Argentina) initiated a joint venture for the Salar de Olaroz project and hence, started the first lithium-extracting project in Argentina since 1997. Orocobre's assets at Salar de Olaroz are owned and held by the project company, Sales de Jujuy (Orocobre 66.5%) and contain those properties associated with the Olaroz Lithium Facility. Orocobre's partners in Sales de Jujuy are Toyota Tsusho Corporation (25%) and JEMSE (8.5%).

The project company, Sales de Jujuy, handles the daily management and operations while JEMSE provides assistance in interpreting and administrating local and federal government procedures and practices. Orocobre is mainly responsible for leading the management and operations in Argentina, while Toyota Tsusho is responsible for managing the necessary funding from Mizuho Bank with guarantees from Japan Oil, Gas and Metals National Corporation in exchange for sales rights. Toyota Tsusho Corporation is an equity partner and also the exclusive sales agent for the sale of lithium carbonate. Due to a joint marketing agreement between Orocobre and Toyota Tsusho Corporation, Orocobre is involved in the strategic and planning aspects of the sales process.

The EIA procedure began in 2010 when the company presented the first environmental study report. However, due to additional requirements from UGAMP and amendments in the licensing procedure, the project was not approved until 2012. In 2015 the plant started operating and in 2016 the production was 11,845 tonnes of LCE (prices increased from below US\$ 6,000/tonne at the beginning of the financial year to more than double that at the end of 2016).

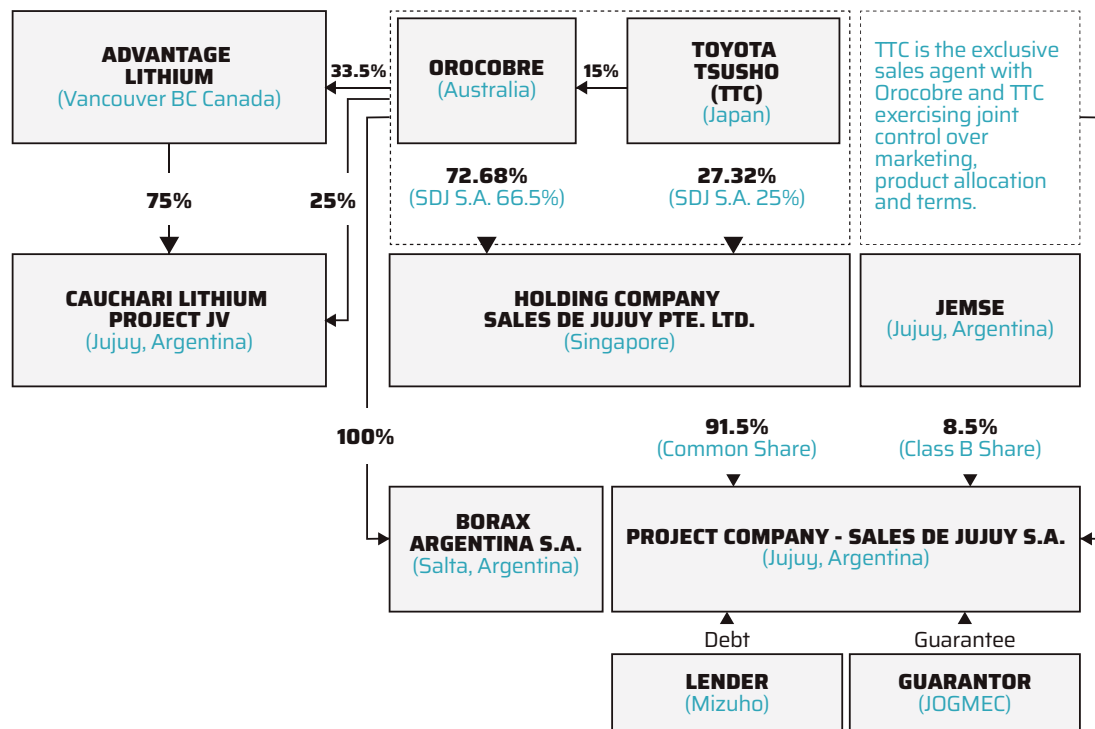
In 2018 Orocobre announced the increase of Stage 2 Expansion at the Olaroz Lithium Facility to 25,000 tonne per annum (total 42,500 tonne per annum) from the previously announced 17,500 tonne per annum (average price on the quarter from October to December 2018 was US\$ 10,587 per tonne). (Orocobre, 2018)

Orocobre is an Australian mineral resource company created in 2006 mainly working with lithium. The company operates exclusively in Argentina where it is active in various projects. Through the company Borax Argentina, it also operates various boron mines. On 2016, Orocobre and Advantage Lithium signed a joint venture agreement for the project Caucharí in Salar de Cuacharí (the exploration program is being managed by Advantage Lithium). On 2017, Orocobre sold to Advantage Lithium Corp a number of lithium brine exploration projects.

The other part of the joint venture is Toyota Tsusho Corporation, a trading company member of the Toyota Group whose main objective is to support and supply Toyota Motor. Among other activities, the company's metals section is the largest and most important one as it aims to secure supplies and materials for Toyota. Through the joint venture agreement, Toyota Tsusho acquired 100 per cent of the LCE production sales rights from the project.²⁹

Funding for the project is provided by one of Japan's megabanks, Mizuho Corporate Bank, while the Japanese public company *Japan Oil, Gas and Metals National Corporation (JOGMEC)* stands as a debt guarantor. The fact that financing and guarantees come from Japanese partners in return for sales rights is not a surprise. Lithium has been declared as a national interest in Japan as the country is fully dependent on imports of the natural resource.³⁰

FIGURE 3: SALES DE JUJUY'S JOINT VENTURE



Source: Orocobre Limited.

29. Toyota Tsusho website: <http://www.toyota-tsusho.com/english/about/project/04/> (accessed 12 October 2017).

30. Ibid.

5.1.2. Minera Exar

In 2016 the Canadian company Lithium Americas Corp. (LAC) and the Chilean company Sociedad Química y Minera de Chile S.A. (SQM) agreed to enter a 50/50 joint venture for the Minera Exar project. JEMSE also joined the project with an 8.5 per cent ownership share.

Lithium Americas focuses exclusively on lithium as it seeks to strategically control the mineral's market shares and pricing (Göbel, Seminar, 2017) with operations in Nevada in the US, and in the northwest of Argentina. Apart from Minera Exar, the company participates in various additional explorations together with SQM in the Arizaro and Pocitos salt flats in the Salta province. The Chilean SQM on the other hand is the world's largest lithium producer. It is a private company created in 1968 focusing on a variety of minerals and industrial chemicals, lithium representing only 10 per cent of the company's sales. Most of the company's plants and resources are located in the Chilean Atacama Desert.

It was essential for Lithium Americas to find investors to secure its financing. In January 2017 the Chinese company Jiangxi Ganfeng Lithium Co. LTD (GFL Lithium Co. LTD) made a strategic investment in Lithium Americas, becoming the largest single shareholder by acquiring 19.9 per cent of the company's shares. According to the agreement, GFL Lithium Co. LTD is providing US\$ 125 million in funding for Lithium Americas' share of the Minera Exar project construction costs. The agreement also gave GFL Lithium Co. LTD the right to buy 70 per cent of Lithium Americas' share of Minera Exar Stage 1 LCE production at market prices for the coming 20 years.³¹ Currently GFL Lithium Co. LTD owns the 16.94 per cent of the Lithium Americas shares. It is known as China's largest integrated lithium producer and is also a leading actor on the world market. Besides owning shares in Lithium Americas, GFL Lithium Co. LTD also owns stakes in lithium projects in Australia, Canada and Ireland as well as additional projects in Argentina.

An agreement between Lithium Americas and Bangchak Corporation Public Co. LTD. was also made shortly afterwards: BCP Innovation PTE. LTD acquired 16.4 per cent of the company's shares. The terms of the agreement are similar: BCP Innovation PTE. LTD will provide US\$ 80 million to fund the project in return for the right to buy 15 per cent of Stage 1 Minera Exar LCE production.³² Currently BCP Innovation PTE. LTD owns the 15.85 per cent of the Lithium Americas shares. Bangchak Corporation Public Co. LTD is a Thai company traditionally focused on petroleum refining but which recently entered the green energy sector.

It is interesting to note that GFL Lithium Co. LTD and SQM have tried to reach an agreement regarding operations in Chile but without success. SQM has also had difficulties expanding operations in Chile as the company has been involved in scandals regarding investigations about tax evasion, bribery and financing political parties during 2016-2017. This is referred to as The SQM Affair or Scandal in the media³³.

According to the NI 43 – 101 Technical report of LAC (Effective Date: 29 March 2017 / Filing Date: 15 January 2018) the last EIA for exploration was presented to the provincial government in February 2017. According to an interview with Miguel Soler (Secretary of Mining and Hydrocarbons of Jujuy),³⁴ this was approved in August 2017.

In October 2018, Lithium Americas announced the result of a transaction between GFL Lithium Co. LTD and SQM. As a result of this, GFL Lithium Co. LTD acquired a 37.5 per cent interest stake in Minera Exar S.A from SQM, while Lithium Americas holds the remaining 62.5 per cent.

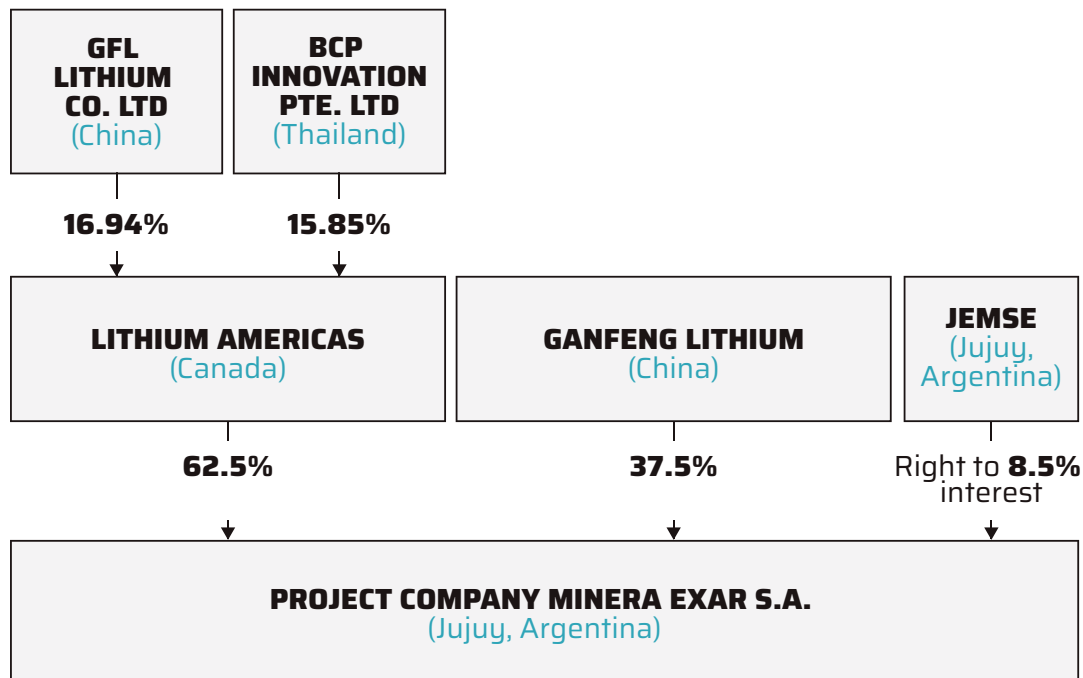
31. Transcript of Jiangxi Ganfeng Lithium Co., LTD Investment Conference Call, 18 January 2017. Available at: <http://lithiumamericas.com/investors/events/> (accessed 11 January 2018).

32. MarketWired: <http://www.marketwired.com/press-release/lithium-americas-announces-us112-million-strategic-investment-by-bangchak-petroleum-tsx-lac-2189722.htm> (accessed 12 January 2018).

33. MarketWired: <http://www.marketwired.com/press-release/lithium-americas-announces-us112-million-strategic-investment-by-bangchak-petroleum-tsx-lac-2189722.htm> (accessed 12 January 2018).

34. The Secretary of Mining and Hydrocarbons of Jujuy was interviewed on November 2017 as part of this research.

FIGURE 4: EXAR'S JOINT VENTURE



Source: Proper elaboration based on official company information.

5.2. State representatives

Provincial state agencies have different responsibilities and duties regarding lithium projects. The local mining secretary has roles that seem to contradict each other: they are in charge of promoting mining in the province, and at the same time they are responsible for granting permission to companies to start exploitation as well as being the main monitoring body.

The provincial environmental agency seeks to provide and ensure environmental protection. Together with the Mining Secretary, it must coordinate the environmental protection measures for each mining project. It is part of the evaluation process of the environmental impact reports, analysing its correspondence with the national and provincial environmental regulations. The environmental agency is also part of the UGAMP. The provincial General Direction of Water Resources is in charge of ensuring water is used sustainably and reasonably. Consequently, it is responsible for the concession and control of water uses in mining operations in accordance with the disposals of the Provincial Water Code and in conjunction with the Mining Secretary. Article 63, paragraph 3, of the Water Code stipulates that water used in mining operations must be returned in such a way that it cannot affect third parties. Article 27 of the Water Code also dictates that the extent to which water access is granted must be specifically quantified and therefore controlled by the implementing authority (General Direction of Water Resources).

However, despite these different roles, the agencies do not always work together or collaborate sufficiently.

5.3. The Atacama communities: social and political organisation

The area of the Olaroz-Caucharí salt flat is populated by 10 indigenous communities of the Atacama ethnic group. Of the 10 communities, seven have communal land titles, two do not hold any land titles and one of them is currently in the process of registering its title.³⁵ The 10 communities are located in the Susques department, which has a population of approximately 3,600 people.³⁶ All the communities have similar political institutions and decision-making procedures. These are defined in their community statute. Each community is led by a president, a council and an assembly. The president and the council are the executive body and are regularly elected, usually for a period of two years. The assembly is the main decision-making body in which all relevant issues are presented, discussed and voted on. It is held usually once a month. All adults of the community have the right to participate and vote. The young and elderly are invited to attend, but do not need to do so. If consensus is not reached in the assembly, decisions are made by simple majority.

Traditionally the communities in the area have been dedicated to livestock – mainly tending sheep, llamas and goats. Other traditional economic activities include handicrafts and textiles, which are sold and traded at regional fairs. Agriculture exists but to a lesser extent. Some of the communities (i.e. Olaroz Chico) have traditionally been dedicated to small-scale mining.

Many families have more than one house. They often have a house in the village and a second one in the countryside where they take care of livestock or develop their subsistence agriculture. Electricity is obtained from dispersed energy systems (often solar) or from generators, a situation that often imposes limits on activities. Many young people migrate in search of education or employment opportunities, often to other areas of the Puna or to the closest cities, i.e. Susques, Abra Pampa, Jujuy or Salta. The route that connects Susques with the capital city of the province, San Salvador de Jujuy, and the opening of the Paso de Jama (the route to Chile) have contributed to increased tourist movement in the area (García Moritán & Cruz, 2012, pp. 165-6), even though few tourists come as far as these communities.

The 10 Atacama communities lie within 50 kilometres from the locations of the Sales de Jujuy and Minera Exar lithium projects. Even though all 10 communities have established some kind of relationship with the companies and are affected by their operations to some extent, this study focused on two communities in particular: Huancar and Pastos Chicos, which lie in the area of direct influence of Exar and indirect influence of Sales de Jujuy.³⁷ Involving the 10 communities surrounding the Olaroz-Caucharí salt flat would go beyond the financial and time limitations of this study.

Companies often define their responsibilities in narrow terms according to what is usually called the “area of direct influence”. This area is determined in the EIA report carried out by the company. As mentioned, the two communities that are the focus of this study lie within the projects’ areas of direct influence and, in this case, also coincide with the communities that own the land titles where the projects are located. These activate certain legal requirements beyond the companies’ voluntary engagement. It is important to point out that the researchers do not necessarily agree with the companies’ definition of the “area of direct influence”. Nevertheless, the two communities have been selected as they are believed to be illustrative of the relevant concepts/dimensions and context that are of interest to this study – namely, the social and environmental impacts of lithium mining on local communities.

35. Susques, Huancar, Pastos Chicos, Puesto Sey, Catua, Olaroz Chico and San Juan de Quillaques have titles. Coranzuli and Paso de Jama do not have titles and El Toro is in the process of registering titles.

36. Furthermore, the Susques department has three municipal commissions; the Susques Municipal Commission incorporating the communities of Susques, Huancar, Pastos Chicos, Sey, Olaroz Chico; the Catua Municipal Commission incorporating only Catua; and the Coranzuli Municipal Commission incorporating Coranzuli, El Toro, San Juan de Quillaques and Paso de Jama.

37. We contacted a third community for the investigation (Olaroz Chico), but they decided not to formally participate in the research.

5.3.1. Huancar

Huancar community is located in Jujuy Province, 25 km south of Susques at an altitude of 3,600 metres above sea level. The last official census in 2010 registered a population of 133 people. However, other sources talk of a population of more than 300 people (Lezcano, 2015). The State recognised them as an indigenous community and also gave them the communal land titles of the territory where the community is located.

Traditionally the economic activities in Huancar have been based on livestock and handicrafts, and to a minor extent, boron mining. However, the arrival of lithium mining impacted on the economic activities scheme. Today, there are around 35 people with direct and indirect jobs related to mining. The rest of the community, especially the older generation, is still dedicated to handicrafts and livestock.

The community elects a president, vice-president and a commission for a mandate of two years. Decisions are made by consensus or if this is not possible, by simple majority, in the monthly assembly.

The Minera Exar project is located in part of Huancar's communal land and the community is considered within the direct area of influence. In addition, Sales de Jujuy – whose lithium extraction project is located outside Huancar's communal land – has interaction with the community.

5.3.2. Pastos Chicos

Pastos Chicos has a population around 200-250 people. It is located at approximately 4,000 metres above sea level, 50 km south of Susques. Basic services such as sewage systems, communications and electricity are limited. The drinking water is brought to the community from outside due to high levels of arsenic in the groundwater making it unsuitable for consumption.

Traditionally, the main economic activities have been livestock, small-scale agriculture and handicrafts. However, in the more recent past many of the community members, particularly men, have worked with the boron mining companies. During the 1990s the closure of the railroad and many mines led to massive job losses. The few employment opportunities and the lack of secondary education in the community are seen as the major driver of the migration towards towns and bigger cities.

The community organisation consists of a president, a council and an assembly. The president and the council are elected every two years. The assembly is the main decision-making body of this indigenous community, where relevant issues are presented and discussed. It meets monthly and decisions are taken by a simple majority. The assembly is open to all adults in the community but, according to community authorities, the participation rate is low.

In the early 2000s the Atacama communities in the Olaroz-Caucharí area started the struggle to (re)gain their land rights. Today Pastos Chicos is legally recognised and has received legal status as indigenous peoples together with their communal land titles and the community organisation function. It owns the land where Exar is located and has relationships with Sales de Jujuy.

6. Company interaction with mining-affected communities

This section describes how the different engagement processes between companies, the State and communities were carried out. The information is mainly provided anonymously by community members and complemented with interviews from external actors. It is organised in different sections following central elements of the free, prior and informed consent (FPIC) rights, in order to assess how the process was conducted in its inter-phase with the EIA process. Central elements in this process include the establishment of the engagement process, information and timely access, results in terms of formal

agreements and expectations, the role of the State and environmental concerns and workers' needs, including community perceptions of risks and ambivalence as well as the current stage of the technical discussion regarding possible environmental impacts.

6.1. Establishment of the engagement process

According to the International Labour Organization Convention no. 169 (ILO C169, 1989) and United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP, 2007) states are required to consult and cooperate with indigenous peoples concerned, in good faith and through their own representative institutions "in order to obtain their free, prior and informed consent before adopting and implementing legislative or administrative measures that may affect them" (UNDRIP 2007, Article 19).

In addition, the OECD recommends that multinational companies should undertake a series of measures to ensure meaningful stakeholder engagement, in line with the above rights, as they arrive in a new area. For instance, companies should recognise existing local community authorities and seek to "[e]ngage with relevant stakeholders in order to provide meaningful opportunities for their views to be taken into account in relation to planning and decision making for projects or other activities that may significantly impact local communities" (OECD Guidelines for Multinational Enterprises 2011, General Policy 14). This requires companies to undertake various activities, such as engaging in dialogues that will serve different ends, i.e. present the company, the project and policies, devise ways to collaborate and ultimately, get the community's approval to operate in the area.

In Argentina, the scope and intensity of the engagement process and relationship established between companies and local indigenous communities do not solely rely on the companies' engagement policies and the communities' capacities and position, but also on the exact location of the company's actual or planned operations. As stipulated in Argentinian law, legal requirements for companies to obtain communities' approval enter into force when the project location lies within collectively owned community land. Hence, the community owning the land is considered to be the rightsholder. However, it is important to stress that communities located in the area but not owning the land on which company operations are located could also be affected. This is recognised in international standards, such as FPIC, as the principle to apply to all peoples possibly affected, whether they have recognised land rights or not.

Exar's operations are located on land owned by six communities: Huancar, Pastos Chicos, Olaroz Chico, Puesto Sey, Catua and Susques, while Sales de Jujuy operations are located on Olaroz Chico community land. In practice, this means the companies are required, by Argentinian law, to get the approval of these communities for their respective projects. However, international standards and guidelines affect State and company obligations in relation to people/communities when projects "may affect them" or "may significantly impact local communities", regardless of legally recognised ownership of the land.

This means, for example, that Sales de Jujuy only has a formal agreement with Olaroz Chico (land owner), while also having projects and collaborations with the additional communities based on their demands in the Olaroz-Caucharí area (Huancar, Pastos Chicos, Puesto Sey, Catua, Paso de Jama, San Juan de Quillaques, Coranzuli, El Toro and Susques). Exar has formal agreements with six communities: Catua, Susques, Puesto Sey, Olaroz Chico and Pastos Chicos (Frankel and Whoriskey 2016).

The mentioned collaborations consist of a wide range of investments and donations. Investments have been carried out in terms of infrastructure, healthcare and education, i.e. Sales de Jujuy provided internet access for the school in Susques community, donated an ambulance to the hospital, gave micro-loans to local entrepreneurs, while Minera Exar repaired the roof on the school building in Huancar, built a new community centre in Pastos Chicos etc. Companies have also provided community libraries, internet access, computers and printers for community centres, construction material and dry-cleaning services as well as more short-term monetary donations to communal activities and feasts for food and drinks.

For Pastos Chicos the relationship with Minera Exar began in 2009 when the company made contact and started visiting the community assemblies. The first meetings are described as frequent and informative. The company informed the community about the existence of lithium, the extraction process and their plans. Moreover, the meetings included the discussion and explanation of the environmental impact assessment (EIA) report.

Even if Sales de Jujuy was the first company to establish in the area and work with the different communities, for Huancar the contact with Minera Exar felt as the first contact with a lithium company. This may be to the fact that this company was the first directly on their land. Although members do not recall the exact date of the first contact, they mention it was during a community assembly in which company representatives came and informed them about the project. The interaction was described by community members as more frequent at the beginning when the project needed their approval: company representatives attended the community assemblies once a month; they explained the different phases of the project and sought a closer relationship with the community. Later on, after that the community granted their approval, the meetings have been held less frequently – every two or three months. This could obey to the fact that interactions occur rather on a project-basis.

Community members' testimonies pointed out that the companies approached Pastos Chicos and Huancar communities after having the provincial government approval, and that Minera Exar found communities with unemployment, economic and educational difficulties at the moment of the first contact.

Sales de Jujuy is the company with the longest presence in the area, and employs people from the different communities based on an agreed quota system that was defined and agreed by all communities. As mentioned above, Sales de Jujuy only has a formal agreement with Olaroz Chico and has a more limited and informal relationship with the other communities. This might explain the opinion many community members have about Sales de Jujuy, in Huancar and Pastos Chicos, as not that helpful or accessible because they "only work with Olaroz Chico". With Olaroz Chico the company has a different relationship. They have a regulated agreement and Sales de Jujuy collaborates with them on different aspects such as building a new secondary school, providing internet access for the community and giving donations for local celebrations. Additionally, almost all men in the community work in a direct or indirect way at Sales de Jujuy. There is a close relationship in which the company has a provider role.

Regarding the engagement and community member participation, companies respect the communal organisation. They initiated contacts with the representatives of the community with whom they have more frequent interaction, generally the president or community council, which is very much the liaison between the company and the community assembly. The main gatherings occur in the community assemblies, which are the main decision-making space of the communities. And this space has also become the centre of the company-community relationship. The main objective of these meetings is to provide information, explain the projects and answer questions, as well as to hear proposals and needs, and negotiate the approval of the projects. After negotiations take place, the company gets the approval of the different stages in the EIA process and the communities, depending on their position, achieve some economic or material collaboration.

Even if these engagement processes take place in the community assemblies, which are once a month and are open to all community members older than 18 years, this does not mean that all community members participate. Thus, there are many members who are not aware of the projects or implications. Also, even if community members do participate in assemblies, sometimes they do not know the details of the meetings sufficiently in advance and do not feel prepared to fully engage in discussions. Although meetings were held frequently, particularly at the beginning of the process, it is not clear whether the whole process, including its timeframe and different phases, was planned and agreed with community members and/or community authorities. This clearly casts doubt over whether sufficient time was provided in order for community members to engage meaningfully. As OECD guidelines clearly state,

stakeholders should have sufficient time to understand the information provided, have time to consider it, as well as have time to get internally organised.

From community members' descriptions of the engagement process and relationship to companies, doubts arise as to whether these processes of engagement, taking the form of meetings and consultations in the community assemblies, fulfill the criteria as outlined in the OECD guidelines to the extractive sector when it comes to stakeholder engagement. Communication seems to have been one-sided rather than between two parties that can freely express their opinions with the common objective to reach mutual understanding. In addition, the process described does not seem to have involved or asked communities how they would like to design engagement activities. Furthermore, companies' honesty and "good faith" could be discussed, as community members explain how company representatives repeatedly assured them the mining project would not affect water resources in the area, a topic that is surrounded by great uncertainties (see section 6.5). It seems unlikely that companies would be unaware of the existing technical discussions around environmental impacts. The fact that meetings are held less frequently after the community has given approval also suggests this engagement might have been a company strategy to get community approval with less concern for listening to and incorporating community views and concerns about the project.

In summary, the assessment of the engagement process shows there are breaches in the way the companies have complied with international standards, provisions and guidelines when engaging and building relationships with the two communities owning land where they wished to locate their projects, as well as with the additional eight communities in the area.

6.2. Information and timely access

Most of the initial interactions between companies and communities centre on the EIA report, in which information about the different environmental dimensions is crucial. It is particularly important during this phase of the process that all relevant information is disclosed in a transparent way and in a way that assures timely access for communities.

The environmental impact study should include baseline information on the biodiversity, the wetlands and the water system of the watershed in the area. It should also integrate the description of the process that will be used to extract lithium, its consequences and the minimisation or mitigation strategies. However, it is important to note that this study is done by a consultant hired by the company that has a vested interest in that the study gets approved both by provincial authorities and communities. All information considered in the engagement process is provided by the company, which shares copies of different studies and reports, done by the company itself, to communities. The community council generally keeps the documentation in case community members want to access it or consult on some issues at a different time. One community member, referring to the EIA report, stated: *"It is there and whoever wants to read it can read it; but it is too long and difficult to understand"*³⁸ (Interviewee 26).

In Huancar community, members mentioned that the presentations and explanations about lithium extraction, the proposed project and its environmental impacts, the job opportunities and economic benefits were also included. For some interviewees, it was clear that the company wanted to highlight the economic benefits and jobs while denying or minimising any possible environmental impacts. Particularly regarding environmental concerns, one interviewee stated: *"They [company representatives] did not report about water, environment or health impacts. They only say that they do not pollute and when you ask them, they do not even answer what they do to avoid pollution. But, in the cattle ranches*

38. "Están acá y el que quiera puede leerla [la información de impacto ambiental], pero es muy largo y muy difícil de entender."

there are young animals that die; to me that means they pollute”³⁹ (Interviewee 24). This has serious implications, as the lack of transparency and withholding of information prevent community members from engaging with companies in a fully informed manner, and hence, they will not be able to contribute their perspectives or defend their interests. As such, this may result in decisions being made without having taken into account and considered important possible impacts.

Both Pastos Chicos and Huancar communities are aware that their main source of information is the company itself and they have not developed connections to external actors; i.e. Huancar highlighted they could only access the experts and technicians linked to the company. Almost all the interviewees have, in different ways, referred to the fact that they did not understand the information provided. They explained that the information provided was too technical and too lengthy to understand. One community member explains that: “They [company representatives] do not explain properly, they send their technicians, but we do not understand. We make questions, but their answers are always technical. Whoever says they understand, I don’t believe it”⁴⁰ (Interviewee 36). In addition, community members in Pastos Chicos highlighted that they were never asked which format they would like to receive the information (i.e. presentations, written materials, pictures, visuals). In the communities, members also pointed out that the company representatives and technicians were open to questions, but that the answers were still difficult to understand; some interviews highlighted that the answers were given quickly, and often orally and still in a very technical manner. This made many of them to refrain from asking further questions. It was also stressed that the difficulty of understanding the information provided has hindered them from asking questions in the first place as they did not know, or did not understand, what to ask.

TABLE 1: Interviewees and their understanding of the information provided by the mining companies

How many interviewees expressed the information provided by the companies was too technical and/or too lengthy?	How many interviewees were not consulted by the companies about how they wanted to receive the information?	How many interviewees did not receive information directly from the mining companies?
83.33%	85.29%	29.41%

These community testimonies in relation to information and timely access clearly show insufficiencies in the engagement process where neither timeframes nor the information provided can be considered sufficient. As the *informed* requirement implies in the principle of FPIC, the information should be given in such a way that community members understand, so they can make an informed decision. Further, the aspect of *informed* shows how companies’ have had complete power over what information, and in

39. “No informaron sobre el agua, el ambiente ni la salud. Dicen que no contaminan y ya, cuando preguntas, ni dicen que hacen para no contaminar, pero en las haciendas hay animales jóvenes que se mueren, así que para mí sí contaminan.”

40. “Pero no explican bien, mandan técnicos y no se entiende. Se hacen preguntas pero te dan respuestas técnicas. Para mí el que dice que entiende no es verdad.”

what way the information is shared with communities. Also, as shown above, companies have not shared the foreseeable risks factors and potential environmental impacts that could affect the communities. It is thus questionable whether community decisions have been made in an informed manner.

6.3. Results of the exchange: agreements and expectations

Generally, when communities and companies reach an understanding, there is an agreement signed between them as communities decide to grant their approval of the EIA report in exchange for certain terms and conditions included in the agreement regulating the relationship.⁴¹ To the knowledge of this study, there were no offerings or benefits for community members to be part of the meetings or to support the mining activity.

This research has not accessed the agreements between communities and companies as community authorities did not wish to disclose these details. However, various interviewees in the communities have informed and commented on some of the content. Central to the agreements seem to be that companies will employ some of the communities' members, training of community members through workshops, and economic compensation (a fixed amount per year). Even though this research does not know the exact amount of economic compensation, a *Washington Post* article from December 2016 revealed Minera Exar's yearly compensation to six of the communities in the area. Compensation to Pastos Chicos was around US\$ 59,000 and around US\$ 25,000 to Huancar (Frankel and Whoriskey 2016).⁴² Nevertheless, when talking to community members not everyone was aware of the existence of an agreement for economic compensation and how the money is distributed around the community still remains unclear.

Moreover, when trying to understand how the conditions were decided, a community member informed that: *"The employment of the local population was proposed by the company and the capacitation workshops was something we requested. Minera Exar proposed the amount of the yearly economic compensation, it was discussed in the assembly and we asked for a little more. It is for the community and per year"*⁴³ (Interviewee 11). Also, in addition to the formal agreement, as mentioned above, communities ask for economic collaborations for special activities or needs. The collaborations entail a wide range of investments and were mostly aimed at satisfying demands for services rather than rights.

6.3.1. Perceptions and understanding regarding power asymmetry

Community members are very much aware of the power asymmetries during negotiations of agreements with companies. One community member explains: *"(...) A weak point is that we do not have jobs, and the one in need is always weak, our education is not in line with the time in which we live"*⁴⁴ (Interviewee 27). Specifically, in Huancar, there is awareness that they have approved Minera Exar project and accepted the amount of money offered by the company due to lack of awareness. This reflects the importance of government involvement and external actor participation in order to support the communities in their relationship with companies.

41. Although the public authorities must approve the EIA, the companies pretend to demonstrate local communities' participation and support, by the mentioned agreements.

42. The other four communities were Catua around US\$ 9,000, Susques around US 12,000, Puesto Sey around US\$ 25,000, and Olaroz Chico around US\$ 47,000. For a deeper understanding of the compensation amounts and the economic representation for the company, we should consider that although Minera Exar has not started its exploitation phase, its net assets are US\$ 38,917 million (Lithium American Corp., 2017).

43. *"(...) La contratación de población local lo propuso la empresa, las capacitaciones las pedimos nosotros. El monto de dinero lo propuso Exar, se lo habló en asamblea y pedimos un poco más. Es para la comunidad, por año. (...)".*

44. *"(...) Un punto débil es que no tenemos trabajo y el que necesita siempre es débil, la educación no está acorde al tiempo en que vivimos."*

6.3.2. Perceptions and understanding regarding the company's good faith

Community members have different opinions on whether the companies are acting in “good faith” or not, that is, taking community perspectives into account. Some genuinely believe the company cares for the community while others believe they are only acting in their own interest and wanted to get the community's approval as quickly as possible. Nevertheless, the technical character of the information provided and its lack of impartiality raise serious concerns as to whether the company actually has acted in line with provisions and guidelines regarding disclosure and transparency of information and “good faith”.

6.3.3. Possibilities of renegotiation

After the agreements were set between communities and companies, the relationship continues, and the frequency and type of contact varies from community to community and company to company. For example, Pastos Chicos meets with Exar every three months in the community, while Huancar does so every two or three months. Sales de Jujuy is already working in different projects, in another form that does not have the format of a “meeting”.

While almost all community members in Pastos Chicos feel they can freely express their opinion in the different meetings, some find this can be done as long as it does not involve seeking renegotiation or withdrawal of their consent.

Some believe they have the possibility to renegotiate and to achieve higher economic compensation when Minera Exar goes from construction into the production stage (although the first step of the production stage was done on November 2018, when the first production pond was opened, Minera Exar expect to start selling lithium in 2020). On the contrary, some community members express a feeling of resignation and believe they cannot do anything to change the situation now that the companies are here and can do whatever they want. Others say they do not know if or how the agreement could be changed as they do not know the details of it. The last position, brought up by a few community members, is that they believe their consent does not matter in the end as the subsoil resources belong to the State.

For some community members in Pastos Chicos and Huancar, the mining company is not fulfilling all the points of the contract, especially the point related to employment opportunities for them. However, the community members accepted they do not know all the details of this.⁴⁵ In contrast, the community leaders pointed out that the company is fulfilling the agreement.

Currently, the community members interested in the relationship between the lithium companies and the community presents two points of view: those focusing on mining employment opportunities tend to support the companies' projects; whereas, those whose main concern is the lithium extraction impacts on the environment in the near future have a negative view of the extraction activity. Thus, their expectations for the near future differs depending on their point of view – focus on the employment or on the environment impacts.

Community leaders' expectations mix these two views. They have pointed out that a new agreement should be negotiated and signed for the exploitation phase and hope that Huancar and Pastos Chicos could get a better contract with more employment opportunities and economic benefits, and with more control over Exar activities to avoid large negative impacts over the environment.

⁴⁵ As previously mentioned, the two communities have an assembly which is the main decision-making body and where the topics related with the lithium companies are discussed. Because of participation in the assemblies is not mandatory, those community members that do not attend frequently have less information about the agreements.

Besides not having an agreement with Sales de Jujuy, Huancar community has an ongoing relation with this company too. There are two points in this relation: the direct and indirect employment created through Sales de Jujuy project; and the expectation to sign a contract with the mining company.

Regarding the relationship with Sales de Jujuy there is an expectation that the presidents of the 10 communities will work out a shared agreement for all the communities asking for different levels of economic benefits and employment opportunities depending on the location of each community, the project area of influence and its potential environmental impacts on the community land. Despite this initiative actively coordinated by the local communities, at the time of this report, Sales de Jujuy has not yet signs an agreement with them.

6.4. The role of the State

As mentioned in section three, the responsibility of implementing the free, prior and informed consent (FPIC) process to guarantee the participation rights is a responsibility of the State that cannot be transferred or delegated to a third party. However, when analysing the interactions between companies and communities in this research, a salient aspect is the absence of State representatives throughout the whole engagement process. No government representatives were part of the meetings that Minera Exar representatives had with Huancar. The same situation is portrayed for Pastos Chicos.

Some Huancar community members have shown their concern and pointed out that, although they had asked the local and provincial government for a meeting on the matter, they did not get a positive response so far. When they were asked about State involvement in the process, an interviewee explained that the State were *“Not in the meetings, neither municipal nor provincial [representatives]...”*⁴⁶ (Interviewee 28).

In Pastos Chicos the situation was similar: there was no presence or participation of provincial representatives during the meetings with the companies in the community. However, provincial authorities were sometimes present in the meetings that were held in Susques or Jujuy in which the community leadership participated together with the other community leaders. Even though it is difficult to know how this was done in detail, and it remains unclear what exact role the provincial authorities played during these meetings, it appears they mainly concerned the EIA report. At this stage of the process Pastos Chicos also had brief contact with a lawyer. When asked about how they came into contact with this lawyer the community said that he was on a list of lawyers provided by the company. Some say the lawyer informed them of their rights as indigenous peoples while others say it was of no help and that he was on the company's side.

From a rights-based approach, the lack of State presence during the meetings with the companies' representatives in the communities is worrisome as the FPIC principle clearly states that the responsibility to secure community consent belongs to the state and that this responsibility cannot be delegated to a private party. The absence of state representatives at the meetings has also been reclaimed by community members who believe the state should participate more, investigate and guarantee their rights. One interviewee from Pastos Chicos said: *“[We] asked for meetings with the Direction of Water Resources to get to know more about the water consumption of the companies but they never answered”*⁴⁷ (Interviewee 11).

Moreover, the particular existence of the UGAMP, despite devising a place for a community representative to participate in multi-stakeholder dialogues to discuss the environmental impacts

46. “En las reuniones no, ni municipal ni provincial.”

47. “Les pedimos reuniones a Recursos Hídricos para saber sobre el agua que van a usar las empresas pero no me respondieron.”

of the project within the mining agency, does not fulfill the participation and consultation rights for some important reasons: the member is not representing the community as it does not involve the community's main governing body, the community assembly, as per their own statutes have defined to make decisions; it does not involve a process culturally adequate agreed with the communities as meetings are held and organised in the state agency, according to bureaucratic definitions (in the capital city, within week days and working times).

The lack of intervention of State representatives can also be seen in the activities devised to monitor ongoing operations once approved. Community members in the two communities have participated in the three-monthly participatory monitoring organised by Sales de Jujuy, as part of a commitment the company took in the EIA approval process.⁴⁸ Communities send two representatives to the five-day monitoring activities, which are voluntary, and no compensation is given in return. Although the monitoring is considered an interesting activity, in practice it has many shortcomings. Few members of the community are able to participate as they would lose five days of work. Moreover, the technical level is high during the monitoring activities making it difficult to follow and understand the findings and discussions. Communities' members visit the plant and area of influence, and indicators of water level and air pollution are shown by experts. Although it is an unpaid activity and the mining companies only cover food and transportation expenses, Huancar community tried to send the same representatives each time as a strategy to be able to compare from one visit to the other and also try to develop increased knowledge of the situation.

This form of community participation in monitoring activities shows the same shortcomings as during the engagement process. Engagement is one-sided and designed without incorporating community perspectives or necessities of how and when such monitoring activities should occur. Further, the technical level is still high, preventing community members from forming a proper understanding of the purpose, result and outcome of such activities. Further, the local community Olaroz Chico has asked for the participation of the Direction of Water Resources in the monitoring process. The Direction of Water Resources started to participate in UGAMP since 2017 but only visits the area once a year, what is considered insufficient by community members who want more State control over the monitoring process of potential environmental impacts on the water resources in the area.

6.5. Environmental concerns

6.5.1. Community perception of risks and ambivalence

The environmental impact of lithium extraction is an issue that cut across the different interviews, showing diverse degrees of concern or worry. While there is a group of community members that is concerned with environmental issues, in which water availability and the possible shortcomings in the future are at the centre,⁴⁹ others minimise the issue as it is perceived as the price to pay to get the economic benefits that the companies are offering (i.e. employment opportunities).

Particularly in Pastos Chicos, some community members said they have noticed lower water levels in the area. However, they also mention this could be due to the drought or climate change impacts, which also is the explanation the company has given to some of the community members when they have asked about the issue. When asked about environmental impacts, no concern besides the water issue is brought up during the interviews and community members do not express an urgent concern. However, a worry for future generations and doubts about what will happen in 30-40 years appears in some

48. As a condition to its EIA, as approved by the provincial government, Sales de Jujuy have to conduct a quarterly participatory monitoring.

49. Regarding community members' concern about water availability in the future, Lithium Americas Corp. NI 43-101 Technical Report (January 2018) projected pumped 49,344,735 cubic meters of brine during the first five years of Minera Exar project, and probable it will pump 403,780,773 cubic meters of brine during a period of forty years of activity.

conversations. Even though the company has assured the community there are no risks associated with their activity not all community members believe they are telling the truth. Environmental concerns persist and many mention they would like more information about the environmental situation and the potential risks.

In Huancar, interviewees pointed out that, since the companies' arrival, there were dubious livestock deaths, less grass and reduced water availability: *"The water is already worse, there is every time less; sometimes it is even yellow or green"*⁵⁰ (Interviewee 32). Many community members believe lithium mining is affecting the environment. In addition, a worker of Sales de Jujuy plant saw spills: *"Last week there was a spill from a chemical truck, when it was arriving to the Sales plant, and we were forbidden to pass through there. If we passed through, it had to be in a van and with the car windows up. A technician explained that if that liquid touched the water, it would evaporate and contaminate the air. They said they were going to throw a powder on it and it would get out of there"*⁵¹ (Interviewee 36).

For other community members, the relevant issue about the company's arrival is the economic impact of their presence in the area. In particular, the employment opportunities, both direct and indirect, are highly valued in a context of lack of other job options. It also represents access to other benefits such as healthcare insurance – it is a benefit that traditional economic activities such as livestock and agriculture do not offer – and education – e.g. although public education depends on the State, in Huancar high school education started to be given after building the local high school with Minera Exar's economic assistance. Interviews have pointed out that having a high-school in the community has helped reverse emigration to bigger villages or cities and has made people come back to live in the community.

Similarly, in Pastos Chicos, some community members have a more positive position regarding mining companies than others, a position mainly centred on employment opportunities. Nevertheless, most of the community members are in favour of the mining activities and there has not been much a conflict or disagreements regarding the issue. The minor tensions have mainly originated from who gets employment and who does not, and some interviewees insinuated they believe the community authorities sometimes act in their own interest. Also, a changing social aspect brought up as a problem relates to the high alcohol consumption both among younger boys and the men working at the companies during their week off from work (Sales de Jujuy and Minera Exar have a rotating system of work, in which employees work during seven days in a row, and then they have seven days off in a row).

At the same time many point out they feel the companies are taking away more than they are giving back. Some point out that not everyone gets employed by the company and that there is still no secondary school in Pastos Chicos and that people still migrate. A person working in the community believes that little has changed for the better: *"These communities are completely forgotten. Now with the lithium some have work and stay in the community, but the same needs remain. Nothing is solved here, there are not even proper bathrooms, there are still latrines here"*⁵² (Interviewee 17). At present, the community authorities in Pastos Chicos state that 15 people are employed at Minera Exar, 13 at Sales de Jujuy and 4 at South American Salars. However, what type of contract and the terms of employment they work under are still unclear. Also, in comparison to previously, more women are now working in relation to the mining companies, but nevertheless, the majority are still at home dedicated to the children or traditional activities such as handicrafts.

50. *"El agua ya empeoró, cada vez hay menos y a veces sale amarilla o verde".*

51. *"La semana pasada hubo un derrame de un camión químico, cuando estaba llegando a la planta de Sales, y nos prohibieron pasar por ahí. Si pasábamos tenía que ser en camioneta y con los vidrios altos. Un técnico nos explicó que si ese líquido llegaba a tocar el agua, se iba a evaporar y contaminar el aire. Dijeron que iban a tirarle un polvo y sacarlo de ahí."*

52. *"Estos pueblos están sumergidos en el olvido. Ahora con esto del litio, algunos tienen trabajo y se quedan, pero sigue habiendo las mismas necesidades. Acá nada se soluciona, ni baños de primera hay, se sigue con letrinas."*

Even though many community members are in favour of the mining activities, they simultaneously express ambivalence towards the companies and their activities. The positive aspect of employment opportunities mixes with environmental concerns and questions whether the compensation the community gets is enough and what actually ought to correspond to them considering the great economic gains of the companies (Orocobre – member of the holding company Sales de Jujuy - declared a sales revenue of US\$ 32 million during the last quarter of 2018). One young community member reflects on these issues by saying that: “on the one hand it is bad because they take everything away from here and there are few benefits for the community, but on the other hand it is good because it gives us work”⁵³ (Interviewee 18). The ambivalence felt by many community members raises the question about what the community would have preferred if there existed other forms of employment opportunities at the time of the mining companies’ arrival.

This ambivalence can also be seen in some of the following quotes:

“[The mines] provide work but it is temporary, and I do not think it is as pure as they say. Lithium may be necessary, lead to a change, but I do not believe that the riches that are extracted remain in the province... it all goes abroad. At the mine El Aguilar, there were foreigners who took everything abroad. I do not think this is very different. If it stayed in the country it would be different. This is [what companies are doing] taking advantage of the people of the Puna. There should be battery factories here that could change the reality for these people”⁵⁴ (Interviewee 17).

“I approve it due to the needs of the community, because the company channels many needs, mainly the jobs; but we know that they use a lot of water⁵⁵ and they pollute. Those of us who work in mining companies see it, we see the amount of water they use and the pollution”⁵⁶ And “The community approves mining because of the jobs, before there were no jobs and people used to leave the community, families got separated because of that, the children left to study because we did not have a high school, and it used to be very difficult. With mining there are jobs and we can address many needs, for example [before mining companies arrives] people did not know what the health insurance was and now they know, doctors can examine them”⁵⁷ (Interviewee 28).

“I was raised by my parents spinning and weaving, and I still studied. To say that we need the mining companies is a lie, because the community is the same, it does not grow. I’m worried about the environment and the diseases. We will end up like Abra Pampa.”^{58 59} (Interviewee 32).

53. *“Por una parte todo mal porque se llevan todo de acá y queda poco beneficio para la comunidad, después es buena [la opinión sobre la minería en la zona] porque nos da trabajo.”*

54. *“Da trabajo pero es momentáneo, no creo que sea tan puro como dicen. Puede ser necesario el litio, llevar a un cambio, pero no creo que las riquezas que sacan queden en la provincia. . se lo llevan al exterior. En mina El Aguilar eran extranjeros que se llevaron todo al exterior, no creo que esto sea muy distinto. Si quedara en el país sería diferente. Esto es aprovecharse de la gente de la puna, que haya fábricas de baterías para cambiar la realidad de esta gente.”*

55. Lithium Americas Corp. NI 43 - 101 Technical Report (January 2018) projected pumped 49,344,735 cubic metres of water brine during the first five years of Minera Exar project, and probably it will pump 403,780,773 cubic metres of brine during a period of 40 years of activity.

56. *“Apruebo por las necesidades de la comunidad, porque por la empresa se canalizan muchas necesidades, principalmente el trabajo; pero sabemos que usan muchísima agua y que contaminan. Los que trabajamos en las mineras lo vemos, vemos la cantidad de agua que usan y la contaminación.”*

57. *“La comunidad aprueba la minería por el trabajo, porque antes no había trabajo y la gente se iba, las familias se separaban por eso, los hijos se iban a estudiar porque no teníamos secundario y era muy difícil. Con la minería hay trabajo y canalizamos muchas necesidades, por ejemplo la gente no sabía lo que era una obra social y ahora saben, pueden verlos los médicos.”*

58. Abra Pampa is a town located in Jujuy Province and it has 10,000 residents. The metal smelter company Metal Huasi operated there. It closed in the 1980s leaving behind 15,000 tonnes of waste. In 2007, the University of Jujuy pointed out that more than the 80 per cent of the child population contained lead values in amounts detrimental to health. In addition, the Ministry of Health of Jujuy admitted that at least 10 per cent of the adult population had “critical levels” of lead in their blood.

59. *“A mí me criaron mis padres hilando y tejiendo, e igual estudie. Decir que se necesita a las mineras es mentira, porque la comunidad está igual no crece. Me preocupa el ambiente y las enfermedades. Vamos a terminar igual que Abra Pampa. (.).”*

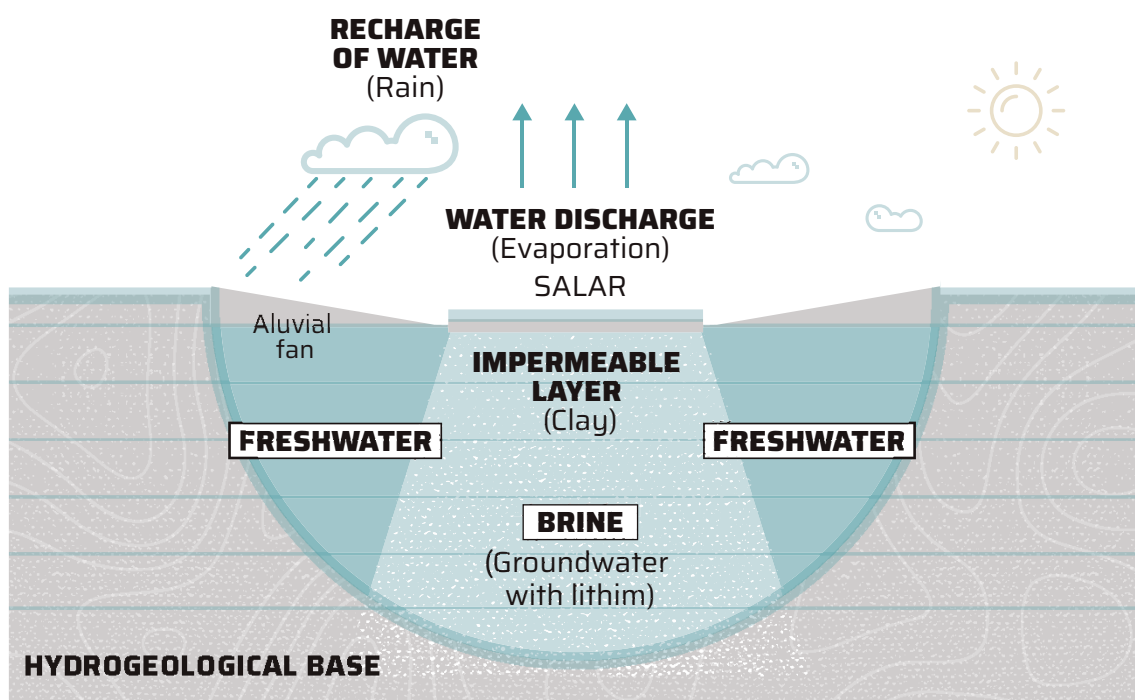
6.5.2. Environmental concerns

In recent years, salt flats have become the focus of world attention after it was discovered that lithium could be found in its brine waters. Salt flats are found in very arid regions with limited annual precipitation. However, water is still present in limited quantities as a mixture of brine and fresh water.

Experts have identified crucial information gaps that hinder the proper and substantial analysis of impacts of lithium extraction. This section will give an overview of the main discussions related to how watersheds where the salt flats are located should be understood and studied in order to avoid critical impacts on water sources.

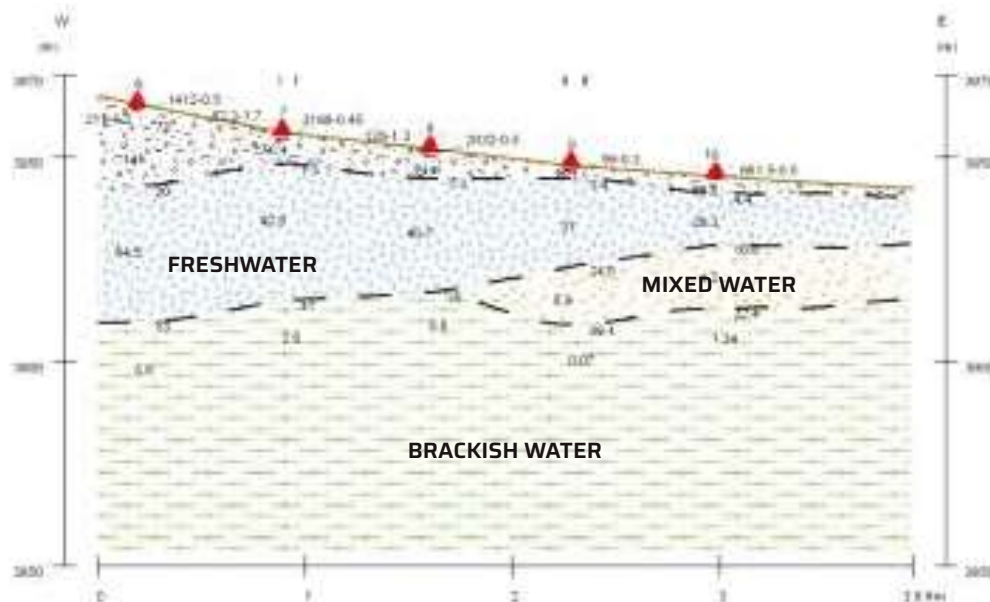
Aquifers found at a salt flat include a shallow upper aquifer with an intermediate unit that forms a confined lower aquifer (Acosta et al, 2008). That lower aquifer is held in by a lower ignimbrite unit, followed by a harder surface underneath that (Acosta et al, 2008). Both salt and freshwater aquifers exist under a salt lake, often separate because of differences in density (Holzbecher, 2005). Marazuela et al adds that, "the contact between two miscible fluids of different densities (salt and freshwater) is characterized by a mixing zone, which is also called a saline interface. This interface results from the dynamic equilibrium of moving fresh-and saltwater" (Marazuela et al, 2018).

FIGURE 5: SALT FLAT BASIN.



Source: Own elaboration based on Sticco, 2018.

FIGURE 6: ARCHIBARCA AQUIFER, OLAROS-CAUCHARÍ WATERSHED.



Source: Sticco, 2018.

Duffy asserts that because the “water table is near the surface of the playa, a continuous supply of dissolved salts is maintained and available for evaporation” (Duffy, C., 1988). This is what creates the accumulation of salts on the surface of the basin. Damaging the saline interface could cause a mixing of salt and freshwater aquifer and could lead to salinisation of freshwater sources in the area (Holzbecher, 2005).

Maria Victoria Dente et al describe the common characteristics of basins of la Puna region, northern Argentina. The salt flats and lagunas found in this region act as receptacles to the rivers that flow down from higher elevations. Most of these rivers are temporary and form during the rainy season (Dente et al). Direct rainfall and lateral inflow from these temporary rivers comprise the only water input to the salt flat system because of the aridity of the climate (Marazuela et al, 2018).

Because aquifers found at salt flats recharge by rainfall and the only natural discharge is through evaporation, salt flat basins are greatly affected by recharge reduction or discharge increase (Acosta et al, 2008). Acosta asserts that a “recharge reduction can be caused by an increase in freshwater extraction rates in upstream aquifers”, and a “discharge increase can be caused by higher rates of brine extraction in downstream aquifers near the salt flat nucleus” (Acosta et al, 2008). These changes in water quantities could have a profound effect on the salt flat ecosystem, affecting the flora and fauna, which also impacts on agriculture and livestock activities in surrounding areas. In addition, by breaking the hydrological balance, the fresh water of the aquifers could become salinised (Sticco, 2018; Holzbecher, 2005).

Regarding the connection between different water basins through the groundwater aquifers, research has found different information. While Marazuela et al did assert that rainfall is the only input to the salt flat system, the author mentioned that water basins could be linked through groundwater aquifers (Marazuela et al, 2018). Sieland understands that all sub-basins are interconnected with each other: conflicting with Wolf, who proposed independent hydrologic systems (2002).

C. Ortiz et al conducted a study on the sources of water for the Salar de Atacama basin to see if discharge increases caused by brine extraction had an effect on the ecologically rich lagoons located within the basin system. While he did not find a direct effect, Ortiz did note that there are many aquifers around a salt flat that could be providing fresh water (Ortiz, C. et al, 2014). In a similar study of a salt basin located in the Trans-Pecos region of West Texas, where water discharge was primarily through pumping, Angle found that, “because of the low recharge rates, water pumped from these aquifers will cause substantial water level declines” (Angle, 2003). Depleting one aquifer could affect the aquifers around it and could potentially affect the freshwater flow to the salt flat. Because there is almost always a deficit of water entering the system, there is no telling the effect that increased discharge could have on the entire ecosystem in the long term.

These findings, applied to different basins in diverse regions highlight the need to thoroughly study the hydrological systems in these arid regions and to understand the possible connection between water basins, their sub-units and the aquifers supplying them.

Hence, a number of concerns and questions have risen in the particular case studied.

First, a 2018 study conducted by Sticco and Damiani, from UCA – Catholic University of Argentina, in which they have updated the initial study by Mecconi and Sticco (2012) on the hydrological balance of the studied watershed of Olaroz-Cuachari brought alarming findings. Using the information provided by the companies themselves, the study – conducted using modelling systems – has calculated the relationship between water use (discharge) and water supply (recharge). It found a negative trend and impact in the studied case, suggesting the need to change existing exploiting techniques to ensure that the water that leaves the system is the same as the water that comes in.

Second, additional information points to the situation of wetlands, which are key units in the Punaean ecosystem including rivers, lakes, lagoons, salts and vegas or peatbog. The value of these ecosystem centres is that they contribute to primary productivity, maintain vertebrate populations and biodiversity, and regulate hydrological resources (Izquierdo et al, 2017).

Moreover, the need and urgency to design and promote strategies for the conservation of the Punaean wetlands, considering the potential threats arising from climate change and land use, particularly mining and tourism, is highlighted as a priority.

For experts in studying the wetlands, it is central to have the right baseline study to understand how ecosystems have been functioning and how they could be potentially impacted by mining activity. This baseline needs to include particularities of the ecosystems and techniques used and not to merely repeat the type of information used for other mining projects and areas (Interview Izquierdo).

This is a point that many experts share. Patricia Marconi and Amelia Clark, experts in the study of Andean flamingos, an endemic species in the area that inhabits the salt-flats at particular times of the year, have also founds serious defects in the environmental information and analysis used to understand environmental impacts. The reports that the companies provide lack serious hydrological understanding as well as an ecosystem approach (Marconi et al, 2018).

Last but not least, for the National Ombudsman’s Office, which has been undertaking research on the institutional capacity of provincial agencies, seeking to understand what kind of information is needed to analyse impacts in the hydrological system, and to what point this information is available for decision-makers, the message is clear: neither provincial nor national authorities have conducted hydrological studies, or carried out superficial or underground water monitoring. In addition, they have not identified areas in which salt and fresh water co-exist, nor have they calculated the hydrological balance of the watersheds in the area. The only information available is that provided by companies and there is no baseline that can be used as a reference to identify eventual modifications in the environment (De Francesco, 2018).

All these elements point to an alarming situation. Government agencies are not in possession of the information they need to decide and analyse environmental impacts. Experts suggest some additional and specific studies need to be conducted, but this is not happening and instead, projects are gaining approval with little critical review. This means that the concerns of communities about the water resources are not being adequately addressed by government authorities.

7. Main problems with the FPIC process

When analysing the community-company engagement, relationship and process from a rights-based approach, considering the requirements of the free, prior and informed consent (FPIC) principle, the case studied has identified three main problems.

First, it is clear that there is significant power asymmetry characterising the entire relationship between companies and communities. The socio-economic situation of the communities – which have limited basic services and very few employment opportunities – stands in sharp contrast to the wealthy multi- and transnational companies. This has put communities in an unequal position vis-à-vis companies and, to a large extent, has shaped communities' capacities, available options and expectations when engaging in exchanges and negotiations. In these circumstances, it is particularly important that the State plays its role and takes its responsibility for organising and conducting the FPIC process, ensuring that all requirements are followed and respected.

In the case studied here it is clear that the provincial authorities of Jujuy have neglected this responsibility. Companies have been allowed to approach and interact with communities without involvement from any State actor or other impartial third party. Thus, it was possible for companies, with considerable economic resources and elaborated corporate strategies, to approach communities without supervision or participation from the State when interacting and negotiating terms and conditions to achieve communities' consent and social legitimacy.

Second, in the absence of an impartial State agency, companies have been able to take advantage of their superior position in relation to communities. This is evident particularly when examining the crucial aspect of *information*. Due to provincial and national authorities' lack of critical information, companies have a dominant position and exert full control over what information is available to communities and what is considered in the EIA procedure. Regarding the provision and explanation of information, this research has revealed that companies have not been fully transparent – taking into account the lack of information about possible environmental impacts and the remaining uncertainties in the technical discussion regarding environmental impacts. In that way, they have denied the communities access to a broader debate. This is a clear violation of the informed requirement and, as a consequence, this has prevented communities from making fully informed decisions.

Third, in relation to the information aspect, the general absence of the State throughout the process is evident, both as the party responsible for conducting the FPIC process, and as an information provider and guarantor of the impartiality of the information provided by companies. Examining the information aspect has shown not only how the relatively stronger position of companies affects communities' right to information, but also how there seems to be an asymmetry between provincial authorities and companies when it comes to information and the capacity to evaluate it. With this in mind, the National Ombudsman has expressed concerns about the lack of baseline information among provincial and federal authorities, which casts doubts over whether government authorities have the sufficient and necessary capacity to correctly evaluate a company's EIA report and to monitor its activities (Interview, De Francesco, 2017).

This situation is alarming for various reasons: one being that companies themselves have control over and determine the area of direct influence, and thus, exert power over the communities that are

right-holders in relation to each project. From a different point of view, the area of influence could be determined by considering the studies that understand the unity of hydrological system. This could potentially involve the communities living in the whole watershed, which would lead to a different set of negotiations, focusing more on the collective rather than the single community's need.

Lastly, the uncritical attitude from the provincial authorities regarding mining companies' dominant position as information providers fails to acknowledge that company agendas might not coincide with the State's responsibility to guarantee that FPIC requirements are followed and respected.

8. Closing remarks

This research had the aim of investigating the social and environmental dimensions involved in lithium extraction in Argentina by focusing on a case study in Jujuy Province, one of the three provinces with substantive lithium reserves in the country.

Through analysing the different engagement relationships in two different communities in the Olaroz Caucharí salt flat, this research has been able to reach some conclusions on the interactions.

First, the research identified a number of problems related to the space and type of interaction devised to discuss the environmental impacts of the mining project and other possible effects. None of the possible spaces fulfilled the process requirements comprised in enforceable international and national legislation, particularly on the FPIC rights.

Although UGAMP generates multi-stakeholder dialogues, it does not follow a process that is dovetailed to the culture of the communities. Thus it does not meet the criteria for participation and consultation rights.

The interactions between companies and the communities to discuss the environmental impacts and other possible effects of the arrival of the projects in their territories – carried out with the community assemblies where all members are invited to join – is done without the intervention of State representatives or other external actors (mediators, impartial parties). This would help balance the asymmetrical power equation. This is particularly worrying as, according to the 169 ILO Convention, the State cannot delegate the responsibility of consulting communities on projects or activities that can affect them.

Second, the “informed” element in the free, prior and informed consent is also not fulfilled in the process. Information was only provided by the main player with an interest in the process (i.e. companies that seek to get their project approved) and thus it is not impartial. Additionally, it is also not given in the right format for community members to be able to understand and assess the information. In spite of companies' good intentions, it is striking how all interviewees highlighted the lack of understanding of complex and lengthy information. This reinforces the asymmetry together with the acknowledgment of community members that they do not have external contacts with other organisations and institutions that could help them to access alternative information and contest given information.

In summary, the information was not accessible, clear or objective, and thus the communities were not properly informed to decide on whether to give or withdraw their consent to the projects. In other words, these circumstances have not fulfilled the UNDRIP requirements or followed the OECD guidelines regarding information and consultation.

Third, the social vulnerability of communities that lack access to basic services and rights – showing the lack of presence of the provincial State – together with the lack of employment alternatives and opportunities in these remote areas, has contributed to a shared understanding of some members that there is a dichotomy between expressing their views and concerns on environmental impacts

and receiving the opportunities for job creation. This vulnerable situation could represent a lack of freedom – which is a key element of FPIC – in giving or withdrawing consent to the project.

This has led to different positions within the same community, in which some groups have minimised their concerns and questions for fear of losing the opportunities created, while others are openly expressing their concerns.

Fourth, the environmental concerns of the communities are very much in line with the experts' opinions on the matter. Different information gaps were identified by technicians, including lack of baseline information that could provide solid grounds for understanding ecosystem degradation and the impacts of lithium extraction in the area. Moreover, the findings of a study conducted by UCA (Catholic University of Argentina) experts is particularly alarming. The study revealed that more water is being taken from the watershed than is coming in naturally, hence signaling the possibility of a severe water stress situation if measures are not taken immediately. These involve modifying the available techniques to ensure salt water, and thus, the impact on the fresh water, is not severely affected. These issues will demand further research and broad discussion at the local level.

Fifth, local agencies, particularly the mining secretary – although interested in improving transparency issues – are not ensuring that the social and environmental standards are met. Local agencies should make sure to collaborate and interact with specialised agencies (e.g. environmental ministry and indigenous secretary), which could provide rich inputs to improve institutions and decision-making processes in future.

If Argentina wants to substantially engage in the global debate around lithium – particularly in a context when its two main allies-competitors in the region (Chile/Bolivia) are taking time to structure their policies with a middle- and long-term vision – it is crucial to improve long-term and multi-stakeholder policy and planning. This includes revising existing frameworks that hinder compliance with national and international regulations, reinforcing existing legal frameworks and standards and ensuring capacities and resources are in place to strengthen the role of the State.

9. Recommendations

Considering the main findings, the study has identified a series of recommendations for different stakeholders, including the State (in its different agencies), the corporate sector and the communities:

To the State:

Regarding the environmental impact assessment:

1. [Revise and adapt the norms regulating the environmental impact assessment process in the Jujuy Province \(Decree 5772/2010 and its modification 7592/2011\)](#) as they breach national and international standards regarding citizen participation and FPIC rights.
2. [Improve requirements for baseline studies, providing a guide for professionals performing the environmental impact study on what dimensions need to be included and considered in the case of lithium mining.](#) Ensure these guidelines are developed in a multi-stakeholder and participatory manner.
3. [Ensure that watershed studies are conducted on the whole water-basin in order to understand and assess the concrete impact of each project in the complete water system, including cumulative impacts.](#) Hydrological studies and superficial/underground water monitoring should be carried out to calculate hydrological balance and identify possible salinisation of freshwater.

Regarding the implementation of FPIC rights:

4. Inform communities about their rights, including what is required under FPIC and how these should be implemented.
5. Provide pro bono lawyers and other professionals within government agencies that can support communities in understanding and exercising their rights.
6. Ensure state participation with a directing role in the conduction of the FPIC process, involving State presence in all steps of the process, including meetings between companies and communities. Also, consider integrating impartial parties (Ombudsman offices, non- governmental organisations, universities etc.) to the process so they can act as intermediaries in ensuring that power asymmetries can be counter-balanced.
7. Devise capacity building activities to ensure that all public employees in the appropriate State agencies understand and know how to implement an FPIC process.
8. Provide redress mechanisms for the lack of FPIC implementation, ensuring the participation of the affected communities in them.

To corporate actors:

9. Demand that the State should fulfill existing legal and standards at a higher compliance to ensure benefits for all, avoiding additional costs of legal proceedings to reverse breaches of standards.
10. Disclose all relevant information in a timely, accurate, clear manner and ensuring respect of local context, customs and language, including:
 - corporate structure, entire supply chain, main clients and suppliers
 - income, investment and expected returns of the mining extraction
 - policies, processes and activities conducted to identify and address actual or potential adverse human rights and environmental impacts, including the findings and outcomes of those activities
 - mapping that identifies, analyses and ranks risks to communities and the environment in relation to the company's own activities and their business relationships. This mapping should include all significant adverse impacts or risks identified, prioritised and assessed, as well as the prioritisation criteria.
11. Uphold and respect international labour, environmental and human rights standards, including the Argentine legislation, OECD Guidelines for Multinational Enterprises, UN Guiding Principles for Business and Human Rights, the Indigenous and Tribal Peoples Convention 169 of the International Labour Organization and the UN Declaration on the Rights of Indigenous people (UNDRIP).
12. Inform other companies involved in the supply chain about the social and environmental impacts of its activities, and demand that suppliers and contractors should all comply with environmental social and governance (ESG) standards.

10. Annexes

10.1. Annex I: Lithium mining projects in Argentina

TABLE 1: MAIN PROJECTS IN ADVANCED STAGES OF LITHIUM DEPOSITS IN SALT FLATS

Project	Name of salt flat	Company	Metals	Province	Stage
Salar de Olaroz	Salar de Olaroz	Orocobre Limited, Toyota Tsusho, Jemse	Lithium Potassium	Jujuy	Operation
Mina Fénix	Salar del Hombre Muerto	FMC Lithium Corporation	Lithium	Catamarca	Operation
Salar del Rincón	Salar del Rincón	Rincon Limited	Lithium Potassium	Salta	Operation partial/ Pilot plant
Caucharí-Olaroz	Salar de Caucharí	LithiumAmericas + JEMSE + GFL Lithium Co. LTD + JEMSE + GFL Lithium Co. LTD LithiumAmericas + JEMSE + GFL Lithium Co. LTD	Lithium Potassium	Jujuy	Building
Pozuelos	Salar Pozuelos	POSCO + Lithea	Lithium	Salta	Building Pilot plant
Sal de Vida	Salar del Hombre Muerto	Galaxy Resources Limited	Lithium Potassium	Catamarca	Feasibility
Sal de Los Ángeles	Salar de Diablillos	Lithium-X Energy Corp. (80%) - Aberdeen International Inc. (20%)	Lithium Potassium	Salta	PEA (Preliminary economic analysis)
Cauchari	Salar de Caucharí	Advantage Lithium (75%) + Orocobre Limited (25%)	Lithium Potassium	Jujuy	Advanced exploration
Salar de Centenario Ratones	Salar de Ratones	Eramet	Lithium	Salta	Advanced exploration
Mariana I, II, III	Salar de Ratones	International Lithium JV con Jiangxi Ganfeng Lithium Co. Ltd	Lithium	Salta	Advanced exploration
Centenario	Salar Centenario	Lithium Power International	Lithium Potassium	Salta	Advanced exploration

Project	Name of salt flat	Company	Metals	Province	Stage
Gallego Project	Salar del Hombre Muerto	EverlightResources	Lithium	Salta	Advanced exploration
Antofalla	Salar de Antofalla	Advantage + Albemarle + Bolland International	Lithium Potassium	Catamarca	Advanced exploration

TABLE 2: MAIN PROJECTS IN INITIAL STAGES OF LITHIUM DEPOSITS IN SALT FLATS

Project	Name of salt flat	Company	Metals	Province	Stage
Guayatayoc	Laguna Guayatayoc	Advantage Lithium	Lithium Potassium Boron	Jujuy	Exploration
Guadalquivir	Salar Rio Grande	Cascadero Copper Corp.	Lithium	Salta	Exploration
Stella Maris S	Salinas Grandes	Advantage Lithium	Lithium	Salta	Exploration
Proyecto Arizaro	Salar de Arizaro	PepinNini Minerals Ltd.	Lithium	Salta	Exploration
Salar de Arizaro	Salar de Arizaro	Grosso Group	Lithium	Salta	Exploration
Salar de Arizaro 2	Salar de Arizaro	Lithium X	Lithium	Salta	Exploration
Mina Teresa	Salinas Grandes	Argos y Minnerals Ltd + Ekeko	Lithium Potassium	Jujuy	Initial Exploration
Pocitos	Salar de Pocitos	Lithium AmericasCorp + SQM	Lithium Potassium	Salta	Initial Exploration
Salar de Incahuasi	Salar de Incahuasi	Advantage Lithium	Lithium Potassium	Salta	Initial Exploration
Arizaro	Salar de Arizaro	Lithium AmericasCorp + SQM	Lithium Potassium	Salta	Initial Exploration
San José	Salinas Grandes	DAJIN RESOURCES CORP./ Delta Mutual Inc	Lithium Potassium Boron	Jujuy	Prospecting
Navidad	Salinas Grandes	DAJIN RESOURCES CORP./ Delta Mutual Inc	Lithium Potassium Boron	Jujuy	Prospecting

Rio Grande	Salar Rio Grande	Lithium Exploration Group Inc	Lithium Potassium	Salta	Prospecting
Salar de Pular	Salar de Pular	Pepin Nini Minerals Ltd	Lithium Potassium	Salta	Prospecting
Pastos Grandes	Salar de Pastos Grandes	Millennial Lithium	Lithium Potassium	Salta	Prospecting
Cauchari Sur	Salar de Cauchari	Alba Minerals Ltd.	Lithium	Salta	Prospecting
Cruz	Salar de Pocitos	Minera Pastos Grandes S.A + Southern Lithium	Lithium	Salta	Prospecting
Salar de Arizaro Brine	Salar de Arizaro	Ultra Lithium Inc. + Jinshan Minera Argentina S.A.	Lithium	Salta	Prospecting
Tolillar	Salar Tolillar	Trendix Mining SRL	Lithium Potassium	Salta	Prospecting
Salar de Pocitos	Salar de Pocitos	Pure Energy Minerals Ltd.	Lithium	Salta	Prospecting
Tres Quebradas (3Q)	Laguna Tres Quebradas	Neo Lithium Ltd. + POCML 3 inc.	Lithium Potassium	Catamarca	Prospecting
La Mula	Laguna Mulas Muertas	Trans Pacific Minerals Corp	Lithium	La Rioja	Prospecting
Carachi - Pampa	Salar Carachi Pamapa	NRG Metals Inc.	Lithium Potassium	Catamarca	Prospecting
Rio Grande	Salar de Rio Grande	LSC Lithium Corporation	Lithium Potassium	Salta	Prospecting
Pastos Grandes	Salar de Pastos Grandes	LSC Lithium Corporation	Lithium Potassium	Salta	Prospecting
Salinas Grandes	Salar de Salinas Grandes	LSC Lithium Corporation + Dajin Resources Corp.	Lithium Potassium	Salta-Jujuy	Prospecting
Jama	Salar de Jama	LSC Lithium Corporation	Lithium Potassium	Jujuy	Prospecting

TABLE 3: MAIN PROJECTS IN INITIAL STAGES OF LITHIUM DEPOSITS IN SALT FLATS

Project	Name of salt flat	Company	Metals	Province	Stage
Mina Las Tapias	Distrito Pegmatítico Altautina	Dark Horse Resources	Lithium	Córdoba	Prospecting
Mina Las Cuevas	Distrito Pegmatítico Conlara	Dark Horse Resources	Lithium	San Luis	Prospecting
El Quemado	Distrito Pegmatítico El Quemado	Centenera Mining Corporation	Lithium	Salta	Prospecting
Vilisman - Ancasti	Distrito Pegmatítico Ancasti	Centenera Mining Corporation	Lithium	Catamarca	Prospecting
La Estanzuela - Conlara	Distritos Pegmatíticos La Estanzuela y Conlara	Latin Resources Ltd + Lepidico Ltd.	Lithium	San Luis	Prospecting

Note. Source: Dirección de Economía Minera (2017). *Situación actual y perspectivas. Informe especial. Mercado de Litio.* Retrieved from http://cima.minem.gob.ar/assets/datasets/marzo_2017_-_informe_especial_litio_.pdf (updates were included by the authors).

10.2. Annex II: List of interviewees

Location	Number of interviewees
Olaroz Chico	3
Manantial de Pastos Chicos	19
Huancar	19
San Salvador de Jujuy	1
Susques	3

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This report has been supported by the GoodElectronics Network, SOMO and the European Union. The contents of this report are the sole responsibility of FARN and can under no circumstances be regarded as reflecting the position of the European Union.

